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Can Large Language Models Substitute Human Annotators in Machine Translation Usability Assessment?

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Introduction

- Evaluating MT usability is crucial for assessing translation quality and practical applicability. Traditional human evaluation, while reliable is:
  - Time-consuming
  - Costly
  - Subject to variability among annotators
- LLMs enable automation of evaluation tasks previously done by humans.
- Recent advances expand possibilities for MT assessment

Definition of Usability

- According to ISO 9241-11 standard, usability measures the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a defined context of use.

Research Question

- To what extent can large language models GPT-4o, GPT-4.1, and GPT-5, with varying temperature settings, evaluate the usability of English-Slovak MT outputs comparably to human evaluators?

Methodology

- Dataset comprised 100 segments
  - Sentences, chapter or article titles – each treated as a segment when present in the analyzed text
- Each text - one MT output was obtained from online Google Translate service and aligned with the original English source text and its human Slovak translation.
- These 100 segments were manually annotated by seven human annotators (H01, H02, H03, H04, H05, H06, and H07) based on the usability criterion.

Table 1. Selection of 3 rows from dataset

Source	Translation	usability-c
I grew up in between.	Vyrastal som medzi tým.	poor (most meaning)
In 1995, he was awarded the Nobel Prize in Literature.	V roku 1995 mu bola udelená Nobelova cena za literatúru.	good (likely use it)
There was a horse in the stable.	V stajni bol kôň.	good (likely use it)

Methodology - usability

- Usability was measured on a five-point scale:
  - 1. unacceptable (non useful),
  - 2. poor (most segments),
  - 3. acceptable (some segments),
  - 4. good (likely use it),
  - 5. excellent (no editing).

Methodology - Temperature

- Temperature parameter, which controls the randomness of the model's output.
- A lower value makes the model more consistent, producing consistent and predictable responses.
- Higher value increases randomness, making the output more creative and varied.

Methodology – LLM

- OpenAI API
- GPT models with temperatures:
  - GPT-4o (Temperature: 0.2 and 1),
  - GPT-4.1 (Temperature: 0.2 and 1),
  - GPT-5 (Temperature: 1)

  - In case of GPT-5 was not possible to change temperature.

Methodology - prompt

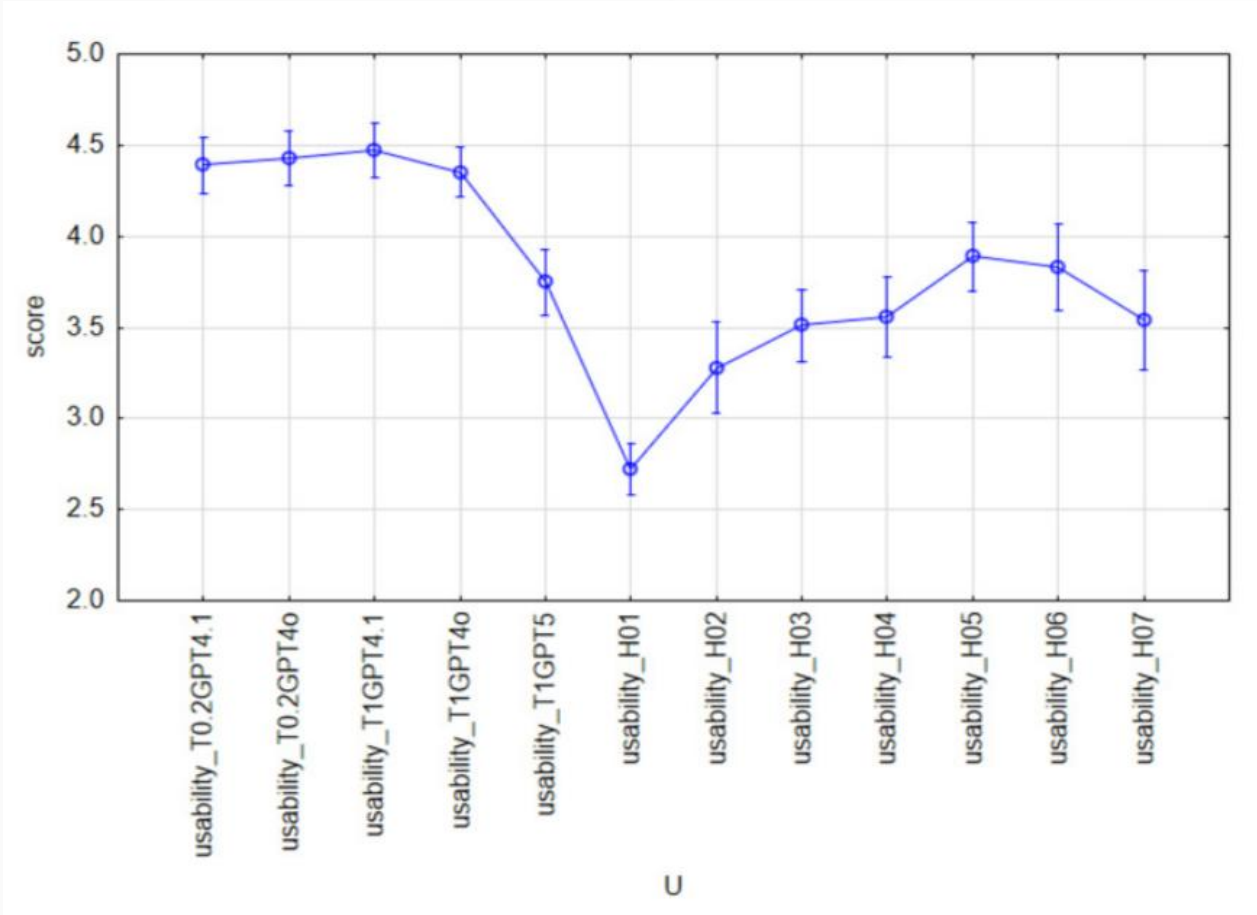
- *You are a professional evaluator of Slovak translations. Evaluate the following translation from English to Slovak using:*
- *Usability - how suitable the translation would be for real use or usability measures the extent to which a translation can be used effectively, efficiently, and with satisfaction in a specific context of use (ISO, 1998).*
- *Choose one of: [unacceptable (non useful), poor (most segments), 4 acceptable (some segments), good (likely use it), excellent (no editing)] Then output your evaluation in this format: Usability: <category> .*

Results – Homogenous groups - usability

- Tukey HSD test for multiple comparisons was applied
- Five homogenous groups
- GPT models 4o and 4.1 are in separate group
- GPT-5 is comparable with most of annotators

$\alpha = .05000.$, Error: Within MS = 67131, df = 1089.0							
Cell No.	**U**	**Mean**	**1**	**2**	**3**	**4**	**5**
6	usability_H01	2.72					****
7	usability_H02	3.28			****		
8	usability_H03	3.51	****		****		
12	usability_H07	3.54	****	****	****		
9	usability_H04	3.56	****	****	****		
5	usability_T1GPT5	3.75	****	****			
11	usability_H06	3.83	****	****			
10	usability_H05	3.89		****			
4	usability_T1GPT4o	4.35				****	
1	usability_T0.2GPT4.1	4.39				****	
2	usability_T0.2GPT4o	4.43				****	
3	usability_T1GPT4.1	4.47				****	

Results - mean usability scores produced by GPT models and human annotators



Conclusion

- Earlier GPT models (GPT-4o and GPT-4.1) overestimate the usability of English-Slovak translation
- GPT-5 model shows a closer alignment with human annotators.

- Integrating LLM based annotation in usability assessment = significally faster and more available, while maintaining reliability close to human judgment.

Future work

- Exploring additional factors influencing LLM evaluation: adequacy, fluency and meaning preservation to assess LLM capabilities across different quality metrics,
- Comparative analyses between GPT-5 and other state-of-the-art models, such as Deepseek, Claude, Gemini etc.

Thank you for your attention

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