Preregistration

Thinkaloud study on the perception of a clearinghouse for teachers

[Authors blinded for peer-review][1]

[1] [affiliation blinded for peer-review]

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Study Information

Title	Thinkaloud study on the perception of a clearinghouse for teachers
Description	To facilitate evidence-informed classroom practice, several clearinghouses have emerged in recent years. These clearinghouses provide information on current research in various topics related to teaching in a way that is accessible to stakeholders in teacher education. Examples of clearinghouses include the *What Works Clearinghouse*, the *Teaching and Learning Toolkit* and the *Evidence Reviews* of the Education Endowment Foundation as well as the *Clearing House Unterricht* and the *TüDi-BASE* in Germany. Despite these efforts, there has been little research on the design and use of these services. Key questions are thus still to be resolved and require the accumulation of empirical evidence. These include

> 1. how users with different characteristic profiles or traits engage with contents of the clearinghouses and

2. how these traits are related to learning outcome (recall, transfer) and attitudes or beliefs about the service (value, beliefs).

Concerning 1. we will (a) compare samples from our *two target audiences* (pre-service teachers vs. teacher educators) and (b) investigate *person-specific predictors* (beliefs, knowledge, skills) on the use of the clearinghouse's contents and its outcome.
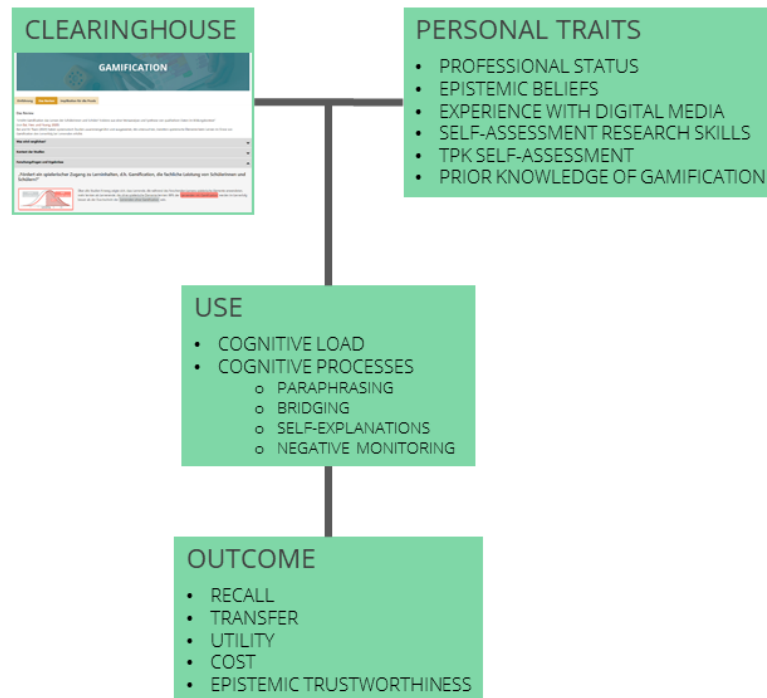
In a first exploratory study, we investigate these questions through the use of thinkaloud protocols and survey questions. From this data we aim to derive hypotheses on the use of the contents of clearinghouses and the outcomes of engagement for our target audiences (pre-service teachers and teacher educators). Future testing and design of our clearinghouse will be based on these new insights.

Hypotheses   There are no confirmatory hypotheses to be tested.

Design Plan

Study type	**Observational Study**. Data is collected from study subjects that are not randomly assigned to a treatment.
Blinding	As there is no treatment, no blinding is involved in this study. However, the participant will be blinded toward the specific goal of the study and which behavior the researchers are looking for in later coding.
Study design	We apply a cross sectional observational study design. The core element of the investigation is a thinkaloud study, before and after which participants answer a questionnaire (no repeated measures).
Randomization	As there is no treatment, there will be no randomization.

Sampling Plan

Existing data	**Registration prior to creation of data**. As of the date of submission of this research plan for preregistration, the data have not yet been collected, created, or realized.
Explanation of existing data	No existing data.
Data collection procedures	We collect data from the populations *pre-service teachers* and *teacher educators*. Pre-service teachers will be recruited via newsletter at our local university and teacher educators will be directly contacted via e-mail (as there are less potential participants and e-mails available via institutional website). Eligibility criteria for pre-service teachers are: The participant... • studies to become a teacher in lower secondary school or upper secondary school • has not yet studied the clearinghouse website

Eligibility criteria for teacher educators are: The participant...

- teaches pre-service or in-service teachers at a state-approved institution
- has not yet studied the clearinghouse website

Participants will receive a reimbursement of 10 €.

Sample size Our target sample size is 25 pre-service teachers and 25 teacher educators.

Sample size rationale Following the expertise paradigm (Ericsson et al., 2018), differences with large effect can be assumed between the the two groups (pre-service teachers, teacher educators). A power analysis with G*Power indicates a minimum sample number of N = 46 for detecting large differences in means between two groups (at d = .75, power = 80%, α = .05).

Stopping rule If, after extensive efforts, we are unable to acquire the 25 participants, the analyses will be carried out with a reduced number of participants. We will then further emphasize the exploratory character of the analyses.

Variables

Manipulated variables No manipulated variables.

Measured variables Pretest:

- Professional status (single choice: teacher educator or student teacher)
- gender (male, female, diverse)
- Work experience in years or semesters of study
- Subjects taught (long list of multiple choice options)
- Type of school (single choice: lower secondary school, upper secondary school)
- awareness of TüDi-BASE (yes/no)
- epistemological beliefs (Texture and Simplicity; 7-point semantic differentials)
- experience with digital media (experience types)

- Self-assessment research skills (Reflective Skills subscale; 5-point Likert scale).
- TPK self-assessment (4-point Likert scale)
- Prior knowledge of gamification (self-report; 6-point Likert scale)

Posttest:

- Mental Effort (single item; 9-point semantic differential)
- Difficulty (single item; 9-point semantic differential)
- Open Recall (open question)
- Utility (4-point Likert scale)
- Cost (4-point Likert scale)
- Epistemic Trustworthiness (7-point semantic differentials)
- Transfer (3 open questions)

Indices   All scales will be combined to a single score via means, respectively.

Analysis Plan

Statistical models   As indicated all analyses will be exploratory.

Transformations   Thinkaloud interview data will be coded for participants engaging in

- paraphrasing
- bridging inferences
- self-explanations
- negative monitoring

Inference criteria   As indicated all analyses will be exploratory.

Data exclusion   Participants who are already fully familiar with the clearinghouse will be excluded. Participants who quit the pretest, posttest or the thinkaloud interview will be excluded.

Missing data	If there is more than 5% missingness in one variable we will impute data. In all other cases the analyses will be conducted without considering missingness.

Exploratory analyses (optional)	We will

- Compute epistemic network analyses with the coded data from the thinkaloud protocols
- explore how to predict cognitive load (mental effort, difficulty) e.g. via self-assessed reserach skills and prior knowledge
- explore how to predict recall e.g. via prior knowledge and participants paraphrasing information
- explore how to predict transfer e.g. via participants bridging and self-explaining information
- explore how to predict utility and cost e.g. via epistemic beliefs and self-assessed reserach skills

Other

Other (Optional)	None.

References