

The use of online translators by students not enrolled in a professional translation program: beyond copying and pasting for a professional use

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Abstract

In this paper, we discuss a use of machine translation (MT) that has been quite overlooked up to now, namely by students *not* enrolled in a professional translation program. A number of studies have reported massive use of free online translators (OTs), and it seems important to uncover such users' abilities and difficulties when using MT output, whether to improve their understanding, writing, or translation skills. We report here a study on students enrolled in a French 'applied languages program' (where students study two languages, as well as law, economics, and management). The aim was to uncover how they use OTs, as well as their (in)ability to identify and correct MT errors. Obtained through two online surveys and several tests conducted with students from 2020 to 2022, our results show an unsurprising widespread use of OTs for many different tasks, but also some specific difficulties in identifying MT errors, in particular in relation to target language fluency.

1 Introduction

Most professional translation training programs now include specific training on machine translation (MT) and post-editing (MTPE). MT-related skills, in connection with project management, are for instance an important

component of the European Commission Directorate-General for Translation's competence framework for the European Master's in Translation network (DGT, 2017). A lot of research has already been done on such students' ability to post-edit MT output and on how to teach professional MT skills for the translation market. However, a professional use of MT is not restricted to the translation industry; for example, free OTs might also be used by tourism or international relations professionals, and before that by students of such disciplines. Not a lot of research has been done on this issue so far, and our work aims to help fill such a gap by studying how students enrolled in a French applied languages program, where they study two languages in addition to law, economics, and management, actually use OTs. We believe more research is necessary on the use of MT outside the translation industry, especially as no specific training is generally provided (see below), and as there is a link between MT use and language acquisition (Resende and Way, 2020, 2021). Also, raising awareness concerning the capabilities and limits of using OTs is all the more crucial these days because of (i) a real improvement in the quality of MT output since the advent of neural MT (NMT), and (ii) the biased perception of the general public, including students who never received any specific training. This bias is related, on the one hand, to contempt for the technology (see the numerous, supposedly funny MT fails all over the internet) and on the other hand to the belief that translators are obsolete because MT has reached "human parity".

2 Research questions and methodology

A number of studies have shown that a very large majority of students regularly use OTs (e.g. O'Neill, 2019; Resende and Way, 2021; Loock and Léchauguette, 2021; Dorst et al., 2022), for both graded and non-graded work, and regardless of whether this is allowed by their institution. While these studies focus on students enrolled in language programs or with a background in humanities, there is no reason to consider that other students do not use OTs. And yet, this widespread use generally takes place without any specific training: according to Benites et al. (2021), for example, 77.1% of trainers in 4 Swiss universities (n=666) did not mention OTs, and 83.9% of the students (n=1,926) claimed that they had never received any specific guidelines on the use of MT. This makes MT a real “elephant in the classroom” (Loock et al., to appear). However, recently, researchers have been working on how to help MT users outside the translation industry adopt a critical approach (see Bowker and Buitrago-Ciro (2019) for the research community, or Bowker (2020) for international business students for suggestions, which both put forward the concept “MT literacy”, see below).

From this starting point, we decided to investigate the use of OTs by our students, in order to understand their uses and also to measure their efficiency when using MT output. To do so, we submitted groups of students to an online questionnaire (in 2020 and 2021) and to different types of exercises meant to evaluate their capacity to identify and correct errors in English-French MT output. This is ongoing research, as after a pilot study (Loock and Léchauguette, 2021) to get an overview of our starting point, we have been trying to find the best ways to train (and evaluate) our students' capacity to use OTs, hence regular tests since 2020. As discussed below, this is not an easy task, with students finding it hard to identify MT errors. The different tests aim to determine whether the language direction, the necessity to both identify and correct MT errors vs. only correct errors identified for them, the order of presentation for the original input and MT output, have an influence on our students' performance.

Our students' profile

Our students are applied languages students, which in the French academic context means that they major in English and another language, and attend economics, law, and management classes. The three-year program includes pedagogical

translation classes from the second to the sixth semesters, in which they translate press texts, tourism brochures, extracts from websites, or infographics, with a pedagogical approach meant to help them develop their language skills. The classes do not focus on professional translation training. Specifically, our study was conducted on undergraduate students in their third and final year from the 2019–2020 to 2021–2022 academic years at the University of Lille, France. Most students go on to work in tourism, international relations, international commerce, and for some of them, the translation industry. All students who took part in our study are native speakers of French; international students' responses were not included in our analysis.

Methodology

Two groups of students anonymously completed an online survey in March 2020 (n=159) and in September 2021 (n=164). They were explicitly assured of the anonymity of their answers so that they could feel free to reply honestly (for some students – and some trainers – using OTs might be considered cheating). The questions dealt with which OTs were used, how they were used, why they were used, and overall satisfaction.

Between March 2020 and December 2021, three groups of students took a series of tests. They had to identify and/or correct errors in the MT output. The first test (part of our pilot study and conducted in March 2020) consisted in an English press text that had been machine translated into French with DeepL (<https://www.deepl.com/translator>). The instructions were to correct all accuracy and fluency errors in the MT output (no justifications were required). The evaluators had pre-identified a series of 20 errors (see examples in (1) and in Loock and Léchauguette, 2021 for a complete list) and the aim was to measure the number and types of errors identified and corrected by the students.

(1) a. The line in front of the Louis Vuitton store was barely a line by Paris standards.

MT output: La file d'attente devant le magasin Louis Vuitton était à peine plus longue que celle de Paris (accuracy issue)

Example of expected correction: La file n'avait rien de la file d'attente parisienne typique/ne ressemblait pas à une file d'attente parisienne traditionnelle

b. [I]t snakes around the back.

MT output: [E]lle serpente dans le dos (accuracy issue due to lexical ambiguity of *back*)

Example of expected correction: [E]lle serpente jusqu'à l'arrière du magasin.

c. after an 80-year-old Chinese tourist died of the virus

MT output: après qu'un touriste chinois de 80 ans soit mort du virus (grammar mistake, wrong mood)

Example of expected correction: après qu'un touriste chinois est mort/après la mort d'un touriste chinois

The second test (April 2021) introduced two changes: (i) the translation direction was now French→English, and (ii) a series of sentences were given instead of a text, with a hint that each sentence contained at least one error to be corrected – some examples are provided in (2):

(2) a. Ce dispositif, qui est rendu public seulement quelques jours avant son entrée en vigueur, vient contrarier de nombreux projets de départs organisés par les agences de voyages et les tour-opérateurs.

MT output: This device, which is made public only a few days before its entry into force, thwarts many departure projects organized by travel agencies and tour operators. (accuracy issue: lexical ambiguity of *dispositif*)

Example of expected correction: This system, which was made public a few days before being enforced, has hampered/thwarted many plans for departures organized by travel agencies and tour operators.

b. Fréquentation en berne, absence des touristes étrangers... L'année 2020 s'est révélée morne sur le plan touristique.

MT output: Attendance at half-mast, absence of foreign tourists... The year 2020 has turned out to be a dull year for tourism. (accuracy/fluency issue: literal translation of idiomatic expression)

Example of expected correction: With visits declining and no foreign tourists, 2020 has turned out to be a dismal year for tourism.

A third test (December 2021) introduced a new element: evaluators underlined parts of the French MT output with English as a source language (words, strings of words) meant to be corrected by the students (the identification part of the process was therefore done for them). Examples are provided in (3):

(3) a. "Do you get them from supermarket bins?" I asked them. They told me they regularly collected and redistributed the contents of the big skip-like bins behind supermarkets.

MT output: « **Les obtenez-vous** dans les poubelles des supermarchés ? » leur ai-je demandé. Ils m'ont dit qu'ils récupéraient et redistribuaient régulièrement le contenu **des grandes bennes à benne** derrière les supermarchés. (fluency issue: unnatural word order and choice of verb; nonsensical translation of *skip-like bins*)

Example of expected correction: « Vous les trouvez dans les poubelles des supermarchés ? » leur ai-je demandé. Ils m'ont répondu qu'ils récupéraient et redistribuaient régulièrement le contenu des grandes bennes à ordures derrière les supermarchés.

b. I had heard of people bin-diving before and I was captivated by their story.

MT output: J'avais déjà entendu parler de personnes **faisant de la plongée sous-marine** et j'ai été captivé par leur histoire. (accuracy issue : *bin-diving* interpreted as *scuba-diving*).

Example of expected correction: J'avais déjà entendu parler de personnes qui fouillaient dans les poubelles et j'ai été captivé par leur histoire.

A fourth test was implemented in April 2022 to test a new hypothesis: instead of presenting students with a table showing the original sentences in English on the left and the MT outputs on the right, the reverse was done to check whether reading the MT output first helps them to better identify fluency-related issues (avoiding a "priming effect", see discussion). The results of this test are being processed at the time of writing this paper.

All texts belonged to the press genre, a type of text that students are familiar with thanks to their translation classes, and all MT outputs were obtained via the free version of DeepL with no modifications whatsoever. The students were presented with the source text and the MT output side by side (the English original text on the left and the MT output on the right, except for the fourth test).

3 Results

In line with the few studies mentioned above, our results confirmed that our students are regular users of online translators: 83% in the first survey and 78% in the second answered that they used OTs on a regular basis, mostly DeepL (8 students out of 10) and Google Translate (3 students out of 10).

However, the mentioning of WordReference (<https://www.wordreference.com>) and Linguee (<https://www.linguee.com/>) in the category 'other OTs' indicates some confusion as to what an OT

– and therefore MT – is. According to our survey, students use OTs for many different kinds of tasks: translation tasks of course (80% of students), but also as writing aids (45% of students), e.g. when writing an essay, as a comprehension tool (50% of students), and as a grammatical tool (16% of students) for help with grammar exercises.

Students do not seem to be informed users, since they do not systematically provide enough context to obtain relevant MT output: only 5% of them actually copy/paste full texts; instead, they generally type words or parts of sentences (40% of students). Nevertheless, 80% are satisfied with what OTs have to offer (40% often, and another 40% sometimes). A large majority of students (93.8% in the first survey, 83.3% in the second one) thought that they were able to identify MT errors, either with no difficulty whatsoever or quite easily.

However, such confidence is blatantly contradicted by the results obtained in the different tests, with students clearly overestimating their ability to correct errors in the MT output. Out of the 20 errors identified by the evaluators in the first test, only 5.29 on average (1 out of 4) were correctly identified and corrected, with another 2.29 identified but wrongly corrected, meaning that 12.42 (nearly 2 out of 3) were simply overlooked by the students (n=159). In the second test, some improvement was noticed despite the fact that the MT output was now in a foreign language for the students (n=196). This time, thanks to the segmentation into sentences, an average of 10.2 errors out of 23 (that is a 44% success rate) were correctly identified. Still, more than half of the MT errors were overlooked, and only half (56%) of those identified were actually corrected in a relevant way. Finally, the third test, in which the students (n=158) only had to correct the pre-identified errors in the MT output, showed a real improvement with 67% of cases of relevant corrections.

In the different tests, a qualitative analysis of students' corrections showed that students tend to focus more on lexical choices than on the syntactic organization of the sentences, and are better at identifying accuracy issues than fluency issues.

4 Discussion

The results of our two surveys and series of tests clearly show that in spite of a very widespread use of OTs, for many different tasks ranging from

understanding a text to actually translating it, our language students fail to use OTs effectively and are not sufficiently able to identify and correct errors in the MT output. In other words, they need to develop their “MT literacy”, a concept put forward by Bowker and Buitrago-Ciro (2019: 88) to refer to a series of skills in relation to users' capacity to understand how MT systems work, when it is relevant to use them, and when and how to modify MT output.

We can think of two possible explanations for our results which clearly show a lack of critical thinking when using OTs while “a healthy level of mistrust in [MT] output” or a kind of “healthy skepticism” (O'Brien and Ehrensberger-Dow, 2020) are required (OTs are no calculators). First, since our students find it particularly hard to identify MT errors related to the fluency of the target language, one might think they have a poor command of the target language's linguistic system, even when the target language is their native language. For example, the choice of a wrong mood in (2c) clearly shows that a grammatical rule is not known (74% of our students left the mood unchanged). Also, as we noticed direct calques that were left unchanged, it seems that our students are influenced, or “heavily primed”, by the MT output that they see on the screen (see Carl and Schaeffer (2017) for the concept of priming). This has already been noted for professional post-editors, who “more easily accept sub-optimal translations which human translators, working from scratch, would otherwise not produce” (Carl and Schaeffer, 2017: 44). This might explain why our students are better at correcting MT errors when these have been identified for them (results of third test).

Specific training for an informed, professional, and critical use of OTs thus seems necessary. To address this need, we have introduced specific training in the translation class for our third-year students (hence perhaps the decrease from 93.8% to 83.3% between our two surveys in the rate of students who consider that they are able to identify MT errors). Our approach combines a theoretical and a practical approach. First, it seems important to address some technical considerations by defining what an OT is, how it differs from other online tools such as dictionaries or concordancers, and how it works (roughly) so that they understand why results vary from one OT to another and over time. Through comparisons between OTs, students can then be made aware of the importance of the corpus data behind the tool.

Also, thanks to the prolific scientific literature on the subject, a list of recurring MT errors can be provided to sensitize students to the limits of OTs. These cover language-independent errors: issues related to lexical/syntactic ambiguities, idiomatic expressions, word play, neologisms or rare words, proper names, omissions, production of non-existing words (Macken et al., 2019, De Clercq et al., 2021), algorithmic bias leading to lesser lexical variety (Vanmassenhove et al., 2019), gender bias (Salvodi et al., 2021), and literal translations leading to an over-/under-representation of some linguistic features in MT output (Loock, 2020; De Clercq et al., 2021). MT errors can also be language-dependent: for the English-French language pair, issues include the translation of compounds, the present perfect, or pronouns. All these issues (see Loock et al., to appear, for concrete examples) should not lead students to believe that MT output is systematically full of errors. However, they can help them become aware of the existence of so-called “machine translationese”, and of the need for human intervention in the form of post-editing. Raising students’ awareness of ethical considerations is also necessary for an informed use in a professional context other than the translation industry. These include confidentiality issues, the environmental impact of the technology (Strubell et al., 2019), and also the fact that MT engines are trained on data produced by human translators. Students should be sensitized to a “fair use” of OTs (Moorkens et al., 2020), and teaching institutions need to implement clear policies.

Practical training may include different activities, such as the correction of MT output, but also the comparison between output from different OTs, and between MT output and ‘human’ translation. Making students aware of functionalities that allow them to choose between alternative solutions can help them realize that the MT output on the screen is but one possibility among many: DeepL allows users to see other possible translations in a drop-down list when they click on a word in the MT output, and Google Translate provides alternative translations for the whole sentence. Such a dynamic approach to online translators, far from simply copying and pasting, then makes the use of OTs a decision-making process. The final goal should be to empower students with the skills necessary to use OTs independently and critically on their own.

Finally, we would like to stress that our students’ difficulties in dealing with MT output are

not isolated. MT is a challenge for everyone these days, and being able to use MT critically is also a challenge for translation students as well as translation professionals. The fact that MT errors have become more human-like with the development of NMT makes them harder to identify (and correct) for translation trainees (Yamada, 2019) and professionals (Castilho et al., 2017). Our non-translation students’ difficulties should therefore come as no surprise, and it is actually incumbent upon trainers to ensure that OTs are integrated efficiently into students’ set of online language tools alongside different types dictionaries (with or without concordancers and thesauruses), corpus tools, and grammar checkers.

5 Conclusion

In this paper, we cited our own studies that showed widespread use of OTs among students, combined with a striking inability of these same students to identify and correct errors in MT output. This led us to advocate for specific training on online translators/machine translation for students not enrolled in a professional translation program, for an informed, professional use. Like other studies, ours has shown that OTs are widely used by students, who nevertheless still need to develop their MT literacy. While a lot of attention has been paid to how to train translators translators-to-be, the use of machine translation by other categories of students is often overlooked (no training or guidelines by trainers or institutions), making the use of OTs an “elephant in the classroom”.

In order to train students from all disciplines other than professional translation studies, specific pedagogical material is needed. In addition to the scientific literature mentioned above, some projects aim to make such material accessible, e.g., the European MultiTraINMT project (Machine Translation training for multilingual citizens, <http://www.multitrainmt.eu>) or the Machine Translation Literacy project (<https://sites.google.com/view/machinetranslationliteracy/>). As for the specific case of our students, an example-based methodology to sensitize them to recurring issues is being developed (Loock et al., to appear). Further research is however still needed to uncover the best way to introduce specific training on OTs: so far, as our findings demonstrate that students still encounter difficulties in identifying MT errors, training could emphasize the use of grammatical categories and

sentence analysis as a means to strengthen students' fluency in the target language, be it their mother tongue or not. Being familiar with and using basic grammatical notions to analyze MT output is necessary for a professional use of OT.

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