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THE ROLE OF EMOTION AND DEPTH OF REFLECTION FOR CHANGES IN SELF-EFFICACY:

AN INTERVENTION WITH VIDEO LESSONS FOR STUDENT TEACHERS

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AGENDA

1. Theoretical framework & state of research
2. Research question
3. Intervention – Sample – Hypotheses
4. Research results
5. Discussion, implications & further research

THEORETICAL FRAMEWORK & STATE OF RESEARCH

Perceived self-efficacy is defined as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses. (Bandura, 1986, p. 391)

→ **domain-specific** (e.g. Schwarzer & Jerusalem, 2010; Hertel, 2009)
→ relevant for the **professionalization** of pre-service teachers (e.g. Baumert & Kunter, 2006)

4 sources of self-efficacy:

- personal experience
- ***vicariuos experiences*** → model learning (z. B. video lessons)
- verbal persuasion
- Physiological and ***affective states***

Video lessons…

- increased emotional arousal and positive emotions (e.g. practical relevance) Egloff & Souvigner, 2020
- stronger immersion; more joy in video analysis compared to text analysis (more anger) Syring & collegues, 2015

Kleinknecht & Poschinski (2014)

one´s one versus videos of others *(in-service teacher)*

Findings (qualitative research):

- Reflection focus: teacher behavior
- Reports of emotions, especially negative emotions in the condition with someone else‘s video (e.g. disappointment, anger, boredom)
- Correlation of negative emotions and critical scences (depth of reflection)

Gold, Hellermann & Holodynski (2017)

one´s own videos versus videos of others versus text *(teaching students)*

Findings:

- Increasing self-efficacy in video groups (compared to text-based group)

RESEARCH QUESTION

How does student teachers' self-efficacy on heterogeneity change through a video-based short-term intervention and what is the role of learning-related emotions and depths of reflection?

90 minutes

THE INTERVENTION

Explanation of the procedure, link to the VC course, division into groups

video lessons via metavideo portal (eg) versus **text-based case study** (revised transcript; cg), two examples of task instruction

Tom	In das Vierte.
Yumi	In Drittes
Lehrkraft	In das Dritte. Jeder – pscht – Rasmus?
Rasmus	In das Zweite.
Lehrkraft	In das zweite Zimmer möchtest du heute kommen.
S	In das Fünfte.
Lehrkraft	In das fünfte Zimmer. Alicia?
Alicia	In das Vierte.
Lehrkraft	In das Vierte, aha ihr habt heute Großes vor, ihr werdet fast alle in das nächste Zimmer kommen. Marie?
Marie	In das Dritte.
Lehrkraft	Tyson!

welcoming → pretest → theory → case study 1 → posttest 1 → case study 2 → posttest 2

Theoretical input on heterogeneity, focus on teaching in achievement heterogeneous classes.

Variation of the observation assignement:

- eg1/cg: **open** (e.g. *What did you notice positively in the video sequence regarding the topic of teaching in achievement-heterogeneous classes?*)
- eg2: **structured** (e.g *What do you think of the teacher's response to the stated goals? Do you notice any differences??*

Positive and negative affect schedule (PANAS; Breyer & Bluemke, 2016)

5-point scale (positive affect α=.91, *n*=82; negative affect α=.89, *n*=82)

e.g. active; strong; annoyed; irritated; ashamed; nervouse

Self-efficacy: Instructional differentiation and support (Meschede & Hardy, 2020)

4-point scale (α=.84, *n*=76)

e.g. I feel able to make reasoned decisions about differentiation in the classroom.; I am confident that I can productively use the different learning requirements of the students in my lessons.

Reflection (adapted; Reinders, 2016)

4-point scale, 3 subscales

Awareness of thoughts and feelings (α=.80, *n*=76; e.g. I am unclear about my feelings.)

Theoretical contextualization (α=.72, *n*=79 e.g. I understand well how a theoretical concept can describe the situation.)

Theoretical evaluation (α=.91, *n*=80; e.g. Theories help me to better understand educational situations that I have experienced.)

SAMPLE

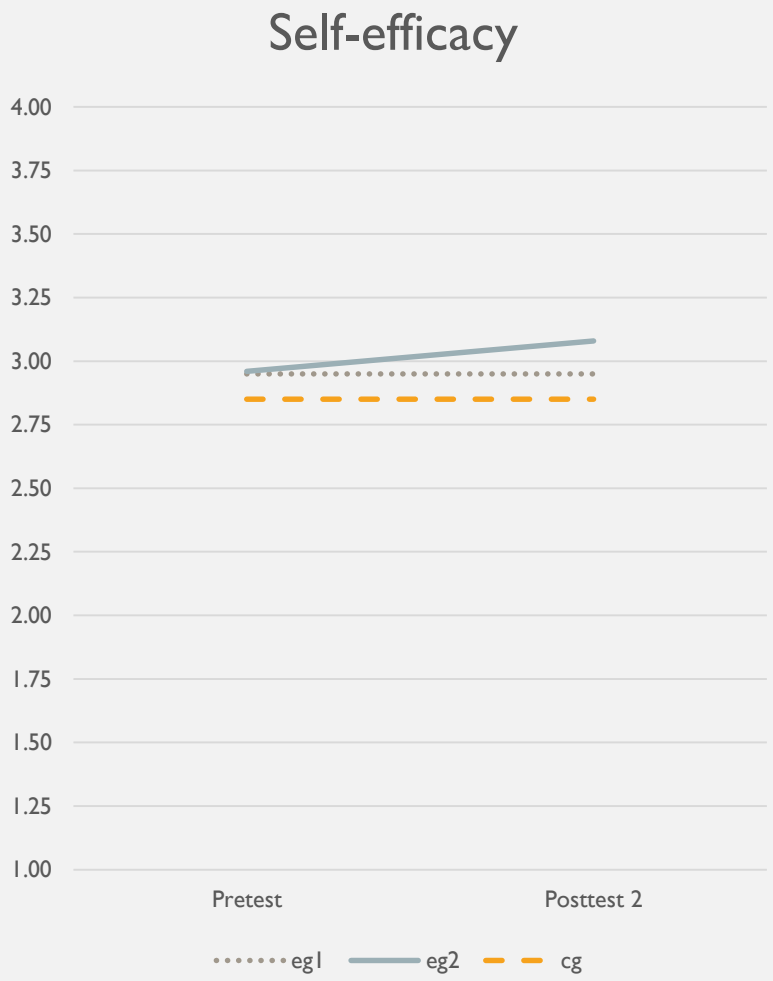
- Recruitment of student teachers, ***N* = 156** (eg1: 58, eg2: 47, cg: 51)
- Dropout *N* = 62 (Posttest 1 51, Posttest 2 11); no systematic Dropout, with most dropping out of the intervention in EG2
- **87.7% female**
- **eg1:** on average in the second semester (*M*=1.63; *SD*=1.94), on average 20 years old (*M*=20.80; *SD*=2.74)
- **eg2:** on average in the second semester (*M*=1.28; *SD*=1.44), on average 20 years old (*M*=20.62, *SD*=2.98)
- **cg:** on average in the second semester (*M*=1.76, *SD*=2.07), on average 21 years old (*M*=21.20, *SD*=3.48)

HYPOTHESIS 1: SELF-EFFICACY AS A RESULT OF THE INTERVENTION INCREASES MORE IN EG2 THAN IN EG1 AND KG.

Analysis of variance with repeated measures (ANOVA)

	df	SS	MS	F	p	η_2	d
Experimental group 1	1	.05	.05	1.36	.253	.041	.206
Experimental group 2	1	.34	.34	7.84	.012	.316	.680
Controll group	1	.00	.00	.027	.871	.001	.032

Hypothesis 2 is accepted.



HYPOTHESIS 2: *EMOTIONAL AROUSAL/ VALENZ CORRELATES WITH REFLECTION.*

	posttest			
	1	**2**	**3**	**4**
1. Positive arousal	1			
2. Negative arousal	.02	1		
3. Reflection (theoretical contextualization)	.48**	-.03	1	
4. Reflection (theoretical evaluation)	.35**	-.02	.42**	1
Means	2.84	1.34	2.48	2.82
Min	1.00	1.00	1.00	1.00
Max	4.50	3.40	3.80	4.00
SD	.85	.51	.54	.63
N	82	82	79	80

- Positive emotional arousal correlates with reflection.
- No significant correlations of reflection and negative emotional arousal.

Hypothesis 2 can be partially accepted.

HYPOTHESIS 3: *EMOTION AND REFLECTION ARE SIGNIFICANT PREDICTORS OF STUDENTS´ SELF-EFFICACY.*

	model 1		model 2		model 3	
	β	*p*	β	*p*	β	*p*
Self-efficacy (pretest)	.84	<.001	.79	<.001	.75	<.001
Positive emotional arousal	.04	.345	-.02	.730	-.03	.555
Negative emotional arousal	-.13	.226	-.14	.187	-.15	.150
Reflection (Theoretical contextualization)			.22	.016	.23	.012
Reflection (Theoretical evaluation)			.04	.535	.06	.355
Prior experience in analyzing videos					.13	.124
model fit	$R = .77$ $R^2 = .59$ corrected $R^2 = .56$		$R = .81$ $R^2 = .66$ corrected $R^2 = .62$		$R = .82$ $R^2 = .68$ corrected $R^2 = .63$	

- Emotions are no significant predictors of self-efficacy.
- Reflection is a significant predictor of self-efficacy.

Hypothesis 3 can be partially accepted.

DISCUSSION

Self-efficacy:

- Increase in self-efficacy (heterogeneity) in EG2 alone (cf. Gold, et al., 2017)
- Depth of reflection (regarding theoretical contextualization) proves to be a significant predictor (subjective measure only, cf. Zhang et al., 2011)

Emotion

- emotions didn´t predict changes in self-efficacy (cf. Bandura, 1986; Kleinknecht & Poschinski, 2014)
- emotion correlates with reflection (cf. Kleinknecht & Poschinski, 2014)
- possible explanations:
  - according to Bandura (mainly negative) affective states are the weakest source of self-efficacy
  - Could other videos (best-practice or negative examples) lead to increased arousal?
  - Lower emotional arousal due to little experience at the beginning of the study less personal reference (cf. Lazarus & Lazarus, 1994)

DISCUSSION

Limitations:

- small sample size
- video selection did not polarize strongly enough (study start)
- operationalization of the depth of reflection

Practical Implication:

- self-efficacy (heterogeneity) can be increased by analyzing video lessons
- well-guided analysis (structured observation assignments) is important, especially at the beginning of the study period
- reflection, emotion, and self-efficacy are associated with each other

Further Research:

- different video selection (worst examples versus best examples)
- Which videos trigger arousal at the beginning of the study?
- operationalization of depth of reflection (insert further aspects; e.g., consequences for students, alternative teacher actions)
- collaborative settings for analyzing video lessons (influence on students´emotions)

Thank you for your attention!

Schlosser, A., and Paetsch, J. (under review). The role of Emotion and Reflection in the Development of Student Teachers´ Self-Efficacy When Analyzing Video Lessons. *Frontiers in Psychology.*

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