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What makes an expert university teacher? A systematic review and synthesis of frameworks for teacher expertise in higher education

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ABSTRACT

What makes an expert university teacher? Answers to this question can be found in a multitude of publications, but so far there has been little insight into what these answers have in common. More common ground regarding what teacher expertise entails is necessary for research and support of the professional development of university teachers. To this end, this study aims to find consensus regarding what constitutes teacher expertise in higher education by identifying teacher tasks. We conducted a systematic review in which 46 frameworks for teacher expertise from research and practice contexts were identified, analysed, and synthesised. Six teacher tasks were distinguished: 'teaching and supporting learning', 'educational design', 'assessment and feedback', 'educational leadership and management', 'educational scholarship and research', and 'professional development'. Additionally, the following three dimensions for task-related development were found: 'better task performance', 'ability to carry out a greater variety of tasks', and 'a larger sphere of influence'. We present and visualise these tasks and task-related dimensions for development as the UNiversity Teacher Expertise (UNITE) synthesis. The synthesis both reflects and contributes to consensus about teacher expertise in higher education, which further research can build on. In academic practice, this synthesis could support teachers' reflection on their professional development and inform faculty development programmes and career policies. Further research is required to validate the results of this study, in particular the dimensions for development. Other suggested areas for future research are to explore how development in different teacher tasks is interrelated, as well as developing and investigating tools and interventions based on the perspective and findings of this study.

1. Introduction

Over the past decades, quality of education and specifically teaching quality have gained importance in higher education (Gaebel & Zhang, 2018; Skelton, 2005). Increased interest seems to be fuelled by factors such as accountability pressure and rising student numbers (e.g. Gappa et al., 2007) as well as by international and institutional ambitions to improve higher education (e.g. Stensaker

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et al., 2017). These developments have prompted growing interest in the professional development of university teachers. Thus far, many studies have focused on professional development initiatives and programmes (for overviews see [Amundsen & Wilson, 2012](#); [Steinert et al., 2016](#)). However, these studies rarely address what exactly it is that university teachers should develop. Furthermore, studies that do aim to define what makes a good university teacher (e.g. [Hesketh et al., 2001](#); [Tigelaar et al., 2004](#)) often do not refer to or build on each other, resulting in a patchwork of frameworks. More common ground regarding what makes a good teacher is required both for investigating and supporting university teachers' professional development. To that end, this study aims to synthesize the literature of quality teaching in higher education by conducting a systematic review of frameworks for university teacher expertise.

1.1. The role of teaching in higher education

Higher education across the globe is organized in many different ways and employment structures for university teachers may vary between institutes and countries ([Altbach, 2002](#)). However, what most higher education institutes have in common is that, contrary to primary and secondary education, university teachers are academics who generally combine research, teaching, and sometimes even more categories of professional tasks (e.g. clinical work or administration). In 1990, Boyer described the different components of academic work as: the scholarship of discovery, the scholarship of integration, the scholarship of application and the scholarship of teaching and learning. Boyer's work is still influential in ongoing discussions about what academic work is or should be and how the different components of academic work relate ([Boyer, 1990](#); [Boyer et al., 2015](#)). This is for instance reflected in the research-teaching nexus literature ([Tight, 2016](#)), as well as in international discussions on balance between different components of academic work ([European University Association, 2018](#); [Bennett et al., 2018](#)). We recognize the importance of these debates, and focus on the component of teaching and learning in this paper. Seeing that teaching in higher education is currently subject to re-evaluation, more insight is needed in how university teachers develop their expertise in this important component of academic work.

For many decades, little attention was paid to the quality of teaching in higher education, because teaching was perceived to be strongly linked to the teacher's research competence. Institutions even used research publications as a factor in evaluating teaching effectiveness ([Seldin, 1984](#)). However, since the 1980s, many studies have demonstrated that there is no or only a very weak positive link between research and teaching quality (for overviews, see [Elken & Wollscheid, 2016](#); [Jenkins et al., 2007](#), p. 100; [Qamar uz Zaman, 2004](#)). Today, research and teaching are considered to be overlapping but separate areas of expertise which may compete for faculty time ([Berbegal-Mirabent et al., 2018](#)).

Due to the importance of research performance for career progression in higher education institutes, most faculty have prioritised research over teaching ([Keesen et al., 1996](#); [Parker, 2008](#); [Stensaker et al., 2017](#)). As described earlier, recent developments have sparked interest in the quality of teaching in higher education. As a result, higher education institutions are increasingly attempting to stimulate professional development of university teachers by implementing systems of teaching qualifications, teaching awards, and career tracks based on teaching achievements, as well as by founding centres for teaching and learning ([Hénard & Rosevaere, 2012](#)). Parallel to such initiatives, there is an increasing scholarly interest in the quality of teaching in higher education, for instance in the literature on the Scholarship of Teaching and Learning ([Kern et al., 2015](#)). In light of these developments, it is highly relevant to further explore what university teacher expertise in higher education entails.

2. Theoretical framework

2.1. Teacher expertise, knowledge and competencies

In research on teaching a plethora of characteristics of effective teaching are distinguished (e.g. [Hattie, 2009](#); [Marzano, 2005](#)). In this literature, it is emphasized that teachers are among the most powerful influences in learning ([Hattie, 2009](#), p. 238). What teachers do, matters. This aligns with literature about expertise, which is used as the conceptual perspective for this study. Based on extensive research in several domains, [Ericsson et al. \(2018\)](#) distinguish experts by their superior reproducible performance on relevant tasks in a domain. In past decades Ericsson and several other researchers have explored cognitive mechanisms that account for the difference in performance between novices and experts as well as the mechanisms which are relevant for the development of expertise ([Boshuizen et al., 2020](#); [Ericsson, 2009](#); [Gruber & Harteis, 2018](#); [Ward et al., 2020](#)). This literature is of great importance for understanding expertise, including teacher expertise. In order to fully exploit insights from this research, we must also understand what it is that university teachers should develop in. Consequently, we focus on deepening our understanding of what constitutes expertise in the domain of higher education teaching.

Following the definition of expertise by [Ericsson et al. \(2018\)](#), teacher expertise is determined by how teachers carry out the tasks in their domain. Therefore, an overview of relevant tasks of university teachers is necessary to get more insight into what constitutes teacher expertise in higher education. Based on our theoretical perspective, we refer to these tasks as 'teacher tasks' to indicate the personal nature of expertise. In general, tasks are described as outcomes people are trying to achieve through (sequences of) activities and/or cognitive and affective processes ([Crandall et al., 2006](#); [Kirwan & Ainsworth, 1992](#); [Stammers & Shepard, 2002](#)). They are defined with different levels of specificity, ranging from narrow to broad tasks, and there appears to be little consensus regarding the preferred granularity for defining tasks ([Stammers, & Astley, 1991](#); [Stammers & Shepard, 2002](#)).

Focusing on teacher tasks has the advantage that tasks can be defined, observed, and assessed, and are connected to what happens in practice. This strong connection to teaching practice is important given the recent discussions on improving support and recognition for teaching in higher education. The merits of a task-based perspective are demonstrated in at least two domains. In primary and secondary education teaching, core practices are broadly used for educating student teachers ([Leijen et al., 2017](#); [Grossman, 2018](#)). In

medical education, Entrustable Professional Activities (EPAs) are used as a task-based approach for education and assessment of medical professionals (Ten Cate et al., 2015) as well as medical educators (Gruppen et al., 2016).

Besides teacher expertise, there are at least two other perspectives for describing what makes a good teacher. The first is teacher knowledge, which has been conceptualised by Shulman (1986). He identifies several components of teacher knowledge: knowledge about the subject area (content knowledge), knowledge about general teaching and learning strategies (pedagogical knowledge), and knowledge about teaching and learning strategies specific to their subject area (pedagogical content knowledge). In recent sociological literature, the importance of teacher knowledge, specifically disciplinary or content knowledge, has also been argued extensively, both for university teachers and for higher education in general (Shay, 2013; Young & Muller, 2010). Although teacher knowledge - in particular, pedagogical content knowledge - is still a valuable concept, several scholars from this stream of research now argue for using the perspective of teacher tasks, instead of teacher knowledge, to educate and assess (student) teachers, because tasks are more closely connected to teaching practice (Grossman, 2018; Grossman et al., 2009).

Teacher competency is a second important perspective that is used to provide insight into what makes a good teacher, for example 'didactic competency' and 'interpersonal competency'. Competency encompasses both the cognitive abilities that make it possible for teachers to act in professional situations and the capacity and willingness to use their abilities in practice. Teacher competency partly overlaps with the previously described perspective, because teacher knowledge is often considered to be part of competency, combined with other components such as skills, attitudes and values (Weinert, 2001; Toom, 2017). However, there are many different and competing definitions of competency, which is also one of the major criticisms. Additionally, assessment of competencies has proven difficult (Blömeke et al., 2015). Again, the concept of tasks is proposed as a preferable alternative (Forzani, 2014; McDonald et al., 2013).

In this paper we focus on teacher expertise, yet we acknowledge the importance of teacher knowledge and teacher competencies as additional perspectives that are interrelated to teacher expertise. Teacher knowledge and competencies, as well as other related conceptual perspectives, may provide crucial insight into what is needed to carry out teacher tasks. For example, if university teachers lack disciplinary knowledge, they will not be able to perform well in their teaching tasks. However, we choose to use teacher expertise as a conceptual perspective for this paper and as a result focus on teacher tasks, because it is focused on what teachers do in practice rather than focused on what they know, value or are. Teacher tasks are easier to recognize in practice, and thus are highly relevant for teaching practice (McDonald et al., 2013).

2.2. Teacher tasks in higher education

Educational theory provides some first suggestions for possible tasks of university teachers. In the higher education literature, the influential 'principle of constructive alignment' describes how teaching and learning activities, as well as assessment tasks, should be aligned with intended learning outcomes (Biggs & Tang, 2011; Kandlbinder, 2013). 'Powerful learning environments' is another fundamental concept that describes similar key elements of education: aspects of competence in a domain, effective learning processes, design of learning environments, and assessments for monitoring and improving learning and teaching (De Corte et al., 2003; De Corte et al., 2004). Building on this body of literature, we distinguish three possible tasks for university teachers: 'educational design of learning goals, learning activities, and assignments', 'guiding teaching and learning activities', and 'designing and performing student assessment'. 'Guiding teaching and learning activities' concerns how university teachers realize student learning through student-teacher interactions, for example in lectures or small group teaching. 'Educational design of learning goals, learning activities and assignments' concerns how university teachers structure and plan educational content and processes in to realize student learning. 'Designing and performing student assessments' concerns how university teachers design and use assessments such as tests and portfolios to evaluate and determine student progress.

Additionally, we identify a fourth possible task based on both general and teaching-focused expertise literature. Both research areas focus on strategies for developing expertise using the respective concepts 'deliberate practice' (Ericsson et al., 2018; Fadde & Klein, 2010) and 'reflective practice' (Bronkhorst, 2013; Korthagen et al., 2001). The assumption behind these concepts is that continued expertise development should be an integral part of being a teacher or any other professional. We therefore also expect 'expertise development' as a potential task for university teachers. This task is different from the previously distinguished tasks because expertise development is important for all professionals, which makes this task less specific for higher education teaching as a domain. Moreover, unlike the other tasks, 'expertise development' is always carried out in relation to and in order to improve oneself in the other teacher tasks.

2.3. The present study

This systematic review aims to identify consensus about teacher expertise in higher education by synthesising frameworks for university teacher expertise. By identifying consensus about teacher tasks, this study provides a foundation both for future research, including research that focuses on the relationship between teacher tasks and student outcomes, and for practical support of university teachers. To the best of our knowledge, there is one other systematic review that has synthesised frameworks for university teacher expertise (Chuenjitwongsa et al., 2018). The present study extends this review in two ways. First, we do not exclusively focus on medical education and thereby give broader insight into university teacher expertise. Second, Chuenjitwongsa et al. (2018) use roles and competencies to describe university teacher expertise, but do not explain why they have chosen this concept nor do they provide a definition of it. The present study offers a more elaborate conceptual perspective in terms of teacher tasks as well as an argumentation for choosing this perspective.

3. Method

3.1. Identification of frameworks

This review includes frameworks for university teacher expertise from both research and practice contexts. In a research context, frameworks are presented in peer-reviewed articles that aim to conceptualise university teacher expertise (e.g. McAlpine & Harris, 2002; Molenaar et al., 2009). To identify these frameworks, we performed a search in June 2018 in five research-focused electronic databases: Scopus, Web of Science, ERIC, PsycINFO, and Pubmed. Based on discussions in the research team and after consultation with a university librarian, we defined the following search terms for the literature search: (framework OR model) AND (teach* OR educat*) AND (competenc* OR expert* OR excellen*) AND (higher education OR university OR medical education). To reduce the number of irrelevant results, the first two sets of search terms were required in the title of the search results. 'Medical education' was specifically included as a search term, because we found many relevant frameworks from medical education during our preliminary search, contrary to other specific higher education contexts we explored (e.g. teacher education and STEM education). We therefore assumed discussions about university teacher expertise were more prominent in this context and decided to explicitly include medical education as a search term so we would not miss any relevant contributions. This is in line with literature from (Kuper et al., 2010), which describes medical education research as a distinct field of study within higher education.

In practice contexts, frameworks are constructed by higher education institutes and organisations, for example in the context of professional development, teaching qualifications, and career progression (e.g. Graham, 2018; World Health Organization, 2016). These frameworks are valuable for determining teacher tasks, because they are highly influential within the higher education field. Additionally, many of these frameworks are (partially) based on literature and/or empirical data. Information about how practice-oriented frameworks were constructed may vary in level of detail or may be missing entirely. Practice-oriented frameworks are not necessarily published in academic journals, and therefore, we performed two additional searches in Google (Hautz et al., 2015), one for higher education and one for medical education, both using search terms comparable to the previously mentioned search terms. For each Google search, we included the first 100 hits in Google, as the relevance of the results decreased sharply thereafter. A total of 2181 records were thus identified in our initial search.

For all frameworks that were subjected to full-text reviews, we used forwards and backwards reference searching to identify additional frameworks that did not come up in our search. For the same purpose, we also consulted colleagues considered experts in the area of teaching in higher education about possible relevant frameworks.

3.2. Inclusion and exclusion process

After removing duplicates, 1278 unique records remained. These records were screened based on the initial inclusion criteria: records had to be in English, published between 1999 and 2018, include a framework for teaching expertise, and focus on the higher education sector. Based on these criteria, ED and MK independently judged titles and abstracts of a random sample of 70 records: 50 from the database searches and 10 from both Google searches. There was a 97% agreement rate and after discussion full agreement was reached. Subsequently, ED screened the remainder of the records, which led to a set of 59 records that were subjected to full-text review. ED conducted the full-text review with regular discussions about specific records within the research team. During this process, additional criteria were added concerning the characteristics and comprehensiveness of the frameworks. Table 1 includes the final inclusion and exclusion criteria. After the full-text review, 16 records were assessed as eligible. We performed forward and

Table 1
Inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Time frame	Records published between January 1999 and June 2018	Records published before January 1999 and after June 2018
Language	Records published in English	Records published in other languages than English
Sector	Records focusing on higher education	Records exclusively focusing on sectors other than higher education
Framework	Records that include a teaching framework for university teachers	Records that do not include a teaching framework for university teachers
Framework characteristics*	Prescriptive frameworks Structured frameworks Most recent version of a framework Unique framework	Frameworks that are explicitly not presented as prescriptive Records that are unclear about what is and what is not included in the framework Earlier versions of a framework Frameworks with no or minimal differences with included frameworks or frameworks based on a synthesis of included frameworks Frameworks presented as unfinished or drafts
Comprehensiveness*	Finished frameworks Extensive frameworks Frameworks that offer a comprehensive description of teacher expertise	Frameworks that provide no explanation of the highest aggregation level Frameworks exclusively focusing on specific types of education (e.g. lectures or clinical supervision) Frameworks exclusively focusing on specific areas of teacher expertise (e.g. digital competence or student-teacher interactions) Frameworks exclusively focusing on a specific group of teachers (e.g. novice teacher or teaching assistants)

Note. Criteria with an asterisk are in- and exclusion criteria which were further added during the full-text review.

backward reference searching for these records to identify any relevant records that did not come up in our search. This was repeated for each additional record until no new records came forward. Subsequently, we asked experts in the area of teacher expertise in higher education at our institution to identify possible missing frameworks. After assessing the records from the reference searching and expert consultation using the in- and exclusion criteria 30 additional records were added, resulting in a total of 46 records that were eligible for review (See Appendix A). Reasons for exclusion, as well as an overview of the search process, can be found in the PRISMA diagram in Fig. 1.

After all frameworks had been identified, we examined congruence between the frameworks and our conceptual perspective. Seventeen frameworks used multiple perspectives to describe university teacher expertise (see the column “conceptual perspectives” in Table 2 in the results section). Fourteen of these frameworks included one or more perspectives that could not involve tasks, because they focused on teacher affect, thinking or knowledge (e.g. ‘teacher attitudes’ or ‘teacher mindsets’) and not on what teachers do in practice (McDonald et al., 2013). The parts of the frameworks that included these perspectives were therefore excluded from the analysis. Competencies were not excluded, because they can be defined based on task characteristics (Stoof et al., 2002). All

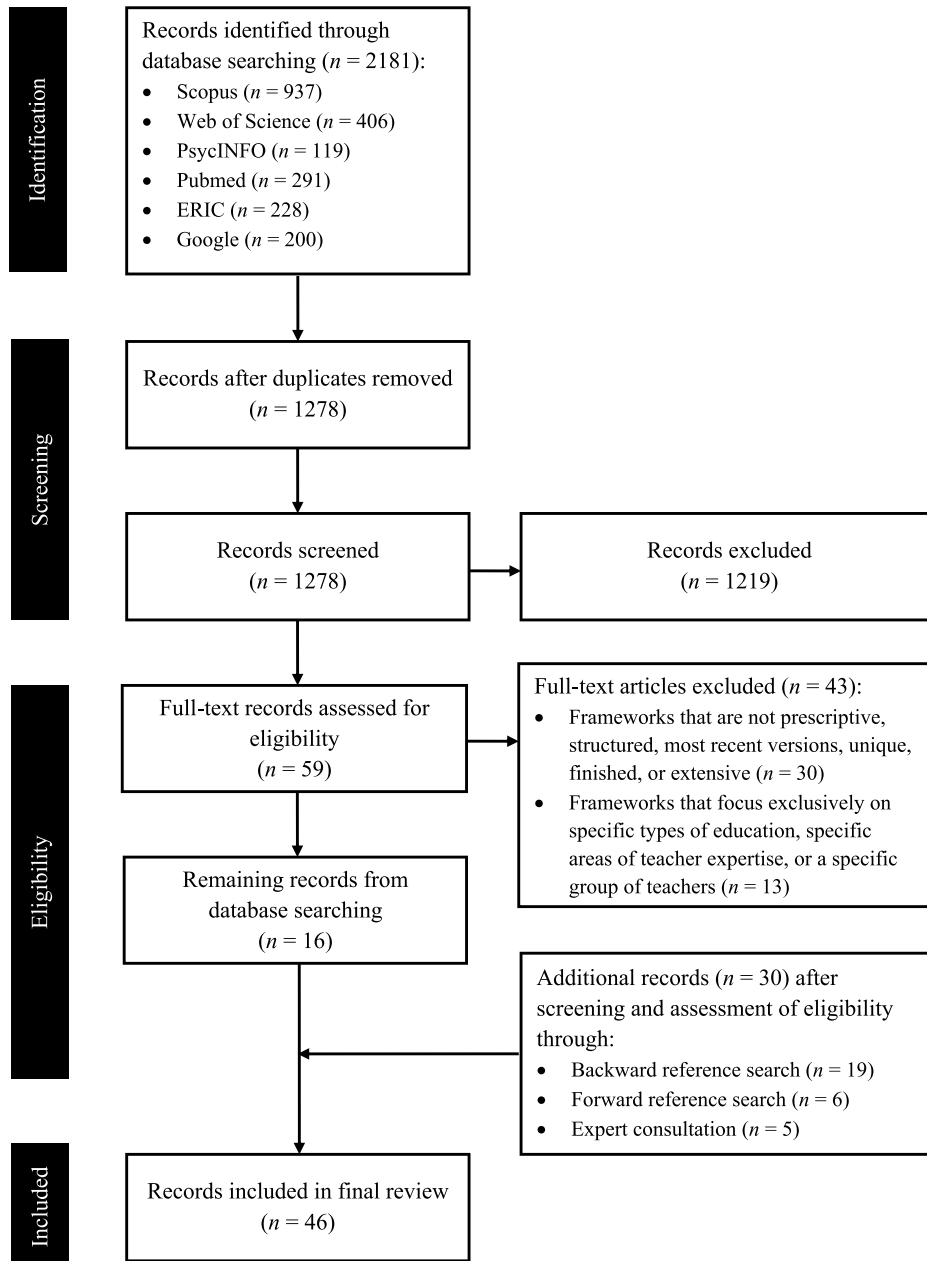


Fig. 1. Prisma diagram.

Table 2
Description of the type of records, affiliations, educational sector, methods and conceptual perspectives of the frameworks.

Frameworks			
Category		n	%
Type of records	Journal article	22	48
	Report	15	33
	Book	6	13
	Conference contribution	2	4
	Book chapter	1	2
Affiliations	North-America	20	43
	Europe	16	35
	Asia	5	11
	Australia	1	2
	>2 continents	4	9
Educational sector	Health professions education	26	57
	Physician education	16	35
	Physician and other health professions education	2	4
	Other health professions education	8	17
	Higher education	20	43
	Unspecified field	18	39
Methods ^a	Specified field (STEM and psychology)	2	4
	Literature study	29	63
	Consultation of the field	21	46
	Questionnaire	10	22
	Document analysis	7	15
	Delphi study	5	11
	Interviews	5	11
	Practice analysis	2	4
	Implementation	2	4
	Focus groups	2	4
Conceptual perspectives ^b	Critical incidents	1	2
	No information	1	2
	Competencies	15	33
	Tasks, activities or practices	10	22
	Knowledge*	8	17
	Criteria or principles	7	15
	Skills	7	15
	Values*	5	11
	Aspects, elements, characteristics or facets	5	11
	Domains, areas, dimensions or constructs	5	11
	Attitudes*	4	9
	Teaching mindset, approach or philosophy*	3	7
	Roles	3	7
	Ethic of caring*	1	2
Professionalism*	1	2	
Behaviour	1	2	
Exemplars	1	2	

^a Multiple methods could be used for the construction of one framework.

^b All parts of the frameworks that included the terms with an asterisk were excluded from the analysis. None of the frameworks was entirely excluded from the analysis.

frameworks that used task-based conceptual perspectives (e.g. tasks and activities) as well as all frameworks that used perspectives that conceptually did not conflict with a task-based perspective (e.g. roles and criteria) were included in the analysis.

3.3. Analysis of frameworks

We conducted a qualitative analysis using the analytical software package 'Dedoose' (version 7.6.6, published by SocioCultural Research Consultants, CA, USA). Overall, the analysis was an iterative process in which we went back and forth between concrete data and abstract interpretations (Aspers & Corte, 2019). Findings were continuously questioned, reconsidered, defined, and specified based on discussions in the research team and regular code checks with MK. In the next sections, this process is explained further.

3.3.1. Teacher tasks

Our analysis focused first on the highest and subsequently on the lowest aggregation levels of the frameworks. This was necessary

because frameworks differed greatly in this respect: some frameworks consisted of one level, while others consisted of two or more levels. Fig. 2 illustrates a framework with four aggregation levels. Frameworks were first coded and analysed at the highest aggregation level, where each different element at the highest level was considered an excerpt (see Fig. 2). Four codes corresponding to the four theory-informed teacher tasks (see section 2.2.) were used as the starting point for the analysis. Excerpts that did not belong to these codes were placed in an ‘excerpts for further analysis’ category. This category was subsequently coded in vivo, resulting in three additional tasks: ‘educational leadership and management’, ‘educational scholarship and research’, and ‘mentoring’. For example, in Fig. 2 “Educational leader” was coded as “educational leadership and management” at this point in the coding process.

After coding at the highest aggregation level was completed, frameworks were coded at the lowest aggregation level to create a final task structure. Excerpts at the lowest aggregation level that were indicated as advanced in the frameworks received an additional code for this, on top of the code related to the task structure (See Fig. 2). Next to regular discussions and code checks within the research team, educational literature was consulted to aid the analysis, particularly for defining the tasks that emerged during the analysis and determining the subtasks. For example, based on literature in combination with the analysis of the excerpts, ‘mentoring’ was not included as a separate task but as a subtask of teaching and supporting learning and leadership and management. The final code structure includes six tasks and twenty-nine subtasks. To illustrate, “supports teachers in delivering effective programs” (see Fig. 2) was coded as belonging to the task “educational leadership” and its subtask “supports and mentors colleague teachers”.

Non-task-oriented excerpts were gathered in a separate category with two sub-categories. As a quality check for the code structure, the last author coded a random 10% of the excerpts at task level and a random 10% of excerpts at subtask level for each task (with a minimum of 20 excerpts for each task). We found substantial interrater reliability at the task level (Cohen’s Kappa .80) and subtask level (Cohen’s kappa ranging from 0.70 to 0.90) (cf. Landis & Koch, 1977).

As a final step, the task structure was quantitatively analysed. The number of codes and the number of frameworks for each task and subtask were calculated. Additionally, a cooccurrence analysis was performed in Dedoose to determine the number of excerpts that had been indicated as advanced for each task and subtask, as well as by how many frameworks these excerpts had been so defined.

3.3.2. Dimensions for task-related development

In the literature, expertise development is generally defined in terms of improving performance on a task (Ericsson et al., 2018). After a first exploration of the frameworks, we observed that some frameworks used other ways to describe ability development of university teachers; for example, as the ability to perform a greater variety of tasks. We decided to further analyse these descriptions, because they could extend our analysis of teacher tasks. We first analysed the explicit descriptions in the records for what it means to develop expertise as a university teacher, and subsequently analysed all frameworks for any implicit conceptualisations in the structure or content of their framework. Based on the analysis, three dimensions for task-related development were distinguished and included as an additional finding.

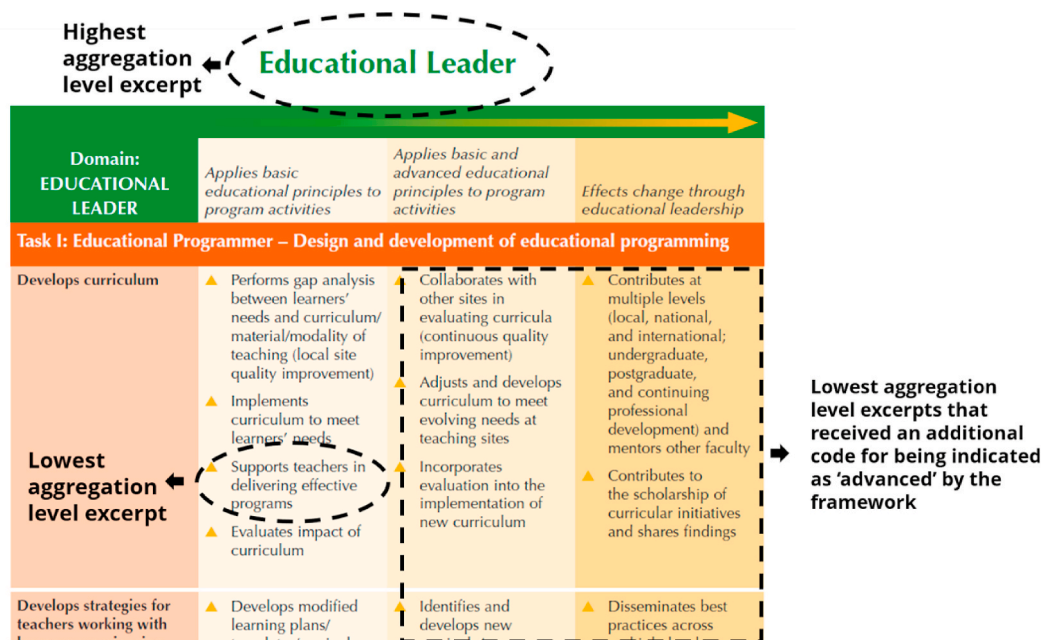


Fig. 2. Illustration of the aggregation levels (circled excerpts) and excerpts coded as. Advanced (boxed excerpts). Adapted from Walsh et al. (2015, p. 3).

4. Results

4.1. Descriptive characteristics of the framework

To guide the interpretation of our analyses, we first describe some characteristics of the frameworks (see Table 2). Frameworks were mainly published in journal articles and reports and a few in books, book chapters, and conference contributions. Affiliations of the publishing author(s) and/or organisations were from four continents, predominantly North America and Europe. More than half of the frameworks were developed for health professions education, in particular, physician education. Other frameworks were mostly general frameworks unrelated to a specific subject field. Literature studies and field consultation were the most commonly used methods for constructing the frameworks. Twenty-one frameworks used two or more methods for their construction. Nine frameworks

Table 3

Overview of tasks and subtasks.

Task	Description	Subtasks
Teaching and supporting learning	This task concerns how teachers guide the learning process through learner-teacher interactions to achieve learning goals.	<ul style="list-style-type: none"> • Stimulates a safe, motivating and inclusive learning climate • Organises learning situations • Provides instructions, explanations, and demonstrations and acts as a role model • Uses activating teaching methods • Supports learners in reflection and developing learning strategies • Adapts to different learner levels and learner needs • Supports, advises, and mentors learners
Educational design	This task concerns the development of goals, content, structure, activities and materials for education and combining these into a coherent whole.	<ul style="list-style-type: none"> • Uses evaluations of education and other information to inform educational design • Defines learning goals • Selects and/or designs learning activities • Selects, organises, and designs teaching and learning materials • Realises alignment in educational design
Assessment and feedback	This task concerns the design, construction, execution and evaluation of assessment of learning and performance.	<ul style="list-style-type: none"> • Performs assessments and gives feedback • Designs, selects, constructs, implements, and evaluates (part of) an assessment instrument • Designs, implements, and evaluates an assessment plan or strategy
Educational leadership and management	This task concerns how teachers exert intentional influence on education through their relationships with others.	<ul style="list-style-type: none"> • Engages with relevant stakeholders • Organises, coordinates and manages education and all resources involved • Engages in evaluations of education, quality assurance, accreditations, and audits • Participates and contributes to education-related committees and fora • Supports, mentors, and promotes colleague teachers' professional development. • Influences, establishes and implements policies and culture • Initiates, leads and implements educational change and innovation
Educational scholarship and research	This task concerns acquisition, application, contribution to, and dissemination of knowledge about teaching and learning.	<ul style="list-style-type: none"> • Acquires and maintains an understanding of educational theories and models and applies these to teaching practice • Engages in inquiry into own or local teaching practice • Engages in (discipline-based) educational research • Shares and disseminates knowledge, experience, innovation and research with regards to teaching and learning
Professional development	This task concerns reflection and professional development of teachers. This task is always performed in relation to and in order to improve oneself in one or more of the other tasks.	<ul style="list-style-type: none"> • Engages in reflection and action towards professional development • Solicits and utilizes feedback from relevant stakeholders • Participates in professional development activities

were based on earlier versions, and for these frameworks only the methods used for making changes to their first version were reported. There was wide variation in how detailed methods were described, as well as in how systematic and structured literature studies or field consultations were conducted. As discussed in the methods section, frameworks included several conceptual perspectives. An overview of each framework and their respective descriptive characteristics, as well as the teacher tasks and task-related dimensions for development, can be found in [Appendix B](#).

4.2. Teacher tasks in higher education

Our analysis resulted in a task structure with six tasks and twenty-nine subtasks as well as an additional category for non-task-oriented excerpts (See [Table 3](#)). The tasks ‘teaching and supporting learning’, ‘educational design’, ‘assessment and feedback’, and ‘professional development’ were inspired by our theory-informed initial codes and confirmed in the data. The tasks ‘educational leadership and management’ and ‘educational scholarship and research’ emerged from the frameworks as additional tasks. The order of tasks and subtasks was informed by the literature and our analysis of the data. An overview of the number of codes per task and the number of frameworks that included each task can be found in [Table 4](#). Below, we describe the different tasks and subtasks. A more elaborate description of the subtasks with examples of excerpts from the frameworks can be found in [Appendix C](#).

4.2.1. Teaching and supporting learning

This task concerns how university teachers guide the learning process through learner-teacher interactions to achieve learning goals. Teaching and supporting learning may occur either face-to-face or online and in a variety of forms and formats, including one-on-one teaching (e.g. mentoring, thesis supervision, (clinical) workplace supervision), small group teaching (e.g. work groups, tutorials, and small private online courses (SPOCs)), and large group teaching (e.g. lecturing, massive open online courses (MOOCs)). Learners are generally students but may also be colleague university teachers. This happens when university teachers support the development of their colleagues in a formal capacity; for example, as the trainer in teacher courses or in a formalised mentor role (i.e. informal mentoring is part of ‘leadership and management’). Seven subtasks were identified, which focus on what a university teacher does during learner-teacher interactions: ‘stimulates a safe, motivating, and inclusive learning climate’, ‘organises learning situations’, ‘provides instructions, explanations, and demonstrations and acts as a role model’, ‘uses activating teaching methods’, ‘supports learners in reflection and developing learning strategies’, ‘adapts to different learner levels and needs during teaching’, and ‘supports, advises, and mentors learners’. Some frameworks included the latter task as a separate task and some as part of teaching and supporting learning. In the analysis it proved difficult to separate mentoring from teaching and supporting learning, which was confirmed in literature about mentoring. We have therefore included mentoring as a subtask for teaching and supporting learning.

4.2.2. Educational design

This task concerns the development of goals, content, structure, activities, and materials for education and combining these into a coherent whole. The five subtasks describe the educational design process. Three subtasks address what is created by university teachers in educational design: learning goals, learning activities, and teaching and learning materials. Two other subtasks describe what university teachers do in creating these design products. University teachers use evaluations of education and other data (e.g. about student characteristics or expectations from the professional field) and may also gather this data if it is unavailable. Additionally, university teachers realize alignment between different components of a design: between learning activities and learning goals (horizontal alignment) and between courses and the educational programme as well as between the educational programme and institutional policies and priorities (vertical alignment).

Table 4

Number of excerpts and number of excerpts indicated as advanced included in the frameworks for the six university teacher tasks.

	Excerpts		Frameworks including excerpts		Excerpts indicated as advanced		Frameworks including advanced excerpts	
	<i>n</i>	% of total excerpts for all tasks	<i>n</i>	% total	<i>n</i>	% of total excerpts for this task	<i>n</i>	% total
Teacher tasks								
Teaching and supporting learning	583	29	46	100	81	14	10	22
Educational design	235	12	40	87	59	25	8	17
Assessment and feedback	214	10	39	85	51	24	8	17
Educational leadership and management	526	26	39	85	195	37	10	22
Educational scholarship and research	182	9	32	70	66	36	7	15
Professional development	165	8	36	78	40	24	6	13
Subject area expertise and personal attributes ^a	135	7	25	54	23	17	3	7

^a This is a category of non-task oriented excerpts which is not part of the task structure.

4.2.3. Assessment and feedback

This task concerns the design, construction, performance, and evaluation of learning and performance of assessments. The different aspects of this description are reflected in three subtasks. The first subtask concerns giving feedback to learners and performing formative and summative assessments, including the selection of prospective students by university teachers. The second subtask concerns design, construction, implementation, and evaluation of assessment instruments, for example an exam or portfolio. The third subtask concerns the design, implementation, and evaluation of assessment plans or strategies that combine multiple assessment instruments, for example for a course or curriculum. In the frameworks assessment was included both as a separate task and as part of educational design. We did not include assessment and feedback as part of educational design but want to note that in practice educational design and design of assessments may be closely related.

4.2.4. Educational leadership and management

This task concerns how university teachers exert intentional influence on education through their relationships with others, both formally and informally. As there seemed to be a lack of consensus in the literature and in the data with regard to whether leadership and management are similar, separate, or overlapping, we decided to include both in the name of this task so it would be appropriate for all subtasks. The seven subtasks describe whom or what university teachers influence or how they exert influence: 'engages with relevant stakeholders', 'organises, coordinates, and manages education and all resources involved', 'engages in evaluations of education, quality assurance, accreditations, and audits', 'participates in and contributes to education-related committees and fora', 'supports, mentors, and promotes colleague teachers' professional development', 'initiates, leads, and implements educational change and innovation', and 'influences, establishes, and implements policies and culture'.

4.2.5. Educational scholarship and research

This task concerns acquisition, application, contribution to, and dissemination of knowledge about teaching and learning. Two subtasks concern educational scholarship: acquisition and maintenance of an understanding of educational theories and models and application of these to teaching practice as well as engagement in inquiry into own or local teaching practice. University teachers perform these tasks with the aim of improving their own or local teaching practice. The third subtask concerns engagement in (discipline-based) educational research, which aims to provide insights that go beyond own or local teaching practice and contribute to the educational knowledge base. The fourth subtask concerns sharing insights about teaching and learning, which is relevant for both scholarship and research. The shared insights may vary in terms of codification (experiences of university teachers to research findings) as well as how they are shared (informally in a local context to presentations at conferences).

4.2.6. Professional development

This task concerns all activities which university teachers engage in to develop themselves as teachers, specifically in the six other identified teacher tasks. As described earlier, this task is different in nature because it is not a task that stands alone, but is always carried out in relation to and in order to improve oneself in the other teacher tasks. Three different subtasks were found in the analysis. First, university teachers engage in reflection about teaching and take action based on these reflections. Reflection may be prompted by a variety of sources, for example experiences, books, or evaluations. Sometimes, university teachers' reflections are explicitly documented, for example in assignments or portfolios. This subtask seems similar to the subtask 'engages in evaluations of education, quality assurance, accreditations, and audits' of educational leadership and management. However, in this subtask teachers go beyond evaluating their own performance by evaluating education in a broader sense. Second, university teachers solicit and utilise feedback from relevant stakeholders, which may include learners, colleagues, and supervisors. Third, university teachers participate in professional development activities, such as workshops or faculty development programmes. Participation in these activities can be incidental or structural and is sometimes a mandatory part of teacher certification or development programmes.

4.2.7. Non-task oriented category: subject matter expertise and personal attributes

Even though we have a priori excluded parts of the frameworks with conflicting conceptual perspectives (e.g. teacher knowledge and values) from the analysis, there were still excerpts in the frameworks that were not compatible with a task-based conceptual perspective. All these excerpts were gathered in a 'non-task oriented' category. As explained in the theoretical framework, the excerpts from this category may provide valuable insight into what university teachers may need in order to carry out their teacher tasks. However, this paper focuses on teacher tasks. Therefore we have only broadly analysed this category, resulting in two main sub-categories: university teachers' expertise in their subject area, discipline or profession and university teachers' personal attributes, such as motivation for teaching, attitude, interpersonal skills, and professional and ethical behaviour.

4.3. Dimensions for task-related development

Twenty-eight out of 46 frameworks do not only include teacher tasks but also describe what it means to develop expertise as a university teacher. For some frameworks, an explicit description of expertise development was included while other frameworks implicitly described expertise development in their content or structure. Based on an analysis of both types of description, three dimensions for task-related development were found in the frameworks: better task performance ($n = 17$; 43%), ability to carry out a greater variety of tasks ($n = 18$; 45%) and a larger sphere of influence ($n = 14$; 35%).

4.3.1. Better task performance

In this dimension, expertise development is conceptualised as better performance on a teacher task. This is described, for example, as the ability to ‘perform the fundamental tasks of teaching well’ (Fink, 2008) and the development of university teachers from ‘teacher-focused done poorly’ to ‘student-focused done well’ (Trigwell, 2001). Based on the frameworks, task execution may consist of several aspects, including efficiency and quality, and measuring task execution may be challenging. Several frameworks include suggestions for measuring task execution, for instance, self-evaluation and measures of student learning.

4.3.2. Ability to carry out a greater variety of tasks

The ability to carry out a greater variety of tasks and subtasks is another dimension of expertise development found in the frameworks. This means, for example, that teachers progress from ‘successful engagement in two of the five areas of activity’ to ‘successful engagement across all areas of activity’ (The Higher Education Academy, 2011) or that university teachers ‘begin their careers working in 1-2 domains [of activity] and may add others as their careers evolve’ (Gusic et al., 2013). Other frameworks include this dimension indirectly by including both basic requirements and specialised requirements. Two frameworks also implicitly indicate that tasks can be carried out in less or more complex contexts: for instance, they distinguish between interpreting feedback when it is congruent and when it is discrepant, whereby the latter is indicated as requiring more expertise (Academy of Medical Educators, 2014; Walsh et al., 2015).

With regard to this dimension, it may be relevant to explore an order in which university teachers develop their abilities in various teacher tasks. To this end, we calculated the percentage of excerpts for each task that were indicated as ‘advanced’ by the frameworks that included multiple levels (see Table 4). The tasks ‘educational leadership and management’ and ‘educational scholarship and research’ are indicated as more advanced than the other tasks, suggesting that university teachers develop their ability in these tasks only after they have developed their ability in the other tasks.

4.3.3. Larger sphere of influence

University teachers can also develop their expertise by carrying out tasks with a larger sphere of influence. Frameworks include this dimension either implicitly in the levels of their framework or explicitly using terminology such as ‘sphere of impact’ (Graham, 2018) and ‘spheres of esteem, impact, and influence’ (U21 Educational Innovation Steering Group (U21 EISG), 2018). The term influence is preferred over impact, because impact also has to do with how well a task is performed, and thereby overlaps with the first dimension. Three different spheres of influence were found in the frameworks.

From students to colleagues. Teachers have a direct influence on students through task teaching and supporting learning. They can also influence colleague teachers, for example, when they are responsible for management of an educational programme or when they formally teach and mentor colleagues.

From single teaching sessions to educational programmes. University teachers can also develop by becoming involved in larger educational units. Based on the frameworks, university teachers are first involved in sessions, then in courses, and after that in (a major part of) the curriculum.

From local to international. Another way for university teachers to develop is to increase their influence within the higher educational field. Some university teachers may even have influence beyond their own institution, at national or international level.

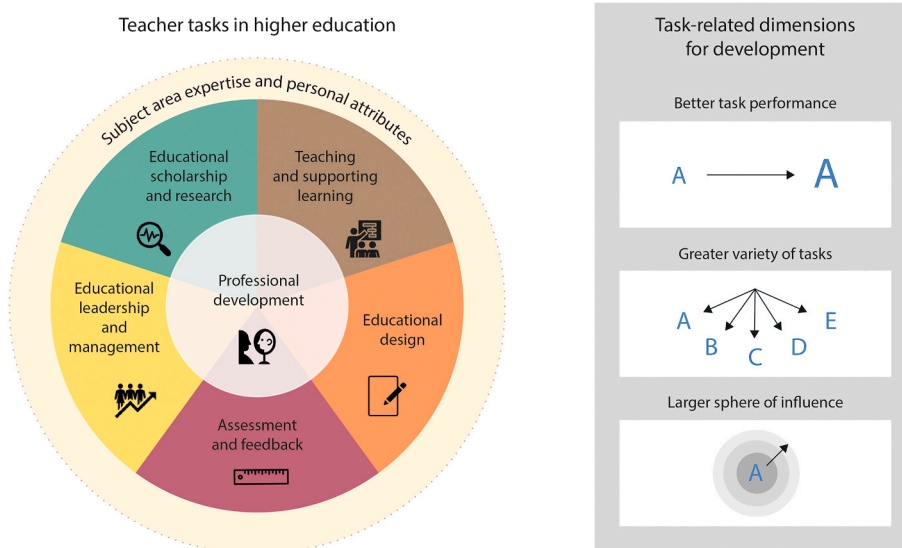


Fig. 3. Visualisation of the results in the UNiversity Teacher Expertise (UNITE) synthesis.

4.4. The UNiversity teacher expertise (UNITE) synthesis

The findings are summarised in the UNiversity Teacher Expertise (UNITE) synthesis (See Fig. 3). The pie chart on the left side of the figure illustrates the six tasks of university teachers identified in this review. 'Professional development' is placed in the centre of the pie chart, to indicate its different nature and to visualise its connection to expertise development in the other tasks. Subject matter expertise and personal attributes are included in a ring around the pie chart to draw attention to their fundamental importance in performing the six teacher tasks well. In the right part of the figure, the three dimensions for task-related development are illustrated using letters and arrows. The letters represent teacher tasks and the arrows represent what expertise development means for each of the dimensions.

5. Discussion

5.1. Findings and contribution to the literature

In light of the increased attention on teaching quality and teaching careers in higher education, the present study aimed to identify whether there is consensus on what constitutes teacher expertise in higher education. Consensus was identified using a systematic review in which frameworks for teacher expertise in higher education were synthesised from a task-based focus. Based on the literature, we distinguished four teacher tasks, which were confirmed in our analysis: 'teaching and supporting learning', 'educational design', 'assessment and feedback', and 'professional development'. 'Educational leadership and management' and 'educational scholarship and research' emerged as additional tasks from our analysis. Together, the six tasks and their corresponding subtasks provide a comprehensive task-based overview of the domain of higher education teaching.

Using educational literature in the analytical process strengthened our ability to resolve contradictory perspectives and determine conceptual boundaries. The quality of the task structure was confirmed by the substantive inter-rater agreement. Although the distinctions between different tasks and subtasks are insightful, their boundaries may be perceived as blurred in practice. For example, a course coordinator may be engaged with educational design (e.g. defining learning objectives), educational leadership and management (e.g. planning, coordination, and managing education), and teaching and supporting learning (e.g. giving lectures). Precisely because teaching roles often involve several tasks, we argue that this study helps to understand and improve development and performance in these roles. For example, the overview of teacher tasks and subtasks could help to uncover that a course coordinator may be an expert at educational leadership and management but is lacking expertise in the area of educational design.

Besides an overview of teacher tasks, we also included dimensions for task-related development as an additional finding from our analysis. The dimensions specify how university teachers can develop themselves with regard to their teacher tasks and thus extend the overview of teacher tasks. Three dimensions were distinguished: better task performance, ability to carry out a greater variety of tasks, and carrying out tasks with a larger sphere of influence. Current literature about expertise development mostly focuses on task performance (Ericsson et al., 2018). Our study thus adds to the literature by suggesting and bringing attention to additional perspectives of teacher expertise development, at least in the context of higher education. The results were based on an analysis of teaching frameworks from a variety of disciplinary and geographical contexts, and thus reflect a widely shared consensus about university teacher expertise. Therefore, the synthesis of teacher expertise provides a sound basis for future research into higher education teaching, particularly with regard to faculty development. In future research it is relevant to consider that how tasks are carried out and the relative importance given to tasks may be influenced by culture and context (Stigler & Miller, 2018). For example, Stigler and Miller explain that instruction in Japan may typically start with a difficult problem which is followed up by further explanation, whereas this is the other way around in the United States. While both approaches concern the same teacher tasks (i.e. 'teaching and supporting learning' and 'educational design'), the accounts by which these tasks are being valued as good performance may be context and culture dependent.

So far, one other review has synthesised teaching frameworks to better understand teacher expertise in the context of health professions education (Chuenjitwongsa et al., 2018). Four roles of health professions teachers are distinguished in this review: educator-teacher, educator-researcher, educator-administrator and educator-healthcare provider, with educator professionalism at the heart of these roles. The roles 'educator-administrator' and 'educator-researcher' are similar to the tasks 'educational leadership and management' and 'educational scholarship and research' from the current review, and 'professionalism' also has some overlap with the task 'professional development'. 'Teaching and supporting learning', 'educational design' and 'assessment and feedback' seem to relate most to the 'teacher-educator' role. The 'educator-healthcare provider' role may be more specific for the health professions education context. Even though there are several parallels in the results, there is a considerable difference between both reviews in the level of depth of analysis. The distinct theoretical perspective and multi-layered analysis in the present study have allowed for a more extensive and comprehensive description of what university teacher expertise entails, thereby extending the results of Chuenjitwongsa et al. (2018). Additionally, by not exclusively focusing on health professions education the present review is more relevant for the higher education sector as a whole.

5.2. Implications for practice

This study gives insight into the multifaceted nature of teacher expertise in higher education: university teachers carry out different tasks and different dimensions for task-related development can be distinguished. It is important to note that our findings do not imply that all university teachers should perform all tasks and should develop on all three dimensions. Instead, university teachers could

develop different teaching profiles. For example, some university teachers could focus on high-quality teaching in a variety of teaching formats and academic levels while others could barely teach and instead focus on how they can positively impact students' educational experiences within the institution through educational leadership and management. By identifying consensus about teacher expertise, this study can support opportunities and appreciation for a diversity of university teacher profiles.

Our results also have practical value for three different types of stakeholders. First, the synthesis can be used to support university teachers' professional development: they can reflect on their current teacher tasks and how they would like to develop in the future. Second, faculty developers can use the synthesis to critically examine their current practices and ensure that they offer a comprehensive set of professional development opportunities for university teachers. Third, the synthesis can be used by policy makers in higher education to inform teaching policies concerning assessment of university teachers, (partial and/or different levels of) teaching qualifications, and teaching-focused academic career tracks. For example, it could help to explicate expectations of university teachers in different career stages, which may be different for different institutions and national contexts. A hand-out for practice is included as supplementary material to make insights from our review more accessible to these stakeholders.

5.3. Limitations

While we argued that the theoretical perspective of our paper is a strength of our study, it can also be considered a limitation. By choosing the conceptual perspective of tasks, parts of the frameworks that include other perspectives, for instance knowledge and values, were excluded from the analysis. These perspectives are also relevant for understanding teacher expertise, particularly insight into what teachers need in order to be able to execute different teacher tasks (Pangaro & Ten Cate, 2013). An additional analysis of the data for the excluded perspectives from the frameworks and could thus provide a relevant addition to the current findings.

Although the dimensions for task-related development provided an extension of our findings, they need to be interpreted with caution. The dimensions are based on explorative analysis focused on finding consensus across the frameworks but lack a strong empirical and theoretical underpinning. For example, the ability to carry out a task in a more complex context is part of the dimension 'greater variety of tasks' and not a separate dimension, because only two frameworks addressed this. However, based on the article of Prins et al. (2018), performing a task in more complex circumstances could be considered an additional task-related dimension for development. Hence, further validation of the dimensions is necessary.

There are also some limitations with regard to the inclusion of frameworks. Only frameworks from 1999 to 2018 were included, which means that findings reflect higher education practice in this time period. However, teaching practices may change over time due to societal and institutional developments such as lifelong learning (e.g. Dinevski & Dinevski, 2004) and the increased use of online education (e.g. Filius, 2019). As a result, the currently distinguished (sub)tasks may change or even disappear, and other (sub)tasks may appear. Therefore, periodical updates of this review are needed to ensure an up-to-date task structure. Another limitation is that we included 'medical education' as an additional search term next to our general higher education search terms, and thereby have a relatively larger focus on this specific higher education context in our review. Furthermore, because our study includes both research-oriented and practice-oriented documents, not all documents contained information necessary to check for methodological quality. Although it is important to keep this limitation in mind, we have confidence in the trustworthiness of the synthesis for two reasons. First, because an assessment of methodological quality was not necessary to reach our research aim: identifying consensus about teacher expertise. Second, because we look for consensus our method is not very sensitive to outliers: each (sub)task is covered by a multitude of frameworks. To conclude, we want to note that although much effort was taken to have a broad inclusion of current frameworks, we can never be completely sure we have included all relevant frameworks, particularly because not all frameworks used in practice are published publicly and/or are published in English.

5.4. Further research

Building on the findings, we recommend three important areas for further research. First, further research is required to validate the results from this study, particularly the three dimensions for task-related development. Studies could focus on strengthening the definitions and conceptual boundaries of the dimensions and relating them to theories and models about expertise development. Empirical studies are needed to explore whether the dimensions are recognisable and valuable in teaching practice. Additionally, further research could focus on differences and similarities between teacher tasks and dimensions for development in higher education compared to primary and secondary education.

Second, we suggest that further research focuses on how teacher tasks are interrelated: whether expertise in one task is separate, overlapping, transferable, or conditional for expertise in one or more other tasks. For instance, does an excellent educational leader and manager also have to excel at teaching and supporting learning, or is expertise in these tasks largely independent? There are (implicit) assumptions about this both in research and in practice, for example that teachers first need to develop expertise in teaching and supporting learning before they can develop expertise in educational management and leadership (Graham, 2018; Griffioen, 1980). So far, however, research in this area is scarce.

Third, we recommend research in which practical tools and interventions are developed and evaluated inspired by the perspective and findings of this study. For example, studies could investigate the implementation of task-based professional development portfolios or teaching certificates.

6. Conclusion

This study adds to the important discussion of what constitutes expertise for university teachers by identifying six tasks which are recognized internationally and together represent the full range of activities of university teachers. The six tasks are: teaching and supporting learning, educational design, assessment and feedback, educational leadership and management, educational scholarship and research, and professional development. Furthermore, three dimensions of task-related development were found: better task performance, ability to carry out a wider variety of tasks, and a larger sphere of influence. The results of this study provide foundation for further research as well as an important resource for practice. Ideally, higher education policies for teacher development should incorporate the identified tasks and dimensions to support and reward development of university teachers with diverse teaching profiles.

CRedit authorship contribution statement

Esther E. van Dijk: Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing, Visualization. **Jan van Tartwijk:** Conceptualization, Methodology, Writing - review & editing, Supervision. **Marieke F. van der Schaaf:** Conceptualization, Methodology, Writing - review & editing, Supervision. **Manon Kluijtmans:** Conceptualization, Methodology, Validation, Writing - review & editing, Supervision.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.edurev.2020.100365>.

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- References marked with an asterisk indicate studies included in the systematic review. A complete reference list of studies included in the systematic review is available as appendix A.
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