The relationship between higher education teachers' approaches to teaching and wellbeing

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Liisa Postareff

PhD, Leading Research Scientist

Director of Unit for Research and Development of Higher Education Pedagogy (HEPeda)

Häme University of Applied Sciences, Finland

Aims of this session

- Provide an understanding of *approaches to teaching* in higher education
- Introduce the *HEAT inventory* and the *HowUTeach self-reflection tool*
- Unravel the relations between approaches to teaching and teacher arousal and wellbeing (THEwellbeing research project)

Background of Approaches to Teaching

- Previous examination of approaches to teaching (processes of teaching) has been criticised
  - Focus on mainly quantitative instruments (see e.g. Chen, 2019; Meyer and Eley 2006; Shum and Fryer 2019).
  - Focus on the **teacher-focused vs. student-focused categories** (Approaches to Teaching Inventory ATI; Trigwell & Prosser, 2004)
- A wider range of dimensions in teachers' approaches to teaching was demonstrated in two large qualitative examinations comprising almost 100 higher education teachers' interviews (Postareff and Lindblom-Ylänne 2008; Postareff et al. 2008).

→ There was a need for a new instrument that measures the **broader variety** of higher education teachers' approaches to teaching (processes of teaching).

HEAT (Higher Education Approaches to Teaching) Inventory

- HEAT was developed on the basis of extensive interview data (Postareff & Lindblom-Ylänne 2008, Postareff et al. 2008)
- **Four different scales** emerging among higher education teachers (3 items per scale)
  - ***Interactive approach***
    - (e.g. In teaching situations, I provide an opportunity for students to deepen their understanding about the subject through discussion).
  - ***Transmissive approach***
    - (e.g. The majority of my teaching time is spent transmitting information to the students about the topic).
  - ***Unreflective approach***
    - (e.g. The students' learning process is so complicated that it is challenging for me to understand how I can support it as a teacher).
  - ***Organised approach***
    - (e.g. I spend a lot of time preparing my teaching).

Postareff, L., Lahdenperä, J., Hailikari, T., & Parpala, A. (2023). The dimensions of approaches to teaching in higher education: a new analysis of teaching profiles. *Higher Education*, *88*, 37-59. https://doi.org/10.1007/s10734-023-01104-x

Parpala, A., & Postareff, L. (2021). Supporting high-quality teaching in higher education through the HowUTeach self-reflection tool. *Journal of Professional and Vocational Education*, *23*(4), 61-67.

Aims of the study

What is the construct validity of the dimensions measuring approaches to teaching?

Based on approaches to teaching, what kind of teaching profiles can be detected among higher education teachers?

How are the various teaching profiles related to teachers' self-efficacy beliefs?

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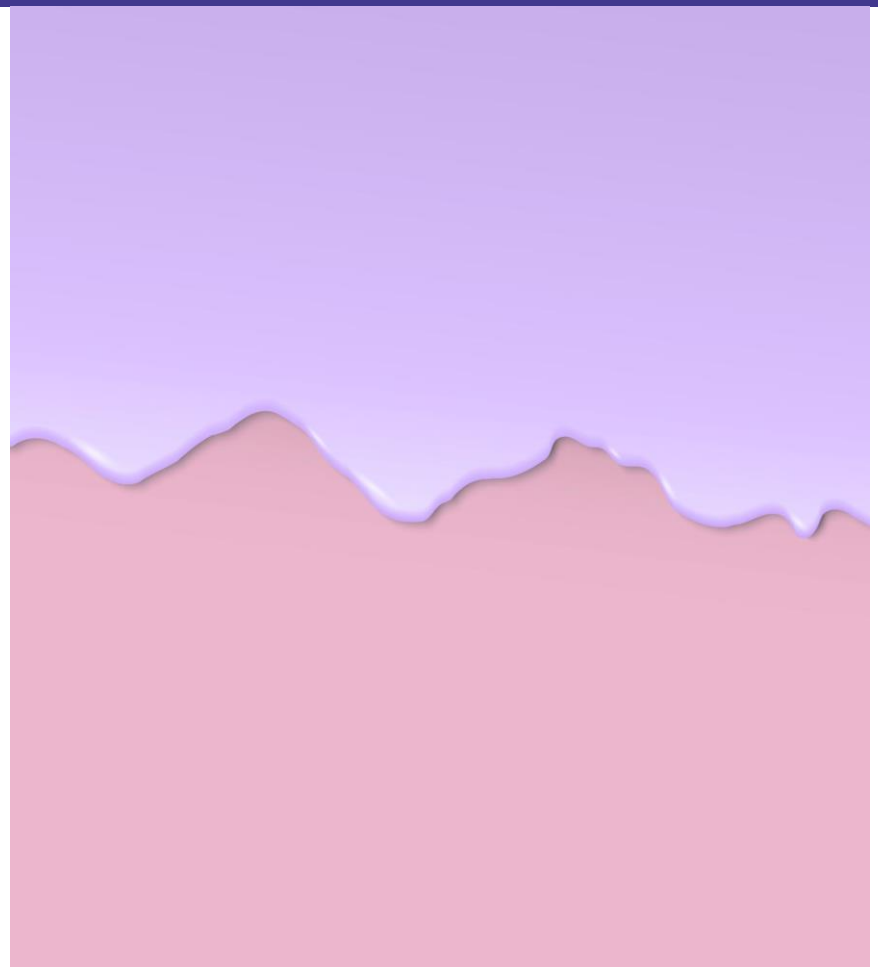
Data

- The participants filled in the HEAT inventory (12 items) and the scale measuring self-efficacy (4 items)
- The scale measuring self-efficacy was adapted to teaching context from a scale measuring students' self-efficacy (HowULearn; Parpala & Lindblom-Ylänne, 2012)
  - (e.g. I am confident that I can manage even in the most difficult teaching situations)
- Likert scale from 1 (strongly disagree) to 5 (strongly agree)
- Teachers were asked to think about a typical teaching situation while answering the items

Participants

- Participants representing Finnish research-intensive universities (UNI) and universities of applied sciences (UAS).
  - The final sample sizes
    - N=158 from four Finnish UNIs
    - N=139 from two Finnish UAS
  - The participants are relatively balanced in terms of gender.
  - In both UAS and UNI data, natural sciences, engineering and technology, and medical and health sciences are well represented.

Measures



The validation procedure consisted of two phases:

- The UNI data was subjected to an exploratory factor analysis (EFA) to identify the factor structure of the questionnaire.
- The identified factor structure was validated through a confirmatory factor analysis (CFA) with the UAS data.

After the instrument validation procedures, the two data sets were merged together for a latent profile analysis.

Teaching-related self-efficacy beliefs were compared using the non-parametric Kruskal-Wallis test by ranks.

Results

The four-factor model of approaches to teaching

- Emerged from the UNI data
- Fitted the UAS data well (χ^2= 54.258, df=48, p=0.248, CFI=0.980, RMSEA=0.031).

Table 3. The factors' Cronbach's alphas (diagonal), bias-adjusted two-tailed Pearson correlations with 95 percent confidence intervals, and means with standard errors.

	F1 Interactive approach	F2 Transmissive approach	F3 Unreflective approach	F4 Organised approach
F1 Interactive approach	.824			
F2 Transmissive approach	-.374*** [-.500, -.230]	.753		
F3 Unreflective approach	-.139 [-.288, .018]	.185* [.029, .331]	.716	
F4 Organised approach	.104 [-.054, .255]	-.058 [-.212, .099]	-.320*** [-.452, -.171]	.718
Mean	3.80	2.67	1.93	4.11
SE	.071	.071	.052	.055

Four teaching profiles were identified

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

Interactive profile

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

- Teachers in the Interactive profile (n=60) scored high on Interactive approach and low on Transmissive and Unreflective approaches

Interactive-organised profile

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

- Teachers in the Interactive-organised profile scored high both on Organised and Interactive approaches

Mixed profile

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

▶Teachers in the Mixed profile had less variance in how they responded to the different dimensions than other profiles

Transmissive profile

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

- Teachers in the Transmissive profile scored high on Transmissive approach, and low on Interactive approach.
- They scored the highest of all profiles in Unreflective approach.

Profiles in relation to self-efficacy

	P1 Inter-active (n=60)	P2 Interactive-organised (n=57)	P3 Mixed (n=144)	P4 Trans-missive (n=36)
Interactive approach	4.23	4.25	4.02	2.49
Transmissive approach	1.75	2.63	2.60	3.39
Unreflective approach	1.18	1.60	2.07	2.18
Organised approach	3.99	4.79	3.84	3.97
Self-efficacy	4.22	4.28	3.98	4.01

- The profiles differed statistically significantly in the factor measuring self-efficacy (χ^2=13.141, df=3, p=.004).
  - Cronbach's alpha =.771
- Profiles scoring highest on Interactive and organized approaches, scored highest on self-efficacy beliefs.

Discussion and implications

- The results support the construct validity of the instrument and indicate that the HEAT enables to capture the teachers' approaches to teaching more broadly than the previous quantitative instruments (ATI; Trigwell and Prosser 2004 and ATI-R; Trigwell, Prosser, and Ginns 2005).
- There is a relation between pedagogical competence and self-efficacy, indication the link between teaching and wellbeing.
- HEAT could be utilised also in other educational contexts. In a recent study, HEAT was utilised among elementary school teachers (Lahdenperä & Postareff, 2025).
- HEAT is part of the HowUTeach self-reflection tool, which teachers can use to evaluate their own teaching processes and wellbeing. For HowUTeach, we have developed counter feedback of the scales measuring approaches to teaching and self-efficacy (see Parpala & Postareff, 2022).

HowUTeach self-reflection tool

- **Approaches to teaching (HEAT)**
  - Interactive approach (3 items)
  - Transmissive approach (3 times)
  - Unreflective teaching (3 times)
  - Organised teaching (3 times)
- **Experiences of work environment**
  - Support from colleagues (3 items)
  - Autonomy (3 items)
- **Well-being**
  - Burnout
    - Exhaustion
    - Inadequacy
    - Cynisism
  - Self-efficacy

Parpala, A., & Postareff, L. (2021). Supporting high-quality teaching in higher education through the HowUTeach self-reflection tool. *Journal of Professional and Vocational Education*, *23*(4), 61-67.

Written feedback of these dimensions

THEwellbeing

The relations between higher education teachers' approachers to teaching, emotions and arousal

Research team

Suomen Akatemia

THEwellbeing

HAMK

PI Liisa Postareff

Merly Kosenkranius

Heta Rintala

Helsingin yliopisto

PI Anna Parpala

Laura Pylväs

Milla Räisänen

Tampereen yliopisto

PI Petri Nokelainen

Ilmari Puhakka

Anna Wallin

Participants and data 1/2

Questionnaire data from 109 HE teachers

- Represented applied universities (*n* =68, 61.8%) and research universities (*n* =42, 38.2%)
- Most of the participants (*n* = 92, 83.6%) were women
- Average total higher education teaching experience was 11.8 years (*SD* =9.136)
- Average number of pedagogical study credit points was 60.5 (*SD* = 55.0)
- Most of the participants (*n* = 83, 75.5%) had formal teaching qualification.

Questionnaire consisted of several scales:

- Teacher Job Satisfaction Scale (TJS; Skaalvik & Skaalvik, 2011)
- Utrecht Work Engagement Scale (UWES-3, Schaufeli et al., 2019)
- School Burnout Inventory (SBI, Salmela-Aro et al., 2009)
- Self-Compassion Scale (SCS, Neff, 2003)
- Reflection Questionnaire (Kember et al., 2000; Lethbridge et al., 2013)
- HEAT; Postareff & Parpala, 2024

Participants and data 2/2

Three different type of data from 46 HE teachers (Oct 23-Jan 24)

1) Psychophysiological data on arousal (EDA; Smart ring)
   - Arousal is related to stress and unconscious emotional responses (Boucsein, 2012), and thus provides an interesting insight into the teachers' wellbeing
   - EDA can be measured from sweating
     - High arousal is caused by emotional sweating, increased sweat gland activity
     - High arousal can be both positive and negative, e.g. enthusiasm or anxiety (see Boucsein, 2012)
2) Video-recorded data on teaching sessions
   - While wearing the ring, the teachersvideo-record their own teaching session (1 hour)
3) Guided reflection interviews (critical incident technique)
   - Segments with high and low arousal levels are presented to the teachers from the videos and they are asked to reflect on their actions and emotions during those segments

Correlations between wellbeing and approaches to teaching

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. TJS	–										
2. ENG	0.49***	–									
3. BURN	-0.44***	-0.26***	–								
4. Self-comp.	0.19**	0.16*	-0.14*	–							
5. REFL	0.17*	0.21**	-0.03	0.15*	–						
6. HUT1_INTER	0.18*	0.12	-0.01	0.14	0.19**	–					
7. HUT2_UNREF	-0.36***	-0.25***	0.36***	-0.19*	-0.04	-0.14	–				
8. HUT3_TRANS	-0.07	0.00	0.12	-0.05	-0.11	-0.26***	0.20**	–			
9. HUT4_ORGAN	0.05	0.08	0.10	0.01	0.28***	0.11	-0.01	-0.04	–		
10. HUT5_CONST	0.15*	0.16*	-0.06	0.23**	0.19**	0.44***	-0.19**	-0.06	0.17*	–	

Nokelainen at al., in prep.

Correlations between wellbeing and approaches to teaching

Unreflective approach to teaching is related to burnout and seem detrimental to job satisfaction

					5.	6.	7.	8.	9.	10.	11.
1. TJS											
2. ENG											
3. BURN											
4. Self-comp.											
5. REFL	0.17*		03	0.15*	–						
6. HUT1_INTER	0.18*	0.12	-0.01	0.14	0.19**	–					
7. HUT2_UNREF	-0.36***	-0.25***	0.36***	-0.19*	-0.04	-0.14	–				
8. HUT3_TRANS	-0.07	0.00	0.12	-0.05	-0.11	-0.26***	0.20**	–			
9. HUT4_ORGAN	0.05	0.08	0.10	0.01	0.28***	0.11	-0.01	-0.04	–		
10. HUT5_CONST	0.15*	0.16*	-0.06	0.23**	0.19**	0.44***	-0.19**	-0.06	0.17*	–	

Nokelainen at al., in prep.

Approaches to teaching and physiological arousal

- Unreflective teaching approach is positively and statistically significantly related to overall physiological arousal during teaching events.
- Teachers with unreflective approach seem to exhibit higher arousal during teaching, and this may be caused by uncertainty over how students learn and how the teacher can help them learn better.
- High arousal during teaching can burden teachers and hamper recovery from teaching events, and therefore it is important to investigate how approaches to teaching and arousal are related.

(Parpala, Nokelainen, Pylväs & Postareff, under review)

A qualitative approach to investigating relations between arousal, approaches to teaching and emotions

What are the relations between

a) approaches to teaching (as analysed from video-recorded data),

b) arousal (as analysed from smart ring data measuring electrodermal activity)
and

c) emotions (as analysed from guided reflection interviews)
during teaching?

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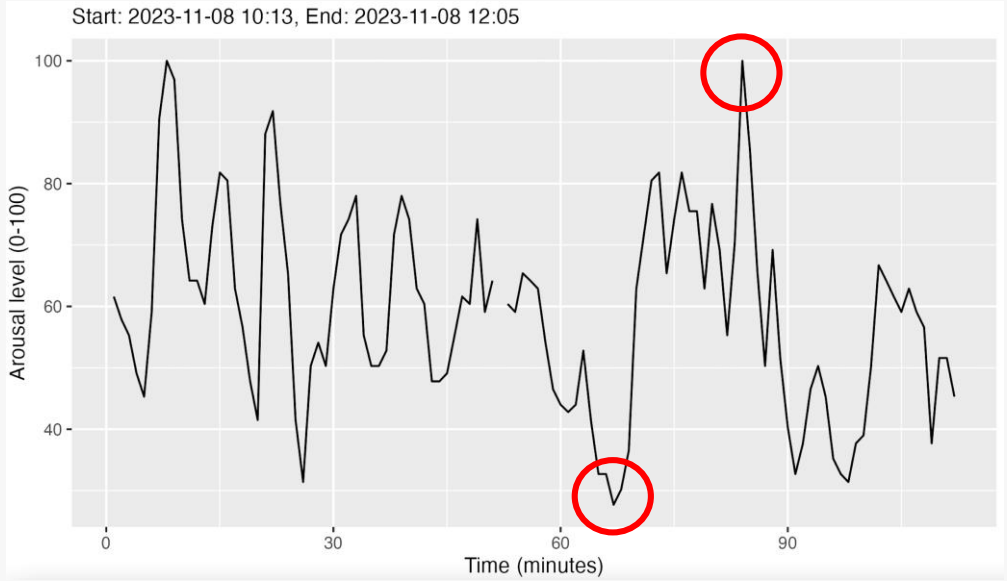
Analysing teaching episodes from video-recorded data

Focus on high and low arousal episodes



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01:11:00	80.5	2023-11-08 11:25:00	72
01:12:00	81.8	2023-11-08 11:26:00	73
01:13:00	65.4	2023-11-08 11:27:00	74
01:14:00	74.2	2023-11-08 11:28:00	75
01:15:00	81.8	2023-11-08 11:29:00	76
01:16:00	75.5	2023-11-08 11:30:00	77
01:17:00	75.5	2023-11-08 11:31:00	78
01:18:00	62.9	2023-11-08 11:32:00	79
01:19:00	76.7	2023-11-08 11:33:00	80
01:20:00	69.2	2023-11-08 11:34:00	81
01:21:00	55.3	2023-11-08 11:35:00	82
01:22:00	70.4	2023-11-08 11:36:00	83
01:23:00	100	2023-11-08 11:37:00	84
01:24:00	85.5	2023-11-08 11:38:00	85
01:25:00	65.4	2023-11-08 11:39:00	86
01:26:00	50.3	2023-11-08 11:40:00	87
01:27:00	69.2	2023-11-08 11:41:00	88
01:28:00	51.6	2023-11-08 11:42:00	89
01:29:00	40.3	2023-11-08 11:43:00	90
01:30:00	32.7	2023-11-08 11:44:00	91
01:31:00	37.7	2023-11-08 11:45:00	92
01:32:00	46.5	2023-11-08 11:46:00	93
01:33:00	50.3	2023-11-08 11:47:00	94
01:34:00	45.3	2023-11-08 11:48:00	95
01:35:00	35.2	2023-11-08 11:49:00	96
01:36:00	32.7	2023-11-08 11:50:00	97
01:37:00	31.4	2023-11-08 11:51:00	98
01:38:00	37.7	2023-11-08 11:52:00	99
01:39:00	39	2023-11-08 11:53:00	100

Moodmetric levels

81-100 running high
61-80 worked up
41-60 active
21-40 serene
0-20 calm

Initial results: high arousal often related with negative emotions

- The teachers described mostly **negative emotions** (e.g., anxiety, frustration, uncertainty) during high arousal episodes.
  - Cognitively challenging situations
    - Difficulty or unfamiliarity of the subject
    - Lack of time compared to the amount of information to be taught
    - Inability to concentrate on teaching
      - Thinking silently whether students understood what was being taught earlier or what will happen next
      - Thinking silently how to give constructive feedback and support student's thinking in difficult interaction situations
  - Challenges in teacher-student interaction
    - Difficulties in activating students and facilitating discussion; Difficulties in reflecting on students' learning; Challenging questions from students
  - Challenges in teaching-learning environment
    - Facilities are not supporting teaching (lecturing room too small etc.)
    - Challenges with online/blended environments
- Sometimes high arousal was related to a **mix of positive and negative emotions** (e.g., enthusiasm and anxiety) or **positive emotions** (e.g. flow experience, productive interaction with students, telling about own experiences, emotional situations)

High arousal often related with transmissive approach

High arousal was often detected in episodes where teachers adopted a **transmissive teaching approach.**

Arousal often **increased when teachers moved from interactive approach to transmissive approach** and decreased when interactive approaches were adopted.

Sometimes high arousal was related with **interactive teaching approach**, especially with **more experienced teachers**.

Initial results: Low arousal

- The teachers described **mostly positive/neutral emotions** (e.g., relief, satisfaction) during low arousal episodes, but **also negative emotions** (e.g., boredom) were detected.
- The **arousal of emotions was often deactivating** (see Pekrun et al., 2023)

Low arousal episodes:

- Topics to be taught are familiar and easy
- The teacher monitors the interaction between students
- Teacher interacts with the students (but don't face challenges in interaction)
- The teacher notices that students understand what is being taught → *lack of unreflective approach?*

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Conclusions

Teachers should be supported in becoming aware of what burdens them during teaching and find ways to cope with the burdening situations.

Interaction lowers the arousal level in teaching while transmissive teaching increases the arousal level (qualitative data).

Unreflective approach associated with higher arousal (quantitative data).

Teachers could recognize and take action in the cognitively challenging situations: How to assure together with the students that the topics of the teaching are understood? *Make the challenging moment explicit.*

Thank you!

liisa.postareff@hamk.fi

More information about THEwellbeing project: