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Elia's freelancer and
language company event

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FUTURE TRANSLATORS AND PEMT: WHAT WE ALREADY CAN LEARN FROM THEM

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While the experienced translators still have their biases and limitations when dealing with PEMT tasks, the young generation demonstrates that it is **open to new processes**.

The takeaways from webinars, projects and discussions with students from different universities teaching translation held by the speakers prove that not only can they learn from us, but we can also learn from them.

Efficiency, attitude, common sense and other helpful insights from future translators can be applied by freelancers and LSPs to adapt to the changed reality of translation environment with ***courage, openness, and enthusiasm of youth***.

“Generation Z” as new translators

Most of Generation Z have used the [Internet](#) since a young age, and they are generally comfortable with [technology](#) and with interacting on [social media](#).

Wikipedia

- **new professions** (post-editors, for example, or even post-translators)
- **new skills** (extensive search, verification, speed of changes...)
- **new platforms/total collaboration**
- **hybrid intellect issues** (humans + machines)
- **new ideas** (will constant learning and self-development really help to keep up with machines?)

= NEW TRANSLATION EDUCATION?

<https://www.youtube.com/watch?v=UpKXzL-T0So>

“PE is now the standard *modus operandi*
for most professional translators”

Taus

“Asked what universities should focus on to train students for a future career in translation during the panel discussion, {Dr. Germán Basterra, Translation Manager, Nestlé GLOBE}, answered: “From the translator’s perspective, post-editing, reviewing, and working with the new technologies”

Slator

ISO 18587:2017(E) Annex A(informative) Post-editor training

Training language professionals in the knowledge and skills required for post-editing can:

- a) help meet the increasing demand for translation and result in faster turn-around times;
- b) provide language professionals with the required post-editing skills that are different from translation skills;
- c) improve language professionals' perceptions of MT and its capabilities, adapting them better to performing post-editing projects within an MT environment;
- d) enhance the development of and innovation in MT technology production.

ISO 18587:2017(E) Annex A(informative) Post-editor training

Post-editor training can include:

- advanced use of TM and MT technology – in order to be able to handle post-editing scenarios with output coming from both TM and MT systems. This should include information on the typical MT errors, such as stylistic problems, literal translations, grammar mistakes (e.g. negations, verb translation), translation of names which should not be translated, etc.;
- advanced terminology work – including how to manage terminological databases, e.g. having knowledge of various terminology management systems and terminology exchange formats such as TermBase eXchange (TBX);
- advanced text processing skills in order to be able to use macros and search and replace functions;
- practice in light and full post-editing;
- use of quality tools to perform quality checks at the end of the project.

Participants

- **3 universities** (2 Russian and 1 Ukrainian: RU1, RU2 and UKR1 in our presentation)
- **50+ translation students** taking Master levels
- A combined **teaching and research project on PEMT**
- **Theory:** history of MT, concepts/typology of MT, scenarios of PEMT, error typologies, guides, expectations, workflows
- **Practical sessions:** own PEMT efforts/emotions evaluation and comparative analysis (based on the participant questionnaires) with the main focus on possible self-efficacy and acceptance

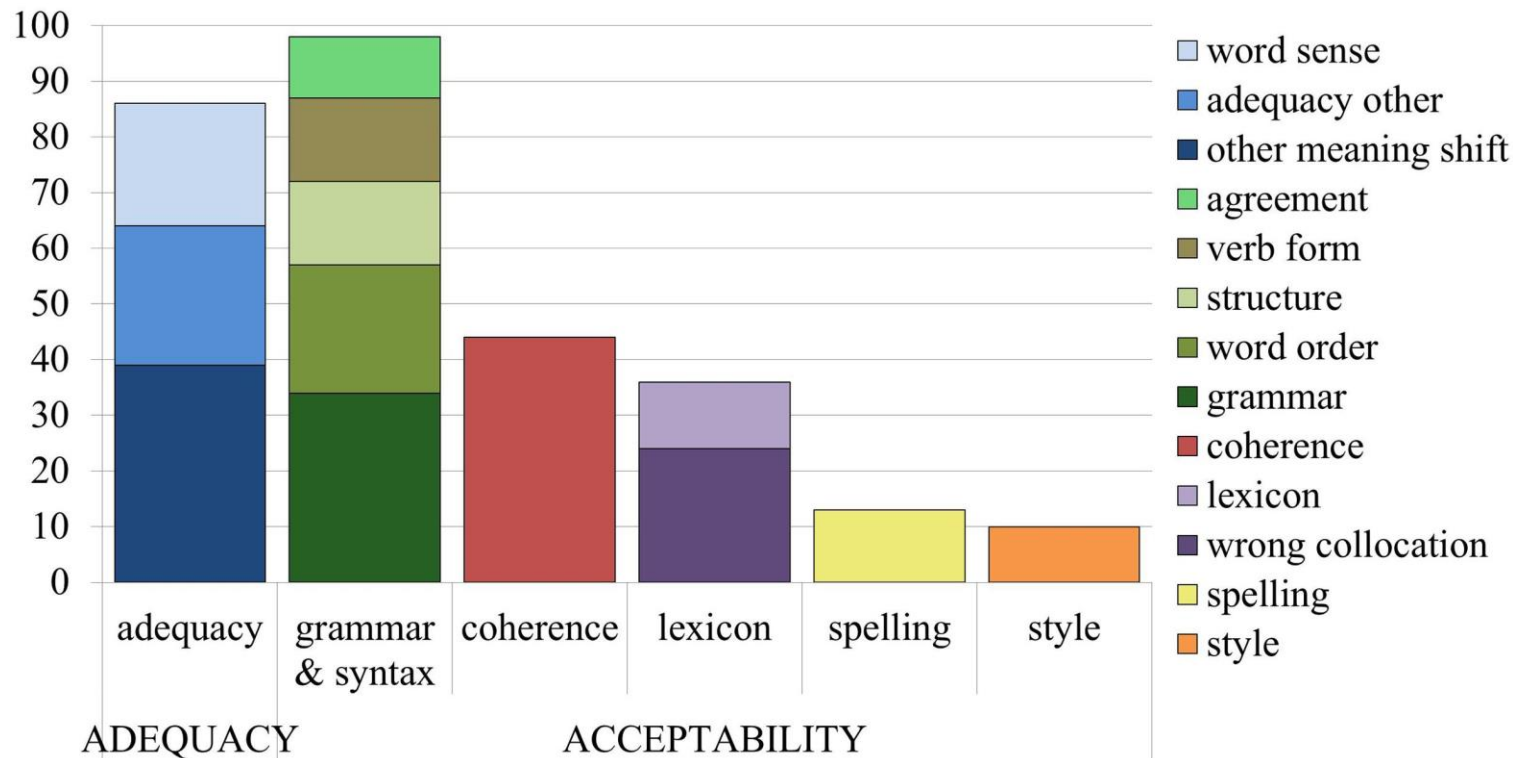
Methodology

- Preferred **language pairs, subject domains and a text set** (1-2 pages) to be all selected by every student
- Freely available **online translation systems** to choose offered by a lecturer
- The scenario chosen was not to use MT in the CAT interface, **but to machine-translate the whole text for PEMT and analysis** (with the main focus then on the specific MT/PEMT issues only)
- Every participant had to perform PEMT for the chosen text and **record all the issues to the questionnaire**

5 Tasks

1. Help the translation students **understand their own attitude/emotions/limits towards MT** and PEMT processes
2. Help them understand the **correlation between the quality of MT output and PEMT efforts**
3. Let them **learn more about typical post-edit operations** to carry out
4. Help them understand that the **MT results/translation processes with automation/PEMT as a process** - could all be subject to objective evaluation based on the certain criteria and efforts estimation (in EUR 😊); no “black box” anymore
5. Let them learn more about the **error typologies and evaluation metrics**, including automated, to be able to choose between them/create a new one for own purposes (potentially it could be MT system improvements, own performance increase, improved communication with customers on their expectations, etc.)

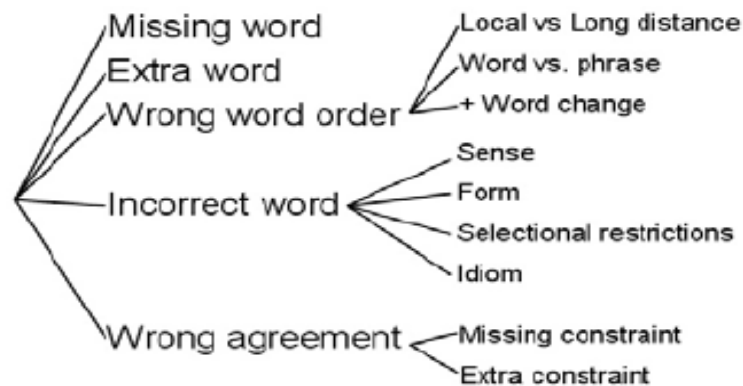
A variety of evaluation metrics and error typologies



A variety of evaluation metrics and error typologies

- LED
- TER
- WER
- PER
- BLUA
- NIST
- METEOR
- ROUGE
- GTM

Fidelity vs.
Fluency



- lexical choice
- terminology
- morphology
- syntax
- misspelling
- insertion
- missing words
- punctuation
- too many errors

Class error rates for evaluation of machine translation output Maja Popović German Research Center for Artificial Intelligence (DFKI)

Identifying the Machine Translation Error Types with the greatest Impact on Post-editing Effort

Cognitive Evaluation Approach for a Controlled Language PostEditing Experiment Irina Temnikova Research Institute in Information and Language Processing University of Wolverhampton, UK

Vilar, D., Xu, J., D'Haro, L., Ney, H. (2006). Error analysis of statistical machine translation output

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Even for PEMT

Error Category	Specific Issues	Light PEMT	Full PEMT
Mistranslation		✓	✓
Accuracy	Omissions, additions	✓	✓
	Cross-references	*	✓
	Headers and footers	*	✓
Terminology	Glossary adherence	✓	✓
	Context	✓	✓
Language	Grammar	*	✓
	Semantics	*	✓
	Punctuation	X	✓
	Spelling	✓	✓
Style	General style	X	✓
	Register and tone	X	✓
	Language variants and slang	X	✓
Country	Country standards	*	✓
	Local suitability	*	✓
	Company standards	*	✓
Consistency		✓	✓

Cognitive MT Error Ranking

Morphol. level

1. Correct word, incorrect form (CInF)

Lexical level

2. Incorrect style synonym (Styl)
3. Incorrect word (InW)
4. Extra word (ExW)
5. Missing word (MissW)
6. Idiomatic expression (Idiom)

Syntactic level

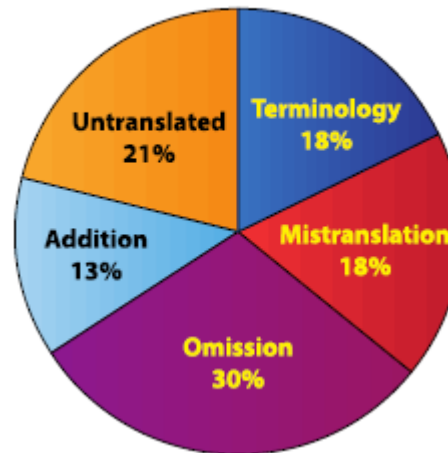
7. Wrong Punctuation (InP)
8. Missing Punctuation (MissP)
9. Word Order at Word level (WoW)
10. Word Order at Phrase level (WoPh)

Even for PEMT

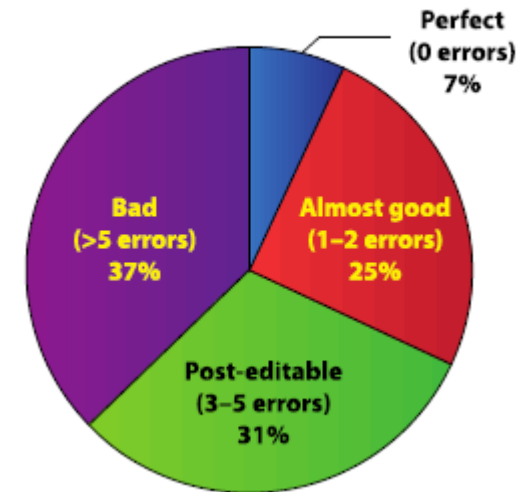
Post-edit Types

1. Correcting word form
2. Correcting word order
3. Adding missing word
4. Deleting extra word
5. Correcting lexical choice

Accuracy errors



Quality Categories



Class error rates for evaluation of machine translation output Maja Popović German Research Center for Artificial Intelligence (DFKI)

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[illegible]

MT, PEMT, and You

<https://swipe.to/7999fx>

Participants, language pairs, domains, engines

RU1

6 students	5 translation engines	Environment EN-RU	Physics EN-RU	Water Supply RU-EN	Medicine EN-RU	Electric Power EN-RU	Jurisprudence FR-RU
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RU2

7 students	3 translation engines	Human Rights EN-RU	Medicine GER-RU	Society GER-RU	Sociology FR-RU	Medicine EN-RU	Marketing EN-RU	Media GER-RU
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UKR1

33 students	3 translation engines	Medicine EN-UA	Legal EN-UA	Computer Science EN-UA	Media UA-EN	Politics EN-UA	Technology EN-UA	Literary EN-UA
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MT Evaluation

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MT Quality Evaluation

(1 – poor, 2 – acceptable, 3 – good)

RU1	Environment EN-RU	Physics EN-RU	Water Supply RU-EN	Medicine EN-RU	Electric Power EN-RU	Jurisprudence FR-RU
2	3	3	2	1	2	1

RU1	Human Rights EN-RU	Medicine GER-RU	Society GER-RU	Sociology FR-RU	Medicine EN-RU	Marketing EN-RU	Media GER-RU
2	3	2	2	1	2	3	3

UKR1	Medicine EN-UA	Legal EN-UA	Computer Science EN-UA	Media UA-EN	Politics EN-UA	Technology EN-UA	Literary EN-UA
1.8	2	2	2	1	2	3	3

MT evaluation: overall impression, comments, examples (error typology also possible)

RU1		6 students 5 translation engines
Environment EN-RU	Very good impression, I liked the MT result	
Physics EN-RU	The MT result is quite readable and comprehensive. There are some agreement errors and word order issues	
Water Supply RU-EN	There were some issues with terminology and specific rules for translation of such a text type	
Medicine EN-RU	Good enough quality for understanding, most of the terms translated correctly (while not all of them). In some cases the meaning shift was detected due to obvious lack of proper medical translation equivalent	
Electric Power EN-RU	Very many grammar mistakes and wrong terms	
Jurisprudence FR-RU	MT result does not represent a proper translation for this type of text, no terms, no agreement. I believe it's not efficient at all to post-edit this translation result	

MT evaluation: overall impression, comments, examples (error typology also possible)

RU2		7 students 3 translation engines
Human Rights EN-RU	For gisting purposes it's fully okay, but I doubt about post-editing	
Medicine GER-RU	For gisting it's okay, but there are too many grammar mistakes	
Society GER-RU	On a word translation level it's okay, but no coherence on a sentence level at all	
Sociology FR-RU	Very negative impression, from the first glance 80% required full re-translation	
Medicine EN-RU	Good enough quality for postediting, but with extensive research and verification only	
Marketing EN-RU	Very good quality, almost no postediting required	
Media GER-RU	Good enough quality for both gisting and postediting, even punctuation was mainly okay	

MT evaluation: overall impression, comments, examples (error typology also possible)

UKR1		33 students 3 translation engines
Medicine EN-UA	Most of the problems are connected to terminology. There were minor agreement of noun+adjective mistakes	
Legal EN-UA	Too literal translation of phrases; usage of wrong synonyms	
Computer Science EN-UA	The quality of machine translation was rather acceptable for this type of text (the sentences were quite simple and short) as the sentence structure was rendered quite successfully	
Media UA-EN	Initially, I thought that the quality of MT would be better because the text refers to the publicist style and there weren't a lot of terms. However the output text is poor	
Politics EN-UA	Generally, the translation can be characterized as good, the pragmatic effect of the article is preserved in the translation. The main idea is also visible in the translation, however some grammatical as well as lexical mistakes can be seen in the machine translation	
Technology EN-UA	When it comes to technical documents such as contracts MT are always a better idea because they are likely to have a number of terms and structures repeated throughout	
Literary EN-UA	Some words are chosen not in their the best meaning	

PEMT Evaluation

PEMT: amount of source words/time spent for PEMT/speed of PEMT

RU1	Amount of source words	Time spent for PEMT (minutes)	Speed of PEMT (words per hour)
5 translation engines			530
Environment EN-RU	254	30	480
Physics EN-RU	246	25	600
Water Supply RU-EN	196	30	"Average, I believe"
Medicine EN-RU	302	40	"Average, I believe"
Electric Power EN-RU	203	20	600
Jurisprudence FR-RU	176	50	300

PEMT: amount of source words/time spent for PEMT/speed of PEMT

RU2	Amount of source words	Time spent for PEMT (minutes)	Speed of PEMT (words per hour)
3 translation engines			540
Human Rights EN-RU	660	60	660
Medicine GER-RU	639	100	380
Society GER-RU	562	107	315
Sociology FR-RU	385	110	210
Medicine EN-RU	600	100	360
Marketing EN-RU	477	50	500
Media GER-RU	354	60	355

PEMT: amount of source words/time spent for PEMT/speed of PEMT

UKR1	Amount of source words	Time spent for PEMT (minutes)	Speed of PEMT (words per hour)
3 translation engines			665
Medicine EN-UA	712	70	610
Legal EN-UA	807	70	691
Computer Science EN-UA	170	10	1020
Media UA-EN	456	30	812
Politics EN-UA	602	45	803
Technology EN-UA	295	75	236
Literary EN-UA	979	130	452

PEMT Evaluation as a Process

(1 – not acceptable, 2 – possible, 3 – very good and comfortable)

RU1	Environment EN-RU	Physics EN-RU	Water Supply RU-EN	Medicine EN-RU	Electric Power EN-RU	Jurisprudence FR-RU
2	2	3	2	1.5	3	1

RU1	Human Rights EN-RU	Medicine GER-RU	Society GER-RU	Sociology FR-RU	Medicine EN-RU	Marketing EN-RU	Media GER-RU
2	3	2	2	1	2	3	3

UKR1	Medicine EN-UA	Legal EN-UA	Computer Science EN-UA	Media UA-EN	Politics EN-UA	Technology EN-UA	Literary EN-UA
1.97 2.07	1	2	2	2	2	3	2

PEMT: overall impression, good examples, comments (faster than?)

RU1		6 students 5 translation engines
Environment EN-RU	In this case to post-edit is certainly faster than to translate from a scratch. I accept MT and find it a very promising tool	
Physics EN-RU	Good translation equivalents offered by MT. In this case to post-edit is certainly faster than to translate from a scratch	
Water Supply RU-EN	I would say: 50/50, as some of the sentences almost did not require any correction, while the others should be literally re-written. So, it's almost the same effort	
Medicine EN-RU	Corrections are still required. Hardly acceptable for me	
Electric Power EN-RU	Much faster and definitely more challenging. It was interesting to post-edit together along with doing some research and finding the correct translation equivalents. Acceptable for me	
Jurisprudence FR-RU	To translate from a scratch is much easier, also because the source text was the only source of understanding for the MT result, and after the first part of work I simply started own translation instead of post-editing; And only some terms were translated correctly as a surprise.. PE is possible, but MT is especially good with the proper and verified terminology in place	

PEMT: overall impression, good examples, comments (faster than?)

RU2		7 students 3 translation engines
Human Rights EN-RU	MT can significantly reduce time for translation, I can accept PE. as it's also sometimes a way to automatically learn new meanings and translation equivalents	
Medicine GER-RU	PE is definitely faster, it reduces the amount of manual typing, but at the same time I had to read the source text all the time to understand the MT	
Society GER-RU	I personally accept MT as a terminological tool only, while PE is generally possible	
Sociology FR-RU	Postediting is possible and potentially faster than translation, but the main burden is verifying the terms which are translated (means not left untranslated) but with the wrong meaning in most of the cases	
Medicine EN-RU	Working with MT is definitely a new skill, you'll have to find your own approach on how to verify the results, be very attentive and effective. It's a matter of practice, because MT can be very helpful. I can hardly imagine working without MT these days	
Marketing EN-RU	Very efficient. But it's not a traditional translation, you only polish the result	
Media GER-RU	MT can really fasten the translation process, but translator still has to be very attentive to many details	

PEMT: overall impression, good examples, comments (faster than?)

UKR1		33 students 3 translation engines
Medicine EN-UA	There is a need to rephrase the majority of the sentences during the post-editing process	
Legal EN-UA	The postediting process was rather long and complicated. Besides its legal nature, text was also full of economic terminology and issues. MT engine did not manage to render	
Computer Science EN-UA	Generally, the translation was done fast, but there were some inaccuracies during the translation	
Media UA-EN	It takes a lot of time to reorder a sentence properly, yet it is still less time consuming than translation proper	
Politics EN-UA	Sometimes it is easy to edit sentences done by MT, but in many cases you just do more job and it would be easier to translate by yourself	
Technology EN-UA	As the quality of MT before postediting is good, the process of PE is not complicated	
Literary EN-UA	Postediting took a lot of time and effort as far as almost each sentence was inadequate: either poorly structured or translated only partially. This MT can be used only if a person does not language at all and wants to get acquainted with the general idea of the text. However, I think, translator would hardly benefit from it	

Additional comments during the discussion sessions

1. Abbreviations are the biggest challenge for MT and PEMT.	1. I would use MT as a terminological help only.	1. It was very interesting to see how different MT engines work and to compare them.
2. Started to translate and not post-edit after 50% of the project as found it easier.	2. You need to find your own way of working with MT.	2. The problem of postediting was in grasping the idea of the particular text unit. Sometimes the word order confuses and prevents from adequate translation.
3. No trust to terminology detected, double-checked all the terms...	3. Verification and research are very helpful skills for working with MT.	3. I find it rather interesting to correct the mistakes of MT. It is hard, but when a person gets accustomed to it, it will not be that hard.
4. The required skills are the same as for the traditional translation, if you are skillful enough to translate, you will be able to post-edit.	4. When postediting, you can learn new meanings and translations from MT, some of them can be surprisingly good.	4. There was no need to translate the text from scratch. The text was more or less understandable to the target audience. I did enjoy the process of editing the translation. The very process was fascinating, since some translated phrases were amusing and unexpected
5. Simple/short sentences are the best candidates for MT.	5. There are certain issues with MT, like proper names, punctuation.	5. I would not use it again. I'm tired of it.

Conclusions 1/2

- Any LSP thinking about introducing PEMT as a service or even a group of freelancers who want to understand the process and compare the engines may can also try to play this “game” and compare their “scientific” findings, feelings and expectations
- They can also use their own texts/domains of choice and engines or use the pre-defined test sets
- With or without a financial focus and expectations (on productivity, rates, fair compensation)

Conclusions 2/2

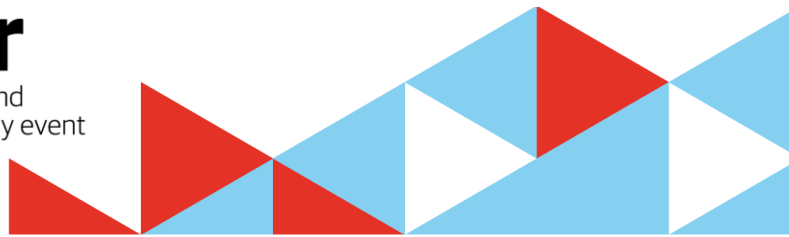
- For the translation students, MT is not an enemy but a tool
- It's an interesting tool they are ready to play with courage and give the research efforts
- That's why their observations may be somehow more objective, based on the positive attitude and openness
- When they feel they do not trust MT, they tend to refuse PE and start translating
- Financial risks of having less work or less payment are not clear to the future translators at the moment (maybe, for this reason MT is not an enemy first thing)
- Most of the students treated the translation task as mainly lexical task, but also paid attention to coherence and style
- Google Translate is a quality favorite
- EN-RU is much, much better for MT than GER-RU and FR-RU

More ideas

- To introduce **ready test sets** for specific domains to compare the feedback/or specific errors to classify/or specific post-edit types to train the skills
- To introduce **a task for students to create own metrics** (error analysis and error profiles)
- To introduce an exercise to evaluate a quality in connection with a prediction on productivity and price (**how much faster you will probably post-edit compared to your standard speed of translation**)
- To discuss if we should also add **a focus on financial issues** to sound more realistic



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Thank you!

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