

User Experience of German Plain Language Summaries of Psychological Meta-Analyses (“KLARpsy-Texte”) - A Qualitative Study Including Thinking Aloud

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Registration Metadata

This preregistration follows the form for the preregistration of qualitative studies developed by Haven et al. (2020).

Title

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Description

To communicate research findings in a lay-friendly and scientifically correct way, plain language summaries (PLSs) have been introduced. PLSs are short summaries of scientific publications using lay-friendly language and accessible formatting. While the need for PLSs is widely recognized, only rare evidence on effective criteria is available, and guidelines on how to write them differ considerably. In psychology, there is a particular lack of evidence-based guidance for writing PLSs. Project “PLan Psy” aims at developing an evidence-based guideline for writing PLSs of psychological meta-analyses. For this purpose, various empirical studies are conducted, including a qualitative study using Thinking Aloud [TA] on user experience when reading guideline-based PLSs in an online interface which is preregistered here.

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Subjects

Social and Behavioral Sciences, Arts and Humanities, Life Sciences, Medicine and Health Sciences

Keywords

Science communication, plain language summaries, psychological research, meta-analysis, qualitative study, user experience, thinking aloud, empowerment

Study Information

Research Aim

The aim of our project (“PLan Psy”) is to develop an evidence-based guideline for writing PLSs of psychological meta-analyses in German language (called “*KLARpsy-Texte*”). A systematic literature review, four large experimental studies as well as a qualitative study (focus group study) have already been conducted. In science communication, as with all communication, two sides need to be considered, a sender and a receiver, as well as the medium. Based on PLSs for psychological meta-analyses - developed according to the evidence-based guideline (as main outcome of PLan Psy) - the aim of this qualitative study is to learn about the user experience of the receivers (i.e. target group) in using these PLSs. Target group for *KLARpsy-Texte* are laypersons interested in psychological topics as well as professionals applying and/or communicating psychological knowledge in their daily practice (practitioners).

We aim to explore laypersons’ and professionals’ user experience when reading guideline-based *KLARpsy-Texte* that are implemented in an online interface (mock-up website).

From the findings, we expect to gain more insights into:

- users’ experience on how guideline-based *KLARpsy-Texte* in an online interface (website) meet their needs and how these *KLARpsy-Texte* and the website could potentially be adapted (e.g. design),
- the experience of various user groups when using *KLARpsy-Texte* in an online interface (website).

Research Questions

The following exploratory research questions will be addressed:

1. What is the general user experience with guideline-based *KLARpsy-Texte* in an online interface (website)?
2. Does user experience differ between laypersons and practitioners?
3. Is there a relationship between sociodemographic data (age, sex, education level) and affinity for online-based information search for psychological topics on the one hand and user experience on the other?

Anticipated Duration

Study start date: 06/2023; study end date: 10/2023

Design Plan

Study Design

We will perform an online-based, qualitative study.

Sampling and Case Selection Strategy

User experience with the *KLARpsy-Texte* in an online interface will be assessed in participants from the adult general population who are interested in psychological topics (“laypersons”) or who are science communicators and psychologists working as consultants and/or therapists (“practitioners”).

We will recruit participants via online platforms, email distribution lists and social media channels (volunteer sampling). According to previous research on sample sizes required for usability testing, most usability problems are detected within the first four to five participants, with larger sample sizes being viewed as unlikely to reveal new information on usability problems (Lewis, 1994; Nielsen, 1994; Turner et al., 2006; Virzi, 1992). However, due to debates on this matter, we also performed sample size calculation based on problem occurrence probability (p) and the likelihood/chance of detecting a problem at least once ($P(x \geq 1)$; Sauro & Lewis, 2016). Using a probability of occurrence of 0.15 ($p = 0.15$) and a likelihood to be able to observe 85% of the problems ($(P(x \geq 1) = 85\%)$), we calculated a total sample size of 12 participants, and aim to recruit a balanced number of participants in the subgroups of laypersons and practitioners (i.e. 6 subjects, respectively).

Inclusion criteria for participants are:

- For all participants: German language skills at native speaker level, age 18 years and older
- For participants in the “laypersons group”: no degree in psychology, but interest in psychological research
- For participants in the “practitioners groups”: professional involvement with science communication (including psychological topics) or degree in psychology and professional activity in a psychological and/or educational practice context

Data Collection

Data Source and Data Type

We will collect sociodemographic data (age, sex, education level) along with the participants’ status as layperson vs. practitioner and their affinity to search information on psychological topics online.

Outcome data include verbatim transcriptions of video and auditory recordings (Webex video conferencing tool) collected during a single online TA session regarding user experience (qualitative data).

For data collection, person-related information will be pseudonymized (pseudonymization list).

Data Collection Methods

Data will be collected in one-on-one online meetings (Webex video conferencing tool) between a researcher and individual participants to perform the TA method using a self-developed interview guide.

During the TA session, participants will have access to the online interface (mock-up website) including two selected, guideline-based *KLARpsy-Texte* for psychological meta-analyses (1. computer games and thinking processes; 2. psychotherapy and depression). In the presence of the researcher, they will be asked to inspect the online interface, to read the *KLARpsy-Texte* (15 minutes for each *KLARpsy-Text*), and to use different features on the website (e.g. *KLARsaurus*, a glossary tool for the translation of psychological terms into plain language descriptions). Simultaneously (i.e. concurrent TA), participants will be asked to vocalize their thoughts, actions, expectations and to articulate any confusion or concerns that arise when using the online interface.

Online sessions will be recorded using Webex sharing and recording options. We will ask participants to use a laptop or tablet computer with audio input, and to share their screen during the TA session. The researcher will provide a short introduction into the Webex video conferencing tool (e.g. explaining how participants can share their screen), explain the study background, and the principles of the TA method with a short exercise of TA. Participants will be allowed to ask questions before starting and recording the actual TA session.

Data Collection Tools, Instruments or Plans

The interview guide for the online TA method was developed based on research literature (Alhejaili et al., 2022; Frommann, 2005; Mittelstand 4.0 Kompetenzzentrum Usability, 2022; Schnell, 2016; Yen & Bakken, 2009; Yom et al., 2009) and can be found in the Appendix in this preregistration.

Stopping Criteria

When enough participants ($N = 12$) have successfully been included, participant recruitment will be stopped. The data collection including the TA method and the user experience questionnaire will last 90-120 minutes.

Analysis Plan

Data Analysis Approach

For qualitative data collected during the TA method, data analysis will be based on qualitative content analysis according to Kuckartz and Rädiker (2022) using a deductive-inductive categorization approach.

The “*Honeycomb framework of user experience*” is a theoretical model adapted for the purpose of exploring and reporting user experience in the context of evidence-based decision making (Morville, 2004; Rosenbaum, 2010). First, based on this framework, which differs eight attributes of user experience, we will use the following categories to structure the verbatim statements of participants (deductive approach):

- 1) Accessibility: are there physical barriers to actually gaining access to the product¹, also for people with handicaps?
- 2) Findability: can users locate what they are looking for?
- 3) Usefulness: does the product have practical value for the users?
- 4) Usability: how easy and satisfying is the product to use?
- 5) Understandability²: do users understand the document category (users' subjective perception)?
- 6) Credibility: is the product trustworthy?
- 7) Desirability: is the product something the users want? Do the users have a positive emotional response to the product?
- 8) Affiliation: do users identify themselves with the product or have a feeling that the (scientific) information presented is for "someone like me" when dealing with the product?

¹ In this preregistration, the term "product" refers to the *KLARpsy-Texte* presented in the online interface (mock-up website).

² According to Rosenbaum (2010), in the context of providing evidence-based information, this category includes a subjective measure of document category (i.e., what type of information or text) and document content as well as an objective measure of (actual) correct understanding of the document category/content, which could be tested separately. The objective understandability of the *document category* as well as the subjective and objective understandability of *document content* have already been investigated in four randomized experiments (Jonas et al., 2022; Kerwer, Jonas, et al., submitted; Kerwer, Stoll, et al., 2021), which is why in this study, we focus only on users' subjective perception of understandability of the document category.

Second, verbatim statements will be summarized to further sub-categories or new superordinate categories (inductive approach).

Data Analysis Process

Two researchers (MS, AMK) will independently code the transcribed interviews deductively, using an initial coding system based on the main categories from the adapted Honeycomb model (Rosenbaum, 2010). Additional categories and subcategories will be developed inductively. This process will be used to develop the final coding system based on the initial main categories as well as the newly added categories and subcategories. The final coding system will be developed by the two researchers (MS, AMK) who performed the data review in cooperation with all study authors. Transcription will be performed by amanu GmbH, data analysis will be performed in MAXQDA.

After the participants' qualitative data have been linked with other data (e.g. sociodemographic information), data will be analyzed anonymously.

Credibility Strategies (Qualitative Data)

To ensure the credibility of the data analysis and the methodological integrity, we will have different researchers (MS, AMK) review the data. Consensus will be built among all study authors. Moreover, all results are discussed by all study authors.

By relying on the adapted Honeycomb model, which is based on the widespread original framework by Morville (2004) and has been examined in the context of providing evidence-based information from systematic reviews (Rosenbaum, 2010) for our first set of coding categories, we endeavor to base our analysis on existing theoretical evidence while also exploiting the potential of the individual response data of research participants.

References

- Alhejaili, A., Wharrad, H., & Windle, R. (2022). A pilot study conducting online think aloud qualitative method during social distancing: benefits and challenges. *Healthcare (Basel)*, 10(9). <https://doi.org/10.3390/healthcare10091700>
- Frommann, U. (2005). *Die Methode „Lautes Denken“* https://www.e-teaching.org/didaktik/qualitaet/usability/Lautes%20Denken_e-teaching_org.pdf
- Haven, T. L., Errington, T. M., Gleditsch, K. S., van Grootel, L., Jacobs, A. M., Kern, F. G., Piñeiro, R., Rosenblatt, F., & Mokkink, L. B. (2020). Preregistering qualitative research: a delphi study. *International Journal of Qualitative Methods*, 19, 1609406920976417. <https://doi.org/10.1177/1609406920976417>
- Jonas, M., Kerwer, M., Stoll, M., Benz, G., & Chasiotis, A. (2022). *Translating the evidence of psychological meta-analyses into plain language - Study 6*. PsychArchives. <https://doi.org/10.23668/psycharchives.8251>
- Kerwer, M., Jonas, M., Stoll, M., Benz, G., & Chasiotis, A. (submitted). A randomized controlled study on the effectiveness of plain language summaries of psychological meta-analyses. *Zeitschrift für Psychologie*.
- Kerwer, M., Stoll, M., Jonas, M., Benz, G., & Chasiotis, A. (2021). How to put It plainly? Findings from two randomized controlled studies on writing plain language summaries for psychological meta-analyses. *Front Psychol*, 12, 771399. <https://doi.org/10.3389/fpsyg.2021.771399>
- Kuckartz, U., & Rädiker, S. (2022). *Qualitative Inhaltsanalyse - Methoden, Praxis, Computerunterstützung* (5. Aufl.). Beltz Juventa Verlag.
- Lewis, J. R. (1994). Sample sizes for usability studies: additional considerations. *Hum Factors*, 36(2), 368-378. <https://doi.org/10.1177/001872089403600215>
- Mittelstand 4.0 Kompetenzzentrum Usability. (2022). *Lautes Denken - Methodenkarte*. <https://www.kompetenzzentrum-usability.digital/angebote/materialien/werkzeugkasten?pagenr=43>
- Morville, P. (2004). *User experience design. Semantic studios*. https://semanticstudios.com/user_experience_design/
- Nielsen, J. (1994). Estimating the number of subjects needed for a thinking aloud test. *Int. J. Human-Computer Studies*, 41, 385-397.
- Rosenbaum, S. (2010). *Improving the user experience of summarized evidence. A design approach to evidence-informed health care*. AHO. The Oslo School of Architecture and Design.
- Sauro, J., & Lewis, J. R. (2016). What sample sizes do we need? Part 2: formative studies. In *Quantifying the User Experience. Practical Statistics for User Research* (pp. 143-183). Morgan Kaufmann.
- Schnell, C. (2016). "Lautes Denken" als qualitative Methode zur Untersuchung der Validität von Testitems. *ZföB Zeitschrift für ökonomische Bildung*, 5, 26-49. https://www.zfoeb.de/2017_5/2017-5_schnell_lautes_denken.pdf
- Turner, C. W., Lewis, J. R., & Nielsen, J. (2006). Determining usability test sample size.
- Virzi, R. A. (1992). Refining the test phase of usability evaluation: how many subjects is enough? *Human Factors*, 34(4), 457-468. <https://doi.org/10.1177/001872089203400407>
- Yen, P. Y., & Bakken, S. (2009). A comparison of usability evaluation methods: heuristic evaluation versus end-user think-aloud protocol - an example from a web-based communication tool for nurse scheduling. *AMIA Annu Symp Proc*, 2009, 714-718.
- Yom, M., Wilhelm, T. H., & Gauert, S. (2009). Protokolle lauten Denkens und Site Covering. In R. Buber & H. H. Holzmüller (Eds.), *Qualitative Marktforschung* (pp. 635–652). Gabler.

Appendix: Shortened Thinking Aloud Protocol and Interview Guide

Anmerkungen vorab

- Begrüßung
- Kurze Einführung in das Videokonferenz-Tool
- Aufklärung über Aufzeichnung des Gesprächs
- Hintergrundinformationen (ergänzend zur schriftlichen Studieninformation)

Abfrage der soziodemografischen Daten

- Erfragen von Alter, Geschlecht, höchster Bildungsabschluss
- Erfragen von persönlicher Affinität/Neigung, online nach psychologischen Themen zu recherchieren (Häufigkeit von entsprechenden Online-Recherchen im letzten Monat)

Einweisung in Methodik des „Lauten Denkens“ & Beispiel

- Ziel, inhaltlicher Ablauf und Methodik des „Lauten Denkens“ wird erläutert
- Kurze Trainingsphase zum „Lauten Denken“

Start der Aufzeichnung: „Lautes Denken“

- „Lautes Denken“ während Betrachtung der Webseite & Aufzeichnung über Webex
- Abschluss „Lautes Denken“: Nach Bearbeitung der Aufgabe werden folgende Fragen gestellt:
 - *„Was mochtest du am meisten an der Webseite insgesamt und warum?“*
 - *Was mochtest du am meisten an den KLARpsy-Texten und warum?*
 - *Was mochtest du am wenigsten an der Webseite insgesamt und warum?*
 - *Was mochtest du am wenigsten an den KLARpsy-Texten und warum?*
 - *Hast du irgendwelche Verbesserungsvorschläge?*
 - *Würdest du die Webseite weiterempfehlen? Warum (nicht)?*
 - *Würdest du die KLARpsy-Texte weiterempfehlen? Warum (nicht)?*
 - *Hast du auch vom Inhalt des KLARpsy-Textes etwas mitgenommen? Falls ja, was genau?*
 - *Gibt es etwas, über das wir noch nicht gesprochen haben, was aus deiner Sicht aber noch wichtig wäre?“*