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Evolving health professions educators' work engagement in teaching while combining roles in an academic medical center

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Abstract

Background High quality professional education requires good educators who show engagement with teaching in addition to content knowledge and didactic skills. In health professions education it is common that teaching faculty combine their teaching role with roles in patient care and/or research. However, previous studies on work engagement have mainly focused on jobs as a whole and not considered people who combine roles or tasks that could have different demands. This study aims to describe how health professions educators' work engagement in *teaching*, in combination with *research* and *patient care*, evolved over time at an academic medical center in the Netherlands.

Methods All teaching faculty at the center were invited to complete the same online questionnaire in 2011, 2016, and 2022, where their work engagement was measured using the Utrecht Work Engagement Scale (UWES-9) and they rated 22 items affecting their engagement in *teaching*. We calculated descriptive statistics; computed engagement score means for overall work and individual task areas (*teaching*, *research*, and *patient care*); and compared means across groups with various task area combinations and across years. We also performed content analysis of responses to the open-ended questions in the questionnaire.

Results Work engagement scores overall and for each task area (*teaching*, *research*, and *patient care*) fluctuated over time. Job-related aspects enhancing engagement in *teaching* included 'autonomy' and 'appreciation.' Teaching about my own specialty' consistently scored high.

Conclusion Teaching faculty in our center are engaged with *teaching* tasks and their work engagement is consistently high over time. Combining roles might be positively related to teaching engagement by maintaining balance when job demands in other tasks increase. To maintain and increase teaching engagement, organizations should focus on the provision of time, autonomy, and support to health professions educators. Teaching engagement may increase more through content knowledge and autonomy in teaching than by facilitating educational research and dissemination opportunities.

Keywords Health Profession Educators, Faculty Development, Work Engagement, Job Roles, Teaching

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Background

Competent educators are indispensable for high quality health professions education. Good teaching requires knowledge, attitudes, and skills, but it starts with educators' willingness, energy, and drive to learn, to work effectively, and to achieve their potential [1, 2]. Becoming a good educator requires sustained engagement with teaching tasks [3–5]. Work engagement is defined as an active, energetic state of mind that is characterized by vigor, dedication, and absorption [6]. Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication means being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly, and one has difficulty detaching from work [6].

Employees feel more engaged in their work when their jobs are resourceful [7]. All jobs entail tasks that provide energy (i.e., job resources) or drain energy (i.e., job demands) from employees [8]. How such tasks affect employees' work engagement is often studied using the job demands–resources (JD-R) model [8]. At the heart of this model lies the assumption that all aspects of work environments can be categorized as job demands or job resources that either positively or negatively affect work engagement [8]. The presence of job demands, and the absence of job resources are associated with reduced work engagement and could lead to burnout [8]. The presence of sufficient job resources can increase work engagement [8, 9] and may lead to employees taking initiative in their work that goes beyond what is formally required of them [10]. Thus, ensuring a balance between job demands and resources is essential to improving or maintaining work engagement. However, these studies have primarily looked at jobs as a whole and not considered people whose jobs combine roles/tasks where there are different demands and/or resources for those tasks and how one task can have a great impact on another.

To develop as good educators, engagement in teaching is vital, and to engage in teaching, the characteristics of the teaching job need to be resourceful [11]. Yet being a health professions (HP) educator in an academic medical center means juggling and combining a variety of tasks and obligations [12–14]. Medical specialists also have patients to care for and both clinical and basic science faculty are often also involved in research. The current pressures in health care, to cut costs by increasing efficiency combined with staff shortages, result in increased demands on the job. Teaching is a third core task of an academic medical center that can suffer from the competing tasks in patient care and/or research. For some

faculty, teaching is seen as an auxiliary task to patient care, and sometimes as forced labor, which comes with being a health professional in an academic medical center [13]. Thus, to understand the teaching engagement of health professions educators, it is important to consider not just the demands and resources present for their teaching task, but also the impact of their other tasks in patient care and/or research.

Van den Berg and colleagues conducted a study to investigate the relationship between work engagement and job crafting [15]. Job crafting is the process of taking proactive steps to shape one's own job to better align with personal needs, goals, and skills [15]. They compared groups of medical faculty that combined patient care and teaching tasks and found that increased engagement for a specific task was related to being able to job craft or modify one's role for that task. The ability to job craft or modify one's role for tasks may be particularly important and potentially more difficult for those whose jobs combine tasks, especially if one of the tasks is experienced as auxiliary (as teaching is sometimes considered within an academic medical center). As academic medical centers consider increasing resources for teaching to alter the demands/resources balance for teaching in efforts to improve faculty teaching engagement, it is important to consider whether the impact will be the same for faculty who combine patient care and/or research tasks with their teaching.

The context of this study is a university medical center in the Netherlands that has made deliberate investments in faculty development. In the Netherlands, all faculty members who teach are required to obtain a University Teaching Qualification (UTQ). This institution had implemented mandatory Teaching Qualifications for all faculty members in 1995, including didactic training and reflection on one's own teaching based on feedback from students and observing colleagues, prior to the national UTQ implementation in 2008 [16]. It also established teaching awards, educational innovation grants, and an educational leadership program. In 2011, the center surveyed HP educators to assess their work engagement, revealing lower work engagement in teaching tasks than for research and patient care tasks [13]. In response, the center further implemented individualized faculty development programs at different levels to increase job resources for HP educators. This included a longitudinal two-year program focused on developing scholarly approaches to teaching (Teaching Scholars Program). A follow-up survey among HP educators, conducted in 2016, showed increased work engagement in teaching [17].

Given the center's continued attention to faculty development, recognition and appreciation of HP educators, and the context of increased job demands during the

COVID-19 pandemic, we again examined our HP educators' work engagement for their combined task areas (i.e., patient care, research, teaching) in 2022. We conducted a descriptive survey study on measurements of HP educators' current work engagement and made comparisons to the data gathered in 2011 and 2016. We formulated the following research questions: (1) How engaged are HP educators in their teaching task and has that changed over time? (2) How does the engagement of HP educators in teaching compare to engagement in their patient care and research tasks when combining roles, and has that changed over time? (3) Which job-related aspects stimulate, and which job-related aspects hamper engagement in teaching and has that changed over time?

Methods

Design

This study examines measures of the teaching faculty over time, with online anonymous questionnaire measurements among faculty members conducted in 2011, 2016, and 2022. The 2022 measurement was delayed one year due to the COVID-19 pandemic. The content of the questionnaires remained the same for all measurements and included both closed and open-ended questions. In 2011 and 2016, the online questionnaire was conducted only in Dutch; the 2022 questionnaire was conducted both in English and in Dutch to be more inclusive for all educators. Translating to English was done via forward and backward translation and checked by a native speaker. The 2022 questionnaire was piloted with eleven participants, resulting in layout refinement, allowing for computer as well as smartphone completion.

To decrease the potential risk to faculty of having work engagement information linked to specific individuals, participants completed the questionnaire anonymously. For privacy purposes, individual participation was not tracked, and questionnaire responses were therefore not linked over the three timepoints. Participants received information on the study via an email invitation, and the questionnaire was opened only after consent was given. The study was approved by the Netherlands Association of Medical Education (NVMO) Ethical Review Board application number 2022.6.6 in October 2022.

Participants and procedures

For all three survey rounds, all HP educators teaching in the curricula of the Faculty of Medicine at the University Medical Center Utrecht were invited to participate. This group included basic scientists and clinicians from all divisions. In 2011 and 2016, the questionnaire was distributed using snowball-sampling via the medical center's directors of educational programs and courses. They were asked to forward an e-mail request to all educators in their programs to fill out the electronic questionnaire.

We assume most of the teaching faculty were captured using this approach but acknowledge that some educators may have been missed. The exact number of invited participants is not specified due to snowball-sampling and is estimated to be 600 in 2011 and 750 in 2016 based on the UTQ administration. For the 2022 measurement, based on an updated UTQ-administration, faculty were invited via direct email if they were registered: (1) as requiring the UTQ, (2) to have started the UTQ trajectory, or (3) to have obtained the UTQ (both mandatory and voluntarily). A total of 1044 HP educators were invited.

Questionnaire

The questionnaire was comprised of two sections to answer our specific research questions. For a full English version of the questionnaire see supplementary file [A](#).

Work engagement

To answer research questions 1 and 2, work engagement was measured using the validated 9-item Utrecht Work Engagement Scale (UWES-9) [6]. Items such as 'At my work, I feel bursting with energy', 'When I get up in the morning, I feel like going to work', 'I am proud of the work that I do' were rated from 1 (never) to 7 (always) [6, 13]. Participants completed this scale multiple times: first, for their job as a whole (*work in general*). Then, they were asked to complete the scale for the different task areas (*teaching, research, and patient care*) relevant to their job. The estimated reliability of the UWES was good: Cronbach's $\alpha=0.76$ in 2011, $\alpha=0.92$ (2016); $\alpha=0.93$ (2022).

Demands and resources

To answer question 3 and assess which job-related aspects of teaching represent job demands or resources, participants were asked to rate how 22 teaching experiences affected their willingness to teach. Each task was rated using a 5-point Likert scale (1=very negative, 5=very positive). These 22 items were selected through thematic analysis of semi-structured interviews with faculty members in 2010 [13]. Examples of items are: 'Teaching large groups (for example, in the lecture hall)', 'Feedback on my teaching performance', and 'The possibility of a teaching career'. These items could be perceived as either a job demand or resource. Text boxes were added to the questionnaire to allow participants to provide additional aspects that positively or negatively impacted their engagement with teaching and provide suggestions on how the medical center could support work engagement in teaching.

Data analyses

For work engagement, means and standard deviations (SD) were calculated for the participants' work engagement in general and separately for teaching, for research, and for patient care. Based on the combination of their indicated tasks, respondents were grouped into four different subgroups: (1) teaching+research+patient care, (2) teaching+research, (3) teaching+patient care, and (4) teaching-only. After an assumption check, two-way ANOVA was used to determine how work engagement (dependent variable) differed between these groups (independent factor 1) and over time (independent factor 2). To test differences between the 2011, 2016, and 2022 survey rounds, we used a one-way ANOVA and Games-Howell post hoc test. Descriptive statistics (means and SD) were calculated to rank the job-related aspects as demands or resources. The data was analyzed using SPSS (version 28).

Comments provided in the open-ended questions in the 2022 survey round were analyzed using content analysis. The first and second author first met to review content categories inductively identified in 2011 and 2016 and updated their definitions and understanding of these categories. Then, the first and second author, using a deductive approach, independently coded the 388 comments from the participants in 2022 into these categories and compared their results, discussed differences, and reached consensus. The first author calculated the frequency of comments in each category and compared them to those of previous years.

Results

The response rate was lower in 2022 (~14%) compared with 2011 (~50%) and 2016 (~20%). Demographics for all groups of participants in the survey rounds were similar. Across the three survey rounds, most respondents were between 30 and 50 years of age, and 20–30% reported having >20 years of teaching experience. About 30% reported spending on average more than 2 days a week on teaching activities. The majority of participants indicated that their teaching duties consisted primarily of teaching medical students in a classroom.

Work engagement among participants overall

Work engagement among all participants as a group generally increased between 2011 and 2022. This included work engagement for the job as a whole (*work in general*) and for the task areas of teaching and research. The one-way ANOVA for *work in general* showed a significant difference in work engagement among the three survey rounds. Post-hoc analysis showed that engagement scores were higher in 2016 and 2022 compared to 2011 ($p<.001$), but the difference between 2016 and 2022 was not statistically significant. See Table 1 for the means and

Table 1 Work engagement in general and on (combinations of) subtasks

Task combination	n	Work in general			Teaching			Research			Patient Care		
		2022	2016	2011	2022	2016	2011	2022	2016	2011	2022	2016	2011
Teaching + research + patient care	45	5.58 (0.77)	5.22 (0.84)	4.22* (0.82)	5.31 (1.06)	4.97 (0.80)	4.59† (1.11)	5.31§ (1.04)	4.45 (1.59)	4.69 (1.29)	5.60† (0.89)	4.95† (1.54)	5.43 (0.91)
Teaching + patient care	12	5.27¶ (0.59)	4.87 (1.00)	4.13¶ (0.88)	4.83 (1.12)	4.52 (1.16)	4.89 (0.94)	-	-	-	4.91 (0.72)	4.80 (0.67)	5.23 (1.07)
Teaching + research	60	5.52‡ (0.81)	5.17‡ (0.57)	4.36* (0.90)	5.14 (1.12)	5.03 (0.77)	4.86 (1.12)	5.22 (1.09)	5.13 (0.75)	5.31 (1.04)	-	-	-
Teaching	21	5.10 (1.01)	5.45 (0.81)	4.36‡ (0.85)	4.84 (1.05)	5.42 (0.81)	5.46 (0.84)	-	-	-	-	-	-
Overall average (SD)	138	5.45 (0.82)	5.23 (0.77)	4.26 (0.85)	5.12 (1.09)	5.05 (0.82)	4.78 (1.10)	5.26 (1.06)	4.72 (1.36)	4.87 (1.25)	5.46 (0.90)	4.93 (1.40)	5.41 (0.93)

*2011 lower than 2016 and 2022 ($p<.001$)
†2011 lower than 2016 and 2022 ($p<.05$)
§2022 higher than 2011 and 2016 ($p<.05$)
‡2022 higher than 2016 ($p<.05$)
¶2011 lower than 2022 ($p<.001$)
‡2011 lower than 2016 and 2022 ($p<.05$)

SDs of the UWES-9 for all three survey rounds, broken down by participant subgroups based on their task combinations and for all participants overall (last row).

Schaufeli and Bakker [18] interpret UWES-9 scores < 1.77 as very low, 1.78–2.88 as low, 2.89–4.66 as average, 4.67–5.50 as high and > 5.51 as very high. With this interpretation, work engagement of the HP educators surveyed was generally high across all survey rounds with 77% of mean work engagement scores falling in the high range and 17% in the average range. In 2011, work engagement was measured in the average range for *work in general* among all participants and within each subgroup. By 2022, very high work engagement was found for *work in general* in the subgroup of participants who conducted teaching and research and patient care (teaching + research + patient care) and in the subgroup of participants doing teaching and research (teaching + research).

Work engagement among participant subgroups with different task combinations

Comparing groups of HP educators with jobs involving different combinations of task areas revealed differences in engagement scores between and within the groups for their different task areas (see Table 1 for details).

First, for the subgroup ‘teaching + research + patient care’, engagement scores for *work in general* and for *teaching* increased from 2011 to 2016 ($p < .001$ and $p = .017$) and 2022 ($p < .001$ and $p < .001$). Yet, work engagement was not significantly different between 2016 and 2022 ($p = .062$ and $p = .171$). Work engagement scores for *research* and *patient care* did not change from 2011 to 2016 ($p = .534$ and $p = .059$) but increased in 2022 ($p = .003$ and $p = .018$).

Second, the subgroup ‘teaching + patient care’ showed an increase of work engagement scores for their *work in general* from 2011 to 2022 ($p < .001$) but neither the 2011 nor 2022 scores were significantly different from the 2016 scores ($p = .291$ and $p = .658$). The work engagement scores for the separate task areas of *teaching* and *patient care* did not change over the years ($p = .743$ and $p = .485$).

Third, the subgroup ‘teaching + research’ also shows a statistically significant increase of work engagement for their *work in general* between 2011 and 2016 and 2022 ($p < .001$ and $p < .001$) and between 2016 and 2022 ($p < .029$). Yet, the work engagement for their separate task areas of *teaching* and *research* did not change ($p = .354$ and $p = .896$).

Finally, the subgroup ‘teaching-only’ increased their work engagement scores for *work in general* between 2011 and 2016 ($p < .001$) and 2022 ($p < .022$). There was no significant difference between 2016 and 2022 ($p = .403$). When looking at work engagement scores for the task area *teaching*, this subgroup differs from the other subgroups in that their work engagement scores for *teaching*

showed a downward trend, but no significant difference between 2011 and 2016 ($p = .987$) and between 2016 and 2022 ($p = .109$). Post hoc analysis showed the decrease from 2011 to 2022 was also not significant ($p = .71$).

Demands and resources related to teaching

Table 2 shows the mean ratings and SDs of job-related aspects of teaching that can be considered demands (i.e., ‘hampering aspects’) or resources (i.e., ‘stimulating aspects’) impacting work engagement. They are ranked by decreasing ratings (in 2022) and compared across the survey rounds.

All 22 aspects had mean scores above 3.0 in all survey rounds. The five aspects with the highest scores (dark grey) remained nearly constant, but the five lowest scoring aspects (light grey) varied in 2022 compared to 2011 and 2016. The highest scoring aspect in all three survey rounds was ‘teaching about my own specialty.’ ‘Freedom to determine what...’ and ‘...how I teach’ were the top 2 and 3 in 2022 and 2016 and increased significantly compared to 2011. HP educators found ‘noticeable appreciation from direct supervisors’ important, and ‘teaching in small groups’ was rated higher in 2022, compared to 2016 and 2011. ‘Teaching in large groups’ and ‘conducting research and publishing on education’ scored lowest in all three survey rounds.

Participants added other stimulating and hampering teaching aspects using two open-ended questions, providing 125 and 138 responses in 2022 which were fewer than in the previous survey rounds. These responses were categorized into 11 stimulating aspects, 8 hampering aspects, and 5 suggestions for improvement using the same categories that were defined and used previously for 2016 and 2011. See Table 3.

Having ‘personal contact with students’ was mentioned by 25.6% of the respondents as the most stimulating aspect in 2022. ‘Student motivation’ continued to be important for stimulating teaching engagement, but the frequency with which it was mentioned varied from 20.9% in 2011 to 25.2% in 2016 to 15.2% in 2022. ‘Having adequate time to plan teaching’ was mentioned more frequently in 2022 from 10.8% in 2011 and 9.6% in 2016 to 15.2% in 2022. The mention of ‘application of content knowledge’ dropped from a frequency of 18.3% in 2016 to 1.6% in 2022. The most frequently added hampering aspects included ‘bureaucracy and rules’ around teaching and ‘poor (IT-related) facilities’, making up 35.5% of additions in 2022, which was in line with 34.1% of additions in 2011 and 35.6% in 2016. The ‘other’ category which made up 23.9% of the hampering aspects added, was mostly related to online education due to the COVID-19 pandemic or specific personal circumstances.

Suggestions for improving teaching engagement in 2022 were related to ‘provision of resources (financial and

Table 2 Aspects that stimulate or hamper teaching engagement

Items	2022 n = 154		2016 n = 154		2011 n = 306	
	Mean	SD	Mean	SD	Mean	SD
Teaching about my own specialty	4.42	.67	4.38	.64	4.50	.56
Freedom to determine what I teach	4.27	.71	4.20	.62	4.03	.64
Freedom to determine how I teach	4.24	.72	4.16	.68	3.94	.65
Teaching to small groups (~12 students)	4.20	.75	4.11	.72	4.06	.80
Noticeable appreciation for teaching from my direct supervisor	4.12	.73	4.14	.66	4.10	.70
Noticeable appreciation for teaching from my immediate colleagues	4.08	.68	4.07	.65	3.99	.67
More secretarial support for my educational tasks	4.03	.80	3.92	.73	3.79	.72
Feedback on my teaching performance	3.95	.69	4.14	.63	4.03	.60
Teaching with an emphasis on the learning process	3.94	.85	3.90	.91	3.57	.96
Teaching with colleagues from other disciplines	3.88	.80	3.93	.69	3.75	.75
Teaching in which the transfer of content is paramount	3.75	.84	3.88	.77	3.98	.66
The possibility of a teaching career	3.60	1.02	3.64	.91	3.54	.82
Feedback from other teachers or teacher teams	3.58	.70	3.80		3.68	.67
Give more publicity to good teachers	3.56	.86	3.85	.73	3.72	.70
More educational assistance from the UMCU Education department	3.55	.73	3.69	.67	3.54	.69
Teaching to medium-sized groups (~40-60 students)	3.51	.87	3.42	.84	3.38	.86
Easing procedures of basic and senior teaching qualification	3.48	1.01	3.60	.92	3.63	.84
Wider range of teacher training courses	3.48	.79	3.65	.77	3.62	.71
Financial reward for obtaining a teaching qualification	3.40	1.06	3.65	.76	3.70	.81
Numerical rating/scores from student evaluations	3.38	.89	3.84	.75	3.73	.74
Teaching large groups (e.g., in the lecture hall)	3.37	.94	3.19	.95	3.30	.94
Conducting research and publishing about education	3.19	1.02	3.17	.86	3.03	.79

Note. Dark grey cells represent the 5 highest scoring aspects; light grey cells represent the 5 lowest scoring aspects

time) for teaching' (41.6%), 'improvement of culture and the value of education' (32.0%), 'improvement of education career support and development' (7.2%) and 'development of teacher skills' (3.2%). The remaining 'other' comments were comprised of miscellaneous suggestions or were not applicable.

Discussion

In general, the work engagement of HP educators in our study has been high and seems to have mainly increased since 2011, both for *work in general* and for the individual task areas of *teaching*, *research*, and *patient care*. The subgroups that showed increased engagement scores for *teaching* combined task areas, either teaching with patient care or teaching with research. Job-related aspects enhancing engagement in teaching included 'freedom to determine what...' and '...how I teach' and 'teaching about my own specialty' consistently remained at the top. Also, in the top 5 was 'noticeable appreciation from direct supervisors.' 'Teaching in large groups' and 'conducting research and publishing on education' scored

lowest in all three survey rounds. Added comments revealed the importance of 'having adequate time to prepare' and 'good (IT-related) facilities'.

The 2011 and 2016 results showed an increase in overall work engagement over time with the largest improvement for HP educators involved in teaching only and for HP educators combining all task areas. While the 2022 results might suggest a trend for continued improvement in work engagement scores, the change was not statistically significant. This could be due to being underpowered. The 2022 results could also have been impacted by the effects of the COVID-19 pandemic, despite delaying the follow-up study by a year. The trend for decreasing engagement in *teaching* seen in the teaching only subgroup would be consistent with a COVID-19 effect. Respondent-added hampering aspects for their teaching included many remarks focused on challenges with technology, the rapid change to online teaching, and the institution's lack of preparedness for it. This is consistent with reports of increased anxiety and stress and decreased teaching satisfaction in university teachers

Table 3 Stimulating and hampering aspects in open-ended queries

Additional stimulating aspects listed	2022 n = 125		2016 n = 218		2011 n = 296	
	n	%	n	%	n	%
Having personal contact with students	32	25.6	13	6.0	17	5.7
Motivated students	19	15.2	55	25.2	62	20.9
Adequate time to plan teaching	19	15.2	21	9.6	32	10.8
Collaboration with colleagues	10	8.0	8	3.7	-	-
Acknowledgement and support for my teaching	7	5.6	18	8.3	33	11.1
Receiving feedback on my teaching	7	5.6	14	6.4	23	7.8
Adequate teaching facilities	3	2.4	8	3.7	27	9.1
Clear organization and expectations	3	2.4	22	10.1	32	10.8
Application of my content knowledge	2	1.6	40	18.3	24	8.1
Teaching fixed groups over time	1	0.8	2	0.9	17	5.7
Other	21	16.8	17	7.8	29	9.8
Additional hampering aspects listed	2022 n = 138		2016 n = 202		2011 n = 302	
	n	%	n	%	n	%
Bureaucracy and rules around teaching	30	21.7	57	28.2	51	16.9
Too little time provided to properly teach	21	15.2	29	14.4	50	16.6
Poor facilities	19	13.8	15	7.4	52	17.2
Lack of appreciation/support for teaching	15	10.9	21	10.4	-	-
Unmotivated students	13	9.4	29	14.4	52	17.2
Not sufficiently familiar with content	5	3.6	9	4.5	15	5.0
Monotonous repeated group teaching	1	0.7	5	2.5	8	2.6
Other	33	23.9	37	18.3	74	24.5
Suggestions for improvements*	2022 n = 125		2016 n = 49		2011 Not Applicable	
	n	%	n	%	n	%
Providing resources (time/money)	52	41.6	10	20.4	-	-
Improving culture (importance/value of education)	40	32.0	17	34.7	-	-
Career support and development	9	7.2	5	10.2	-	-
Teacher skill development	4	3.2	9	18.4	-	-
Other	12	9.6	8	16.3	-	-

* The results on this question from 2011 are not included in this because they were not clustered in the four categories

** n in this table is the number of remarks from respondents

during the COVID-19 pandemic related to online teaching [19, 20]. A follow-up study will be important to see if work engagement in teaching recovers and if increases in work engagement scores in general continue over time as the impacts from COVID diminish. Continued improvements in work engagement scores among HP educators would provide supporting evidence for the positive impact of the center's ongoing faculty development initiatives.

Interestingly, the subgroup combining all three task areas shows the largest increase in work engagement for *work in general* and for each of the three tasks of *teaching*, *research*, and *patient care* relative to the other subgroups of respondents. This stands in greatest contrast to the trend of decreased work engagement in *teaching* in the teaching only subgroup. One explanation might be that when stressors such as COVID-19 impact specific task areas, the respondents with jobs that include other

task areas are able to find respite or additional resources in the less impacted task areas. Van den Berg and colleagues suggest that job resources and demands and the ability to job craft present in one role might be absent in other roles, resulting in different engagement for different roles [14]. Notably, increases in engagement scores for *work in general* were found in all subgroups despite some decreased scores for task areas. This could also suggest a protective effect of other task areas on the engagement for *work in general*, where work as a whole is more than the sum of its parts. A study on multiple life roles (e.g., marital, parenting, caregiver, employment) and stress found that individuals combining more than two roles experience less stress than individuals with only a single role [21]. It is also possible that as participants considered their *work in general*, they might have had in mind their academic career rather than their job per se. Timms and Brough differentiate between career (i.e.

profession) and job (i.e. work done) and note it is career satisfaction, rather than job satisfaction, that is a robust predictor for work engagement of teachers [2]. In academic medical centers where people have multiple roles and tasks, further research needs to focus on how overall job and career perspectives impact a specific role such as teaching.

The top 5 highest scoring stimulating aspects for teaching from the questionnaire can be related to autonomy (freedom to determine *what* and *how* to teach), relatedness (teaching small groups, appreciation from direct supervisor), and competence (teaching about one's own specialty), which have been described by Deci & Ryan [22] as three basic psychological needs. The ability to meet these basic psychological needs can also be seen as job resources that can drive work engagement and job satisfaction of teachers [5, 23] and the lack thereof. An ability to meet these needs could then be seen as job demands that might hinder work engagement and job satisfaction. However, we do need to flag that within our institution, as in many HPE institutions, faculty may teach in courses that are not their 'own.' This means they do not always have the autonomy (i.e., lack the job resource) to choose what and how they teach, and rather are asked to provide teaching that is predefined by someone else which can be considered an additional job demand. In institutions where educators mainly teach courses that are predefined by others, strategies could be employed to increase teachers' autonomy. For example, teachers could be given freedom to adjust specific parts of a course content or delivery method to better suit their expertise or preferences.

The most frequently added stimulating aspects, that could serve as job resources, also align with the need for relatedness (motivated students, having personal contact with students, and collaboration with colleagues) and highlight the importance of support (acknowledgment and support for my teaching, receiving feedback on my teaching). The respondent-added hampering aspects could be viewed as negatively impacting these psychological needs. Online teaching is a new demand on educator competence. Inadequate technology and lack of institutional preparedness as well as not having enough time suggest that the resources available were insufficient to compensate for the new demand and support their competence. Improved *on demand* technological support (e.g., for device setup, during technological failure) and interpersonal support from colleagues and supervisors could have served as important job resources to help sustain motivation, job satisfaction, and work engagement, and prevent educator burnout during times of new or increased job demands.

Based on previous research and conversations with teachers we know that 'conducting research and

publishing on education' is experienced as a value for research and not for teaching itself [17]. In fact, a set of published competencies for medical educators identifies educational scholarship as a specialized competence expected only of teachers occupying specific roles rather than a core competence expected of all teachers [24]. Yet others have argued that while not every teacher needs to engage in the scholarship of teaching and learning (SoTL), every teacher should work towards becoming a scholarly teacher [25]. Consistent with this sentiment, there has been increased attention to SoTL over the recent years in our institution to highlight the importance of evidence informed education in addition to the value of practitioner educational research.

Our results seem aligned with the findings of Van den Berg and colleagues [15] who found that combining roles and job crafting is related to higher engagement. They also saw that engagement scores for patient care were higher than for teaching. Their study suggests that engagement for specific roles can be further increased when faculty are given the autonomy to craft their own jobs more, which can be considered an increase of job resources. Job crafting means that educators have opportunities to make changes in their job demand and resources to shape their job into one that is more meaningful, engaging, and satisfying [26]. While job crafting is an activity that is initiated by employees themselves, when institutions recognize and approve job crafting activities, they build rapport and commitment with their employees [26]. It could therefore be beneficial for academic institutions to investigate the possibilities for job crafting in HPE as a job resource, to further improve work engagement of our educators [27].

Park and Johnson have called upon academic leaders to ensure engagement of teachers by recognizing their contributions and providing development opportunities [5] thereby increasing the job resources for teaching. Over the years, our institution has invested heavily in efforts to do so. In addition to offering different levels of teacher and educator training, we encourage their development through grants for innovation projects, create support via a community for educators, provide recognition using annual outstanding educator awards, and enable career paths for health professionals based on education efforts. These investments are based on previous research that revealed the importance of addressing all four areas of competence, context, community, and career that are essential to enhancing faculty development and increasing engagement in teaching [28].

Limitations and suggestions for future research

There are limitations to this research. First, the response rates in 2022 (~14%) and 2016 (~20%) were low compared to 2011 (~50%). It is possible that the faculty who

took time to participate were most likely those most engaged in teaching, leading to higher than actual mean work engagement scores. The low response rates also resulted in very low numbers in the subgroups, which could have affected the subgroup analysis results. A second limitation is that the data is not linked to individual participants longitudinally. Given that the composition of the teaching faculty changes over time, we opted to collect cross-sectional data at 5-year intervals. Therefore, we can only interpret the results through a trend analysis to draw conclusions about changes over time for the current groups of teaching faculty at the medical center. While we purposefully delayed the survey by one year to minimize the effects of the COVID-19 pandemic, this can also be considered a third limitation since we did not measure engagement during COVID-19. Data from during the COVID-19 pandemic would have helped provide context for post-pandemic results and potentially useful insights on the job resources and job demands of teaching in future pandemic-type disruptions to education. A final limitation is that we focused on teaching. Therefore, we need to be cautious about the overinterpretation of patient care and research engagement scores since we did not gather data from patient care only and research only populations for comparison.

To support our findings and gain more insight into why HP educators with only teaching tasks show a trend for lower work engagement in teaching in 2022, the survey will be continued at regular intervals as a monitoring tool. Future studies with longitudinal study designs and interview approaches could examine whether the stagnation in improvement might be due to COVID-19 and explore potential reasons for improved work engagement other than the center's faculty development initiatives to support HP educators.

Conclusion

As a group, HP educators at one university medical center scored high on work engagement overall and their work engagement increased over time. Faculty members report autonomy, time, and departmental support as crucial job resources to stimulate engagement in teaching. Combining different task areas might allow for an overall balance in job demands-resources and sustained engagement even when job demands increase in one task area. While we cannot demonstrate causation, our findings suggest that robust and sustained attention to institutional investments in faculty development and support may contribute to enhancing faculty teaching engagement over time.

Abbreviations

UWES-9	Utrecht Work Engagement Scale-9
HPE	Health Professions Education
HP	Health Professions

JD-R model	Job Demands-Resources model
NVMO	Nederlandse Vereniging voor Medisch Onderwijs (Dutch Association of Medical Education)
UTQ	University Teaching Qualification

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12909-025-07628-3>.

Supplementary Material 1

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Author contributions

LvB conducted the 2022 survey based on previous versions of 2011 and 2016 and imported it in the online survey tool Qualtrics. LvB and HP jointly analyzed the quantitative data using SPSS. LvB and HCC jointly analyzed the qualitative data (remarks) using the themes derived from analysis in 2011 and 2016. All authors together interpreted and discussed the analysis results to draw conclusions. Then LvB took the lead in writing the manuscript. All authors read all versions of the manuscript, provided edit suggestions and approved the final manuscript.

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the Netherlands Association of Medical Education (NVMO) Ethical Review Board application number 2022.6.6 in October 2022. Informed consent was obtained from participants within the online questionnaire itself (see supplementary file A). Participants could only continue the questionnaire if they responded positively, which guaranteed all respondents signed the informed consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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