

# SURVEY TRANSLATION 4.0

---

**Veronika Keck, Dorothée Behr, Brita Dorer,  
Diana Zavala-Rojas (PI), Danielly Sorato**

CSDI workshop, March 22nd to April 8th, 2021

# Content

1. Social Sciences & Humanities Open Cloud (SSHOC)
2. Machine translation (MT) study within SSHOC: Overall goal
3. Focus today: Usability of machine translation in the context of questionnaire translation from a user-centered perspective
  - 3.1 Concept and research questions
  - 3.2 Findings
  - 3.3 Conclusion

Project:



Horizon 2020  
European Union Funding  
for Research & Innovation

**Type of action & funding:**  
Research and Innovation action  
(INFRAEOSC-04-2018)

**Partners: 45**

(20 beneficiaries + 25 LTPs)

SSH ESFRI Landmarks and Projects  
& international SSH data infrastructures

**Project budget:**  
€ 14,455,594.08

**Duration: 40 months**  
(January 2019 – 30 April 2022)

**Project website:**  
[www.SSHopencloud.eu](http://www.SSHopencloud.eu)



**Objectives:**

- creating the social sciences and humanities (**SSH**) part of European Open Science Cloud (**EOSC**)
- maximising **re-use** through **Open Science** and **FAIR** principles (standards, common catalogue, access control, semantic techniques, training)
- interconnecting existing and new infrastructures (clustered cloud infrastructure)
- establishing appropriate **governance model** for SSH-EOSC

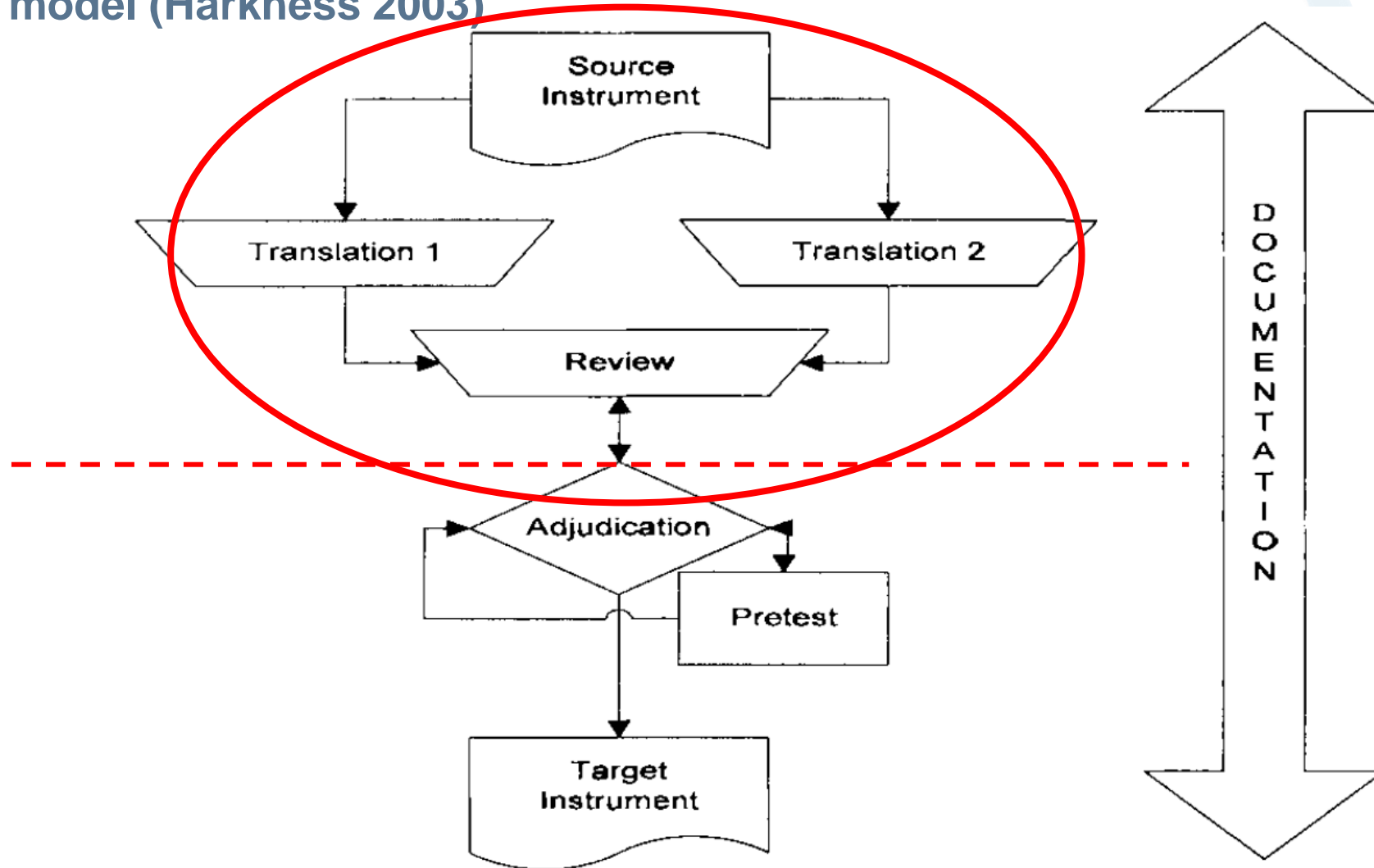


# Machine translation study within SSHOC: Overall goal

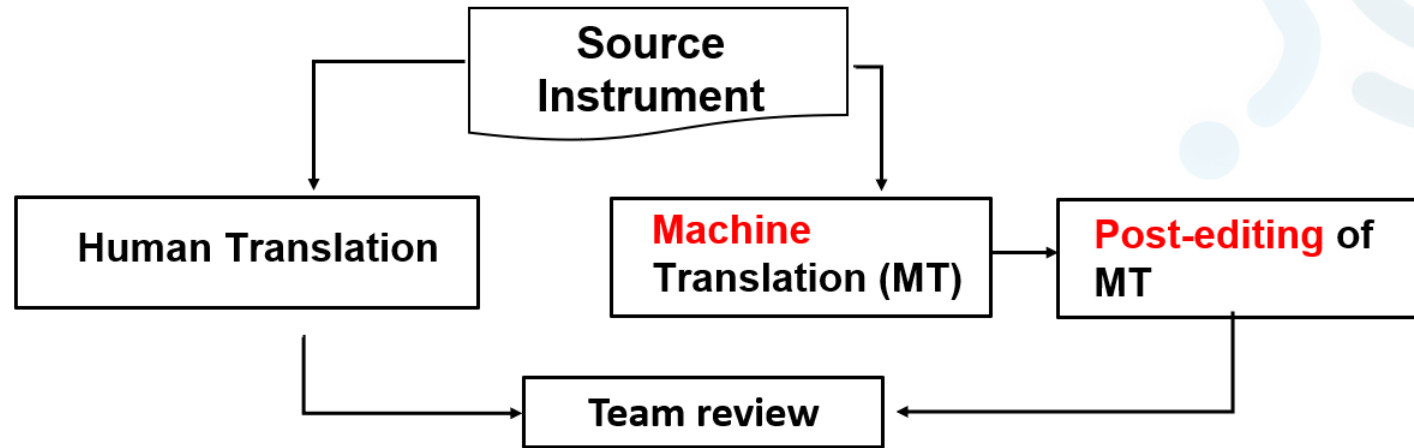


# TRAPD Model

TRAPD model (Harkness 2003)

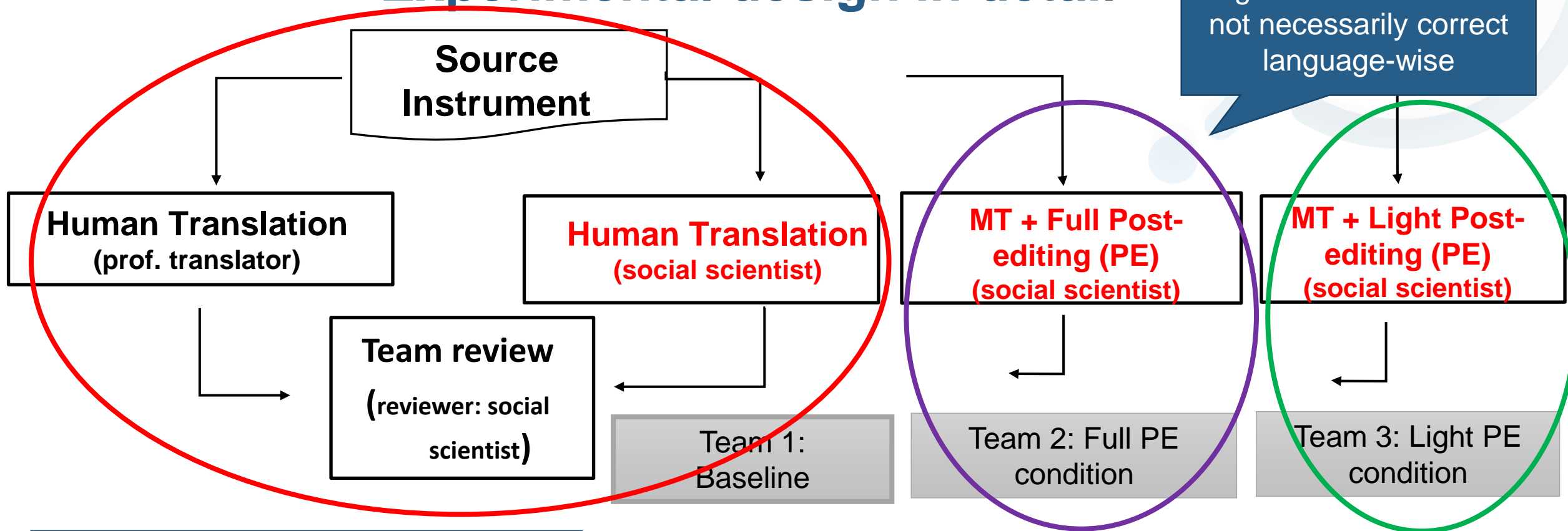


# Adapted TRA Model & Experimental Goal



- Making use of machine translation (MT) at the translation stage
- Obtaining evidence on the potential for employing MT for survey translation
- MT may save time and costs while maintaining good text quality – this is to be tested!

# Experimental design in detail



3 teams for English-German, 3 teams for English-Russian, 3 persons per team, in total: 18 persons (6 professional translator, 12 social scientists)

Full PE: human-like  
Light PE: accurate but not necessarily correct language-wise

# Post-editing example

Context: In the last 12 months , that is since [March, 2021], were you ever unable to get a medical consultation or the treatment you needed for any of the reasons listed on this card?

Source text: Could not take the time off work

Machine-translated text: Ich konnte mir keine Zeit für die Arbeit nehmen [*I could not take time for work*]

Full post-editing:

~~Ich k~~Konnte mir ~~keine Zeit für die~~nicht von der Arbeit frei nehmen

Light post-editing:

Ich konnte mir ~~keine Zeit für die Arb~~nicht frei nehmen



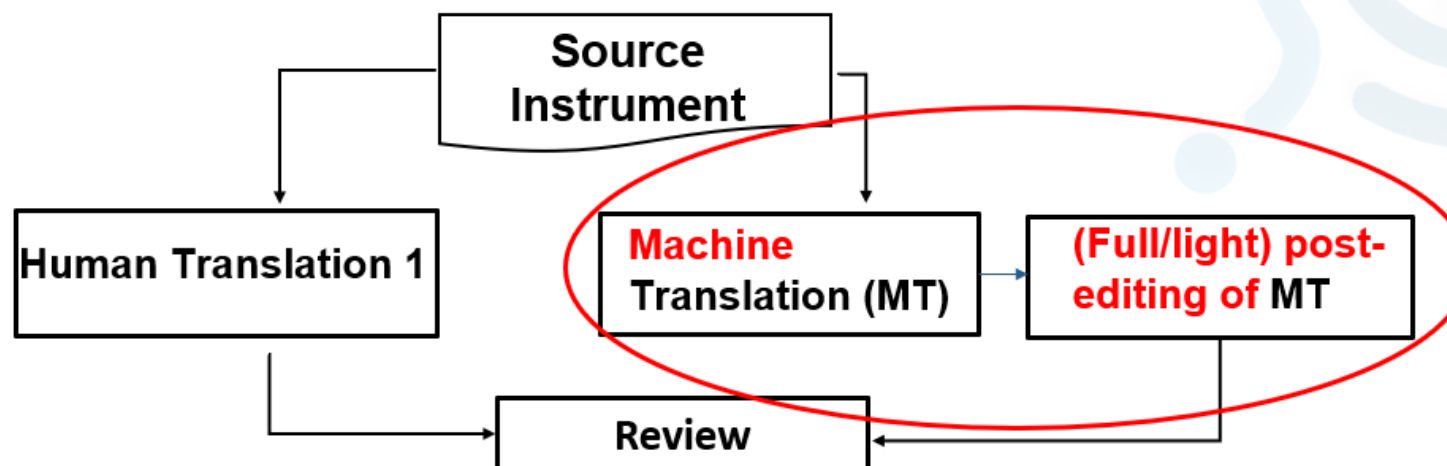


**Focus today:**

# **Usability of machine translation in the context of questionnaire translation from a user-centered perspective**



# Concept: Usability of machine translation



- Usability is one of the key factors for increasing adoption of MT.
- Usability: “extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use” (ISO 9241-11:2018(E) usability standards).

# Research Questions

## **1. Does usage of machine-translated text increase the efficiency of the translation process?**

Efficiency will be evaluated by comparison of temporal effort needed to produce a text from a translator and a post-editor perspective.

## **2. Can machine translated text be used effectively?**

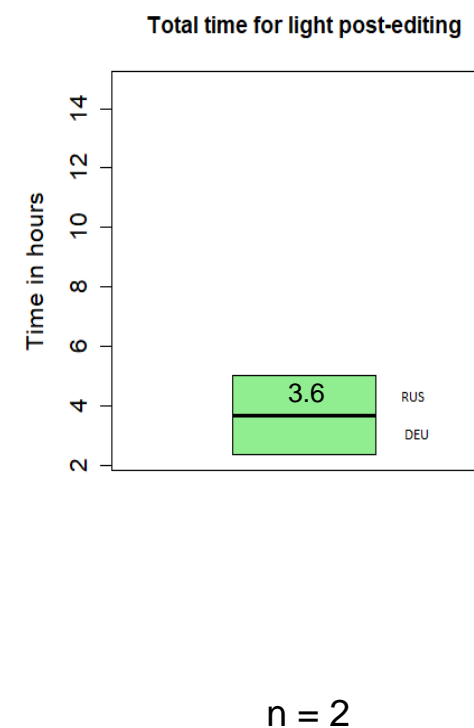
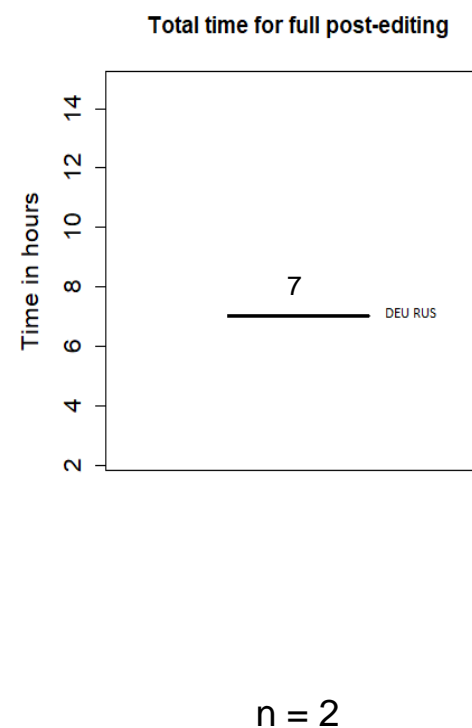
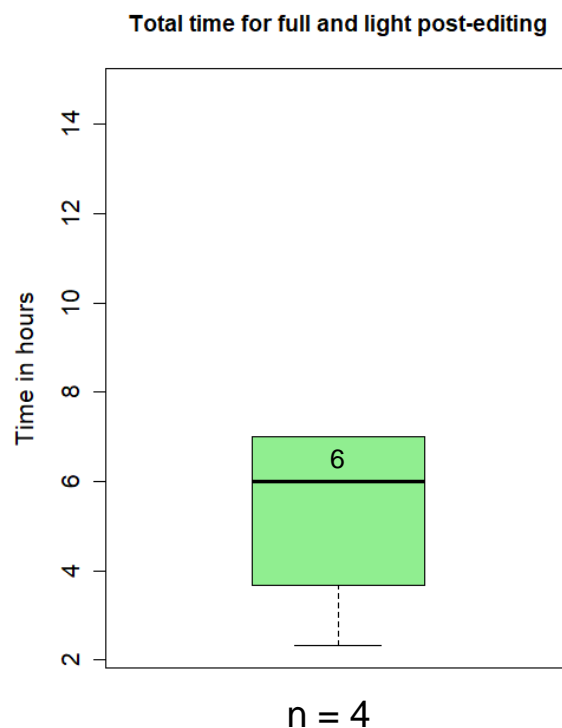
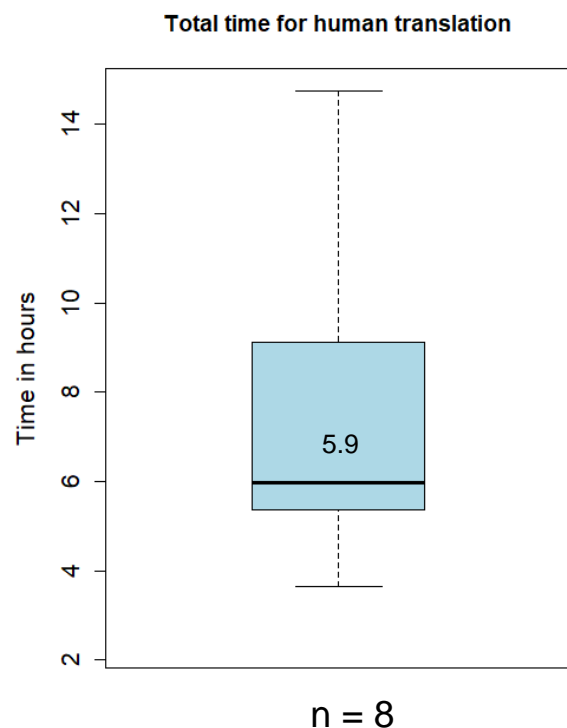
Effectiveness will be measured by analysis of the errors produced by a machine engine (error categories were selected by post-editors).

## **3. How satisfied are post-editors with the machine-translated text? Are there any changes in the participants' attitude towards machine translation before and after the use of machine translated text?**

Satisfaction will be captured by a pre- and post-task questionnaire.

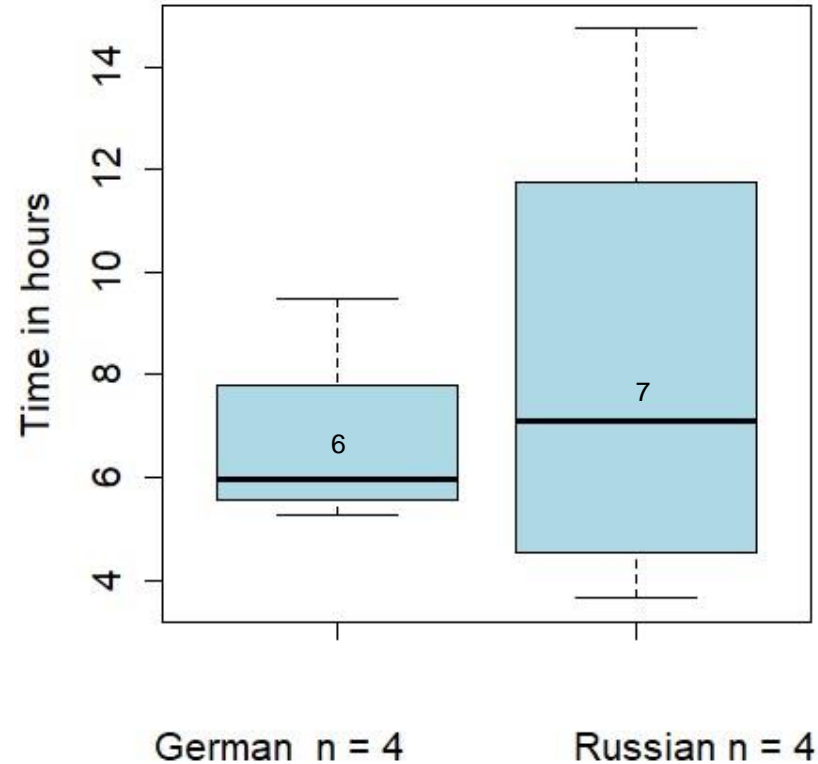
# Findings: efficiency in general

“Efficiency is the resources used in relation to the results achieved.” One of the resources may include time. “The time used is the time expended in attempting to achieve a goal.” (ISO 9241-11:2018, p.10f)

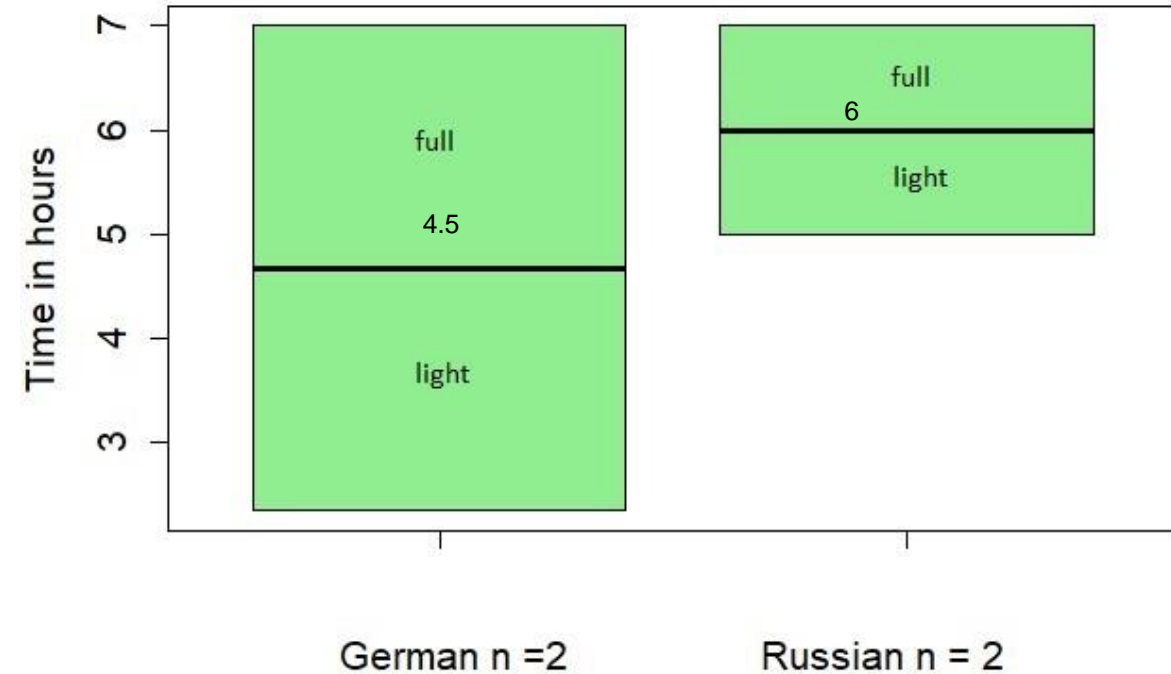


# Findings: efficiency across languages

Total time for human translation



Total time for full and light post-editing



The higher time spent for Russian translation and light post-editing than for German suggests a tendency to a language dependency.

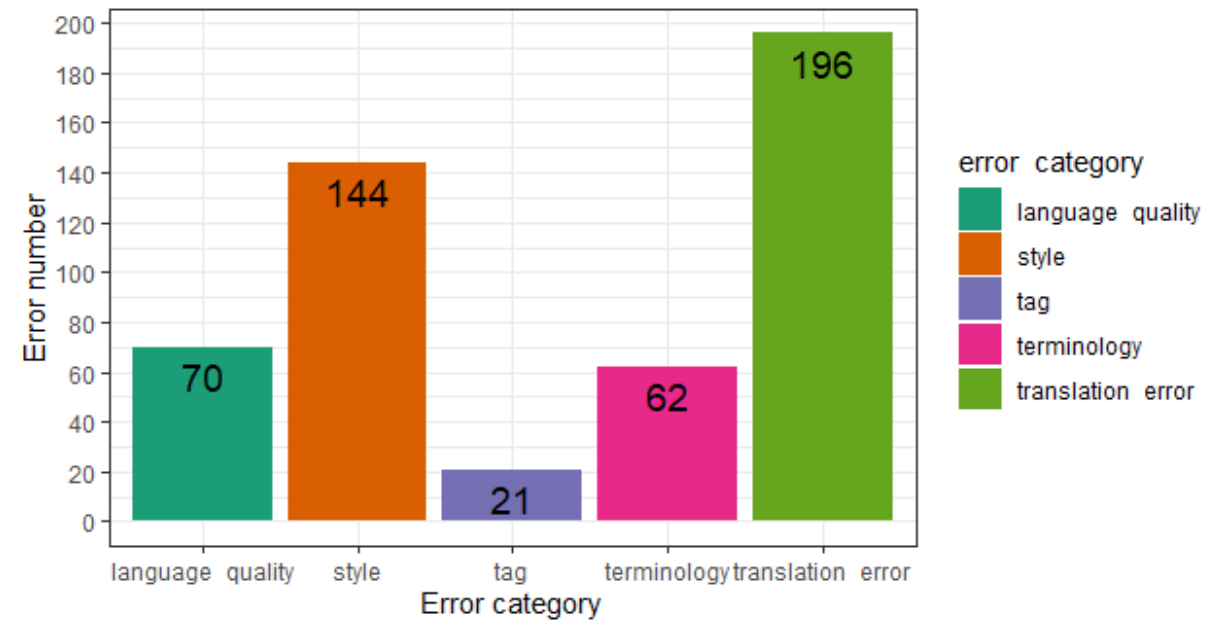
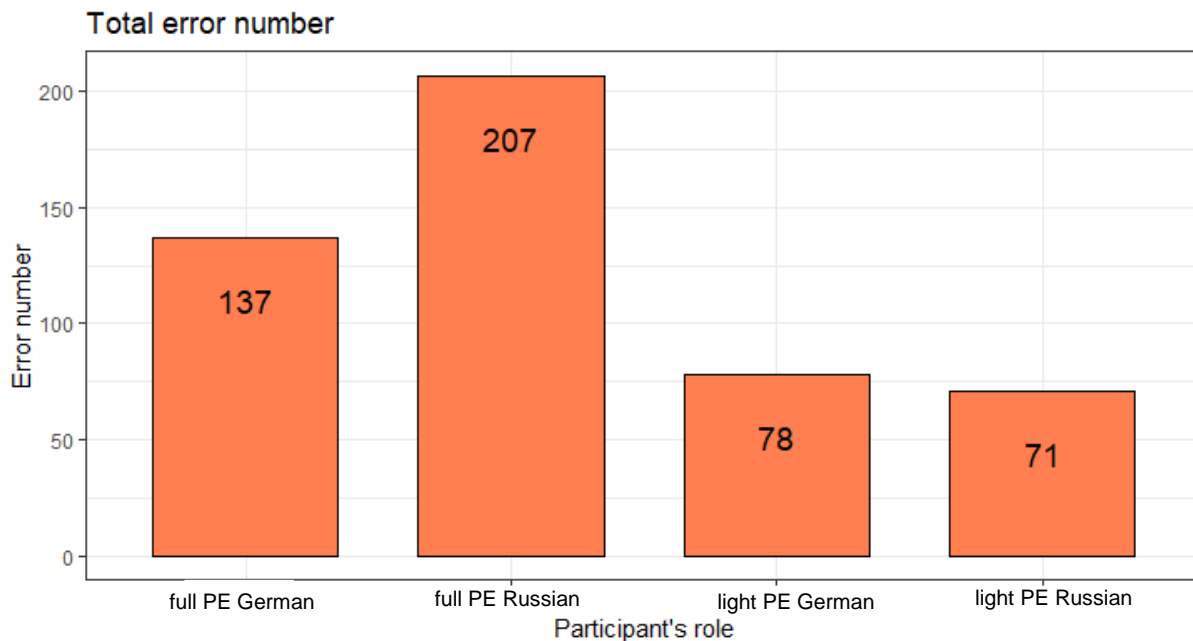
# Findings

- 🌀 The use of machine-translated text could be efficient because less time is needed for light post-editing than for human translation if the goal is to produce a so called “good enough” translation as basis for further work.

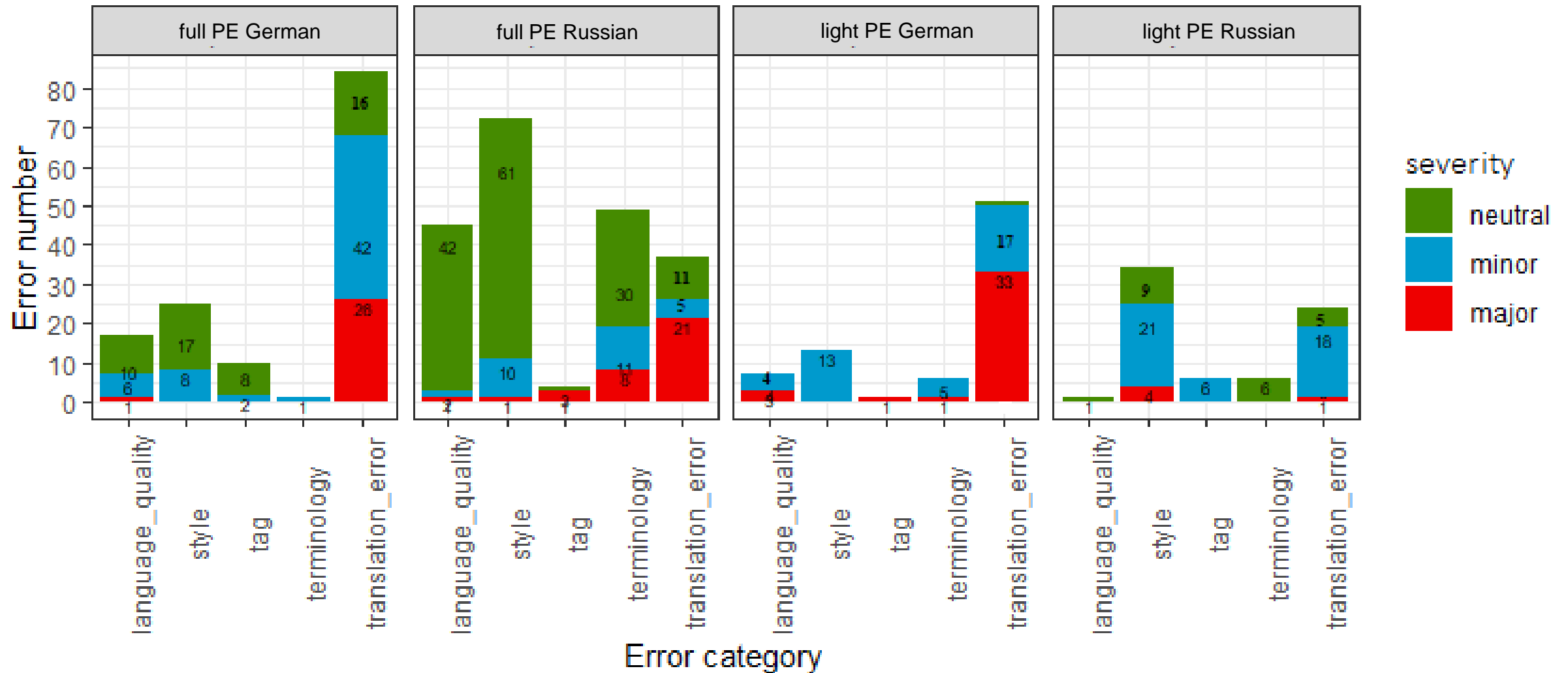
# Findings: effectiveness

Two major characteristics of effectiveness are accuracy and completeness. (ISO 9241-11:2018, p.9f).

Effectiveness is measured by analysis of the errors produced by a machine engine (error categories as selected by post-editors).



# Findings: effectiveness



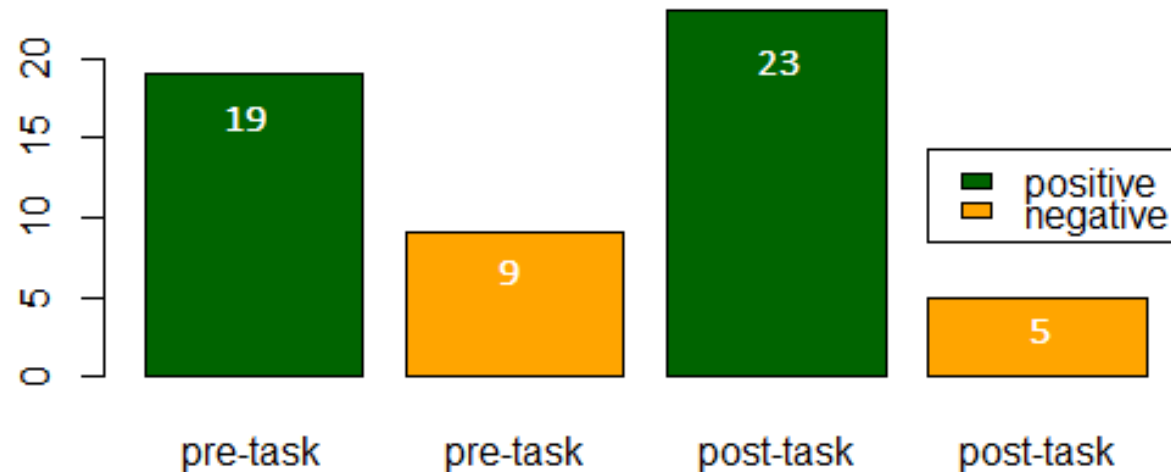


# Findings

- 🌀 The use of machine-translated text could not be effective due to a significant lack of quality of the machine-translated text.

# Findings: satisfaction

“Satisfaction is the extent to which the user’s physical, cognitive and emotional responses that result from use of a system, product or service meet user's needs and expectations” (ISO 9241-11:2018, p.11f)





Topics included:  
Productivity  
Quality  
Usefulness  
Effort  
Enjoyment  
Use

4 post-editors – 7 pre-task questions – in total 28  
4 post-editors – 7 post-task questions – in total 28

# Findings: satisfaction

## Quality

-  A. What do you think about machine translation quality in general?
-  B. Was the machine-translated text of high or of poor quality? Please explain your answer in more detail.



A. It is constantly improving. As of today, it can't be used without proofreading.

B. Cultural context needs to be taken into consideration; it determines a choice of wording that fits best. Machine translation did not distinguish between items and interviewer instructions. Sometimes, did not distinguish between verbs and nouns, between 'one' as a number and 'one' as a pronoun. 'Please' was omitted several times. Machine translation sometimes misses nuances that make a text sound more polite and less commanding.



# Findings: satisfaction

## Effort



-  Do you think it is easy or difficult to correct/revise machine-translated text?
-  Was it easy or difficult for you to post-edit the machine-translated text? Please explain your answer in more detail.

A. In many cases one needs to rewrite a translation from the very beginning as machine translation does not correspond to text's points.

B. The true answer would be 'generally, it was easy' yet there were some moments when the post-editing made me think very thoroughly about translation options.

# Findings: satisfaction

## Enjoyment

-  Do you think correcting/revising a machine-translated text is enjoyable?
-  Did you enjoy doing post-editing of a machine-translated text? What did you like about post-editing of a machine-translated text?

A. I think it is enjoyable if the text is already of high quality. If this is not the case, I might be a rather tedious task.

B. On the one hand, I liked the quality of the machine-translated text. On the other hand, I also enjoyed that I could still contribute to the quality of the translation.

# Findings

🌀 The use of machine-translated text could be satisfying.

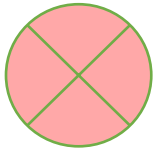
# Limitations and ongoing work

- 🌀 Different participants have been doing translation and post-editing, respectively; thus, we cannot compare efficiency within persons.
- 🌀 It is not clear yet whether the selected error categories/severity levels are assigned correctly. To be determined by further detailed analyses.
- 🌀 Experimental data prevent generalization but pave the way for future research.
- 🌀 Further analyses steps will tell us about the effect on the overall results.

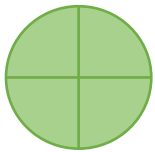
# Usability of machine-translation: overall conclusion



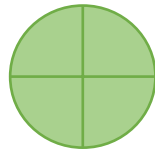
The use of machine-translated text could be efficient because less time is needed for light post-editing than for human translation



but not effective due to a significant lack of quality of the machine-translated text.



However, the acceptable quality of machine-translated text could be defined as „a good enough quality“ as a basis for post-editing.



Overall, satisfaction with machine translation and the post-editing task was rather positive and even increased with the project experience.



# Thank you for your attention!

contact: [veronika.keck@gesis.org](mailto:veronika.keck@gesis.org)

Join our community



<https://www.sshopencloud.eu>



[@SSHOpenCloud](https://twitter.com/SSHOpenCloud)



[info@sshopencloud.eu](mailto:info@sshopencloud.eu)



[/in/sshopencloud](https://in.sshopencloud)

