


Machine translation in everyone's hands - Adoption and changes among general users of MT

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#tradumatica20_Q10	
After the paradigm shift that remote interpreting has brought to conference interpreting, how do you envisage the immediate future of the profession: on-site, remote or hybrid? Why?	 EN / CA / ES
Després del canvi de paradigma que ha suposat la interpretació remota per a la interpretació de conferències, com creus que serà el futur immediat de la professió: presencial, remot o híbrid? Per què?	
Tras el cambio de paradigma que ha supuesto la interpretación remota para la interpretación de conferencias, ¿cómo crees que va a ser el futuro inmediato de la profesión: presencial, remoto o híbrido? ¿Por qué?	

Abstract

The 20 years of *Revista Tradumàtica* have seen how machine translation has become part of the everyday life of regular users. Based on 17 responses, this article reflects on the use of MT among non-translation professionals. After commenting on the use of MT as a dictionary, to read the news, to access information or for text production in situations that users perceived as low-risk or high-risk, this article comments on the users' awareness regarding MT accuracy and the need to engage with the output to improve the quality of the translations. Further, results also indicate that the use of MT not only affects production in the target language but also influences the drafting of originals intended to be translated. Based on the responses, the article discusses the impact of MT within the framework of accessibility and democratisation, reviewing how MT and IA have the potential to support social change but could also deepen inequality, reproduce biases and reduce the operability of human agents. Finally, the article calls for a critical and conscientious implementation of MT to support human-computer interaction as a tool for societal development.

Keywords: Machine translation, MT users, MT literacy, AI, human-computer interaction, inequality, accessibility, social change.

Resum

En 20 anys de la Revista Tradumàtica, hem vist com la traducció automàtica ha passat a formar part de la vida quotidiana dels usuaris habituals. Partint de 17 respostes, aquest article reflexiona sobre l'ús de la TA entre els no professionals de la traducció. Després de brindar-nos les seves opinions sobre l'ús de la TA com a diccionari, per llegir notícies, per accedir a la informació o per produir textos en situacions que els usuaris perceben com de baix o alt risc, l'article s'endinsa en la conscienciació dels usuaris respecte de la precisió de la TA i la necessitat de comprometre's amb el resultat per millorar la qualitat de les traduccions. A més, els resultats també indiquen que l'ús de la TA no només afecta la producció a la llengua meta, sinó que també influeix en la redacció dels originals que es pretenen traduir. A partir de les respostes, l'article analitza l'impacte de la TA en el marc de l'accessibilitat i la democratització, revisant com la TA i l'IA tenen el potencial de donar Suport al canvi social, i també d'aprofundir la desigualtat, reproduir biaixos i reduir l'operativitat dels agents humans. Per últim, l'article fa una crida a una aplicació crítica i consciente de la TA per contribuir a la interacció persona-ordinador com a eina per al Desenvolupament de la societat.

Paraules clau: traducció automàtica, usuaris de TA, literacitat en TA, IA, interacció persona-ordinador, desigualtat, accessibilitat, canvi social.

Resumen

En los 20 años de la Revista Tradumàtica, hemos visto cómo la traducción automática ha pasado a formar parte de la vida cotidiana de sus usuarios habituales. Partiendo de 17 respuestas, este artículo reflexiona sobre el uso de la TA entre los no profesionales de la traducción. Tras opinar sobre el uso de la TA como diccionario, para leer noticias, para acceder a la información o para producir textos en situaciones que los usuarios perciben como de bajo o alto riesgo, el artículo ahonda en la concienciación de los usuarios con respecto a la precisión de la TA y la necesidad de comprometerse con el resultado para mejorar la calidad de las traducciones. Además, los resultados también indican que el uso de la TA no solo afecta a la producción en la lengua meta, sino que también influye en la redacción de los originales que se pretende traducir. A partir de las respuestas, el artículo analiza el impacto de la TA en el marco de la accesibilidad y la democratización, revisando cómo la TA y la IA tienen el potencial de apoyar el cambio social pero también de profundizar la desigualdad, reproducir sesgos y reducir la operatividad de los agentes humanos. Por último, el artículo hace un llamamiento a una aplicación crítica y consciente de la TA para apoyar la interacción persona-ordenador como herramienta para el desarrollo de la sociedad.

Palabras clave: traducción automática, usuarios de TA, literacidad en TA, IA, interacción persona-ordenador, desigualdad, accesibilidad, cambio social.

1. Introduction

Machine translation (MT) has become central to discussions about translation not only in professional spaces but in society at large. Considering globalisation and interconnectivity, MT systems are now integrated into many professional, interpersonal, and social exchanges in the everyday life of people around the globe.

The adoption of Google Translate, currently the most recognised system in society, has been so successful that it is often understood as equivalent to *automatic translation* among the public. In 2016, Google announced they had recorded 500 million monthly active users of Google Translate and in 2021, the company announced the Google Translate app had achieved one billion installs (Pitman, 2021). In this context, MT is seen as a tool facilitating interlingual communication and breaking down linguistic barriers,

thus enabling the concept of a global village. This has led to a surge in alternatives and deployment. Nowadays, users can choose between different systems, such as Google Translate, Bing, Yandex or DeepL, and access them seamlessly through online interfaces, APIs or via widgets embedded in social media and other websites.

To some extent, the availability of online translation engines has encouraged the idea that translations can be produced freely and quickly. In professional translation, it is recognised that while current neural machine translation (NMT) systems produce idiomatic and highly fluent translations, accuracy remains an issue and post-editing is required to achieve textual cohesion and human-level standards of quality (Castilho et al., 2017; Läubli et al., 2020; Toral et al., 2018). However, in areas not related to the translation profession that have adopted MT, the awareness of the challenges, risks and demands MT poses are not so evident (Vieira et al., 2021). Discussion about MT and AI among the public can be misleading. For instance, Google's announcement of its neural translation systems in 2016 promised improved accuracy and fluency (see Figure 1).

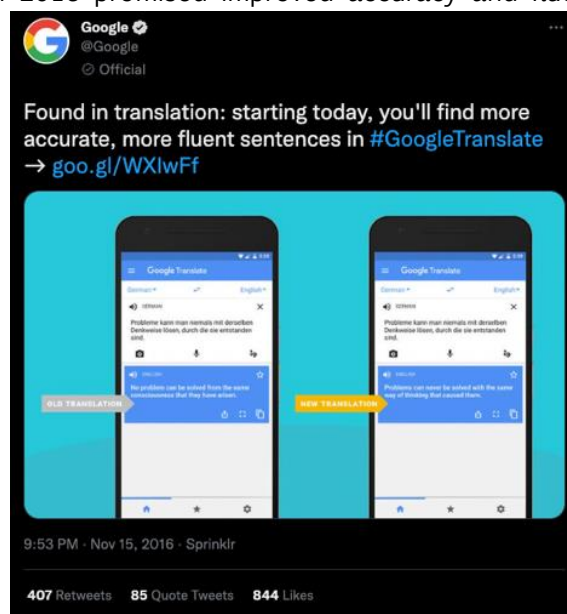


Figure 1. Google's announcement of the implementation of neural machine translation in Google Translate published on 15th November 2016. <https://twitter.com/google/status/798645154953367552>

This type of announcement has often been reproduced unchallenged by the media, presenting translation as a solved task and overlooking concerns by academics (Läubli et al., 2018, 2020; Poibeau, 2022; Toral, 2020; Toral et al., 2018). For example, Tech Wire Asia published the piece “Microsoft’s bot now translates as well as humans” in March 2018 (see Figure 2), based on a Microsoft blog¹ post announcing the work by Hassan et al. (2018). The blog post does caution that there is no “right answer” in translation, as “[m]achine translation is much more complex than a pure pattern recognition task.” However, the headline does promote the idea of human parity.

¹“Microsoft reaches a historic milestone, using AI to match human performance in translating news from Chinese to English” <https://blogs.microsoft.com/ai/chinese-to-english-translator-milestone/>



By [Tech Wire Asia](#) | 19 March, 2018

Figure 2. *Tech Wire Asia* news article on Microsoft's announcement of human parity published on 18th March 2018. <https://techwireasia.com/2018/03/microsoft-developed-bot-can-apparently-translate-well-human/>

2. Machine translation in *Revista Tradumàtica*

Comparing the first and the latest issues of *Revista Tradumàtica*, the impact of machine translation on the translation scholarly community is evident. The current visibility and relevance of MT stand in clear contrast to the first issue of the journal. Issue 19 was entitled “studying human-computer interaction in translation and interpreting” and all articles published in Issue 18 also dealt directly with MT. Conversely, when the journal was founded in 2001, translation memories were a hot topic and only one article addressed automation, with Freigang stating that “the linguistic capabilities of automatic translation systems have not been very much improved within the last two decades” (2001:9). At the time, Freigang explained, developments were focusing on translation memory systems and terminology management tools to support the task of translators.

The current translation technology landscape is very different from what Freigang described. Since the implementation of statistical machine translation and, particularly after the shift to NMT, the last decade has seen rapid advances in MT and radical changes in the language industry, implementing post-editing of MT as a key service. According to the 2022 Nimdzi 100 State of the Language Industry report, 79% of the top 100 companies in the industry offer MT-related services (Nimdzi, 2022). Further, the Nimdzi report and the ELIS European Language Industry Survey 2022 (ELIS Research, 2022) foresee a stable growth of post-editing in the language industries.

More importantly, online and free machine translation is not confined to professional translation spaces but in the hands of everyone, from professionals in different fields to general users. Thus, as part of the 20th anniversary of *Revista Tradumàtica*, the journal asked general users of MT why they use it and how it helps them. A total of 17 people, mostly professionals with a language background, responded to the question “You are

not a professional translator, but you use machine translation on a regular basis. What do you use it for, for what purpose, in what way?"

3. Omnipresent machine translation

The turn to openly available neural machine translation since 2016 came together with increased access. With the advent of smartphones, MT is now at our fingertips. Anyone with a smartphone and a working Internet connection can access MT engines without additional investment or upfront costs: users have continuous access to translation and translation has become thoroughly integrated into their lives.

When discussing the impact of MT on professional translation, Balashov presents the idea of the “extended mind” of the translator (2020) who implements MT in their daily work. In this case, MT has become part of the extended mind of everyday users. General users rely on MT to complete daily communicative functions in their personal or professional lives, when they are travelling, and to communicate with co-workers in multilingual settings or international corporations, among other situations. One of the respondents to the *Revista Tradumàtica* question stated:

“[F]aig servir [la traducció automàtica] sovint i amb diferents finalitats [...] per a mi, s'ha normalitzat en la darrera dècada”

“I use [MT] often for different purposes [...] using MT has become common for me in the last decade”

The increased penetration of MT in everyday life has also been accompanied by a growing interest among scholars studying translation in society. Traditionally, research had evaluated the outcome of MT engines and studied how professionals can use MT in their work. The last decade has seen an expansion of this focus to encompass the exploration of uses of MT in society, outside of the language industries. In a globalised society, any field is susceptible to using MT as it is seen as a resource in interlinguistic exchanges and a practical tool for real-time interlinguistic communication. MT is used in the foreign language classroom (Lee, 2020; O'Neill, 2019). Nurminen and Papula (2018) explored how users relied on MT for gist translation while Nurminen and Koponen (2018) showed that MT can be used as an accessibility tool supporting public organisations. Vieira et al. (2021) explored the regular use of MT among healthcare and law professions. In academic settings, it has been shown that MT is used by professionals to engage in discussions across language barriers (Anazawa et al., 2013; Ramírez-Castañeda, 2020). Furthermore, automatic translation has the potential to support the response to crises (Cadwell et al., 2019) and is used by refugees as a tool for integration (Ciribuco, 2020; Vollmer, 2020).

The answers to the question posed by *Revista Tradumàtica* provide us with some insights into the motivations to use MT, different scenarios of usage and the degree of awareness among the respondents.

4. Why do we people use MT?

4.1 MT for assimilation and accessing information

Regarding assimilation and accessibility, users commented on the benefits of using MT to understand the gist of a text or as a dictionary:

“faig servir [Google Translate] habitualment per resoldre dubtes ràpids quan estic llegint algun document en una altra llengua”

“I use [Google Translate] regularly to solve quick questions when I am reading documents in other languages”

In an online study on MT users, Nurminen and Papula (2018) found that most of their respondents relied on MT for assimilation of information, rather than for dissemination purposes. This also coincides with results presented by Vieira et al. who found “assimilation of written information online as the most common MT use situation” (2022, n.p.).

Respondents not only translated full pieces but also declared resorting to MT to search specific words, thus supporting their comprehension process rather than fully relying on MT.

“També l'empro [TA] per buscar el significat de paraules que s'utilitzen a la premsa estrangera per Internet.”

“I also use [MT] to look up the meaning of words used by foreign news outlets online”

In a similar vein, some of the responses indicated that they use MT as a dictionary, mainly because it is faster. Using MT to look up specific words is potentially problematic, as NMT systems are often challenged by ambiguous words and tend to use context to disambiguate (Liu et al., 2018) and offer a solution.

A common use of MT among the respondents was related to accessing news. Respondents commented MT is useful to read news published in languages they do not speak or when they only have limited knowledge of the language:

“Com molta altra gent m'agrada anar a les fonts més properes on es produeix la informació, especialment quan segueixo notícies de caire internacional. [La TA és] una manera de reduir la intermediació a l'hora d'accedir a informació.”

“Like many other people, I like to go to the source of the information, especially when it comes to international news. [MT is] a way to cut the middleman when it comes to accessing information

In a globalised context where social media and websites such as Reddit and Twitter offer so many possibilities of interconnectivity, users rely on MT to access a wider array of sources of information. The potential of MT to distribute news has not gone unnoticed

by news agencies. The project “A European Perspective”² brings together 11 public service media institutions in Europe as well as the European Broadcasting Union and had developed a platform, EuroVOX3, to leverage MT and allow members to translate news pieces into multiple languages.

The interest in using MT to translate news and social media posts seems to be related to a sense that MT helps them overcome censorship, information bubbles or misinformation, creating a more direct connection with the information source:

“[L]es eines integrades a Twitter o Youtube em permeten seguir per exemple el conflicte d'Ucraïna o les teories negacionistes sobre la COVID-19.”

“[F]or instance, the tools integrated into Twitter or YouTube allow me to follow the war in Ukraine or Covid-19 negationist theories.”

These statements reflect a high degree of trust in the systems. Some of the respondents considered MT suitable to access information about sensitive topics in other languages. This is not an uncommon assumption. In their study, Vieira et al. (2022) found that UK-based general users of MT seemed to trust the systems and were satisfied overall with the quality, even though they would ask for better quality when given the chance.

4.2 MT for production

The respondents also highlighted the benefit of using MT to support text production. Among the responses, most instances of MT usage in text production referenced low-risk situations: drafting emails, writing letters or reports which are not intended for publication but rather for internal use, or informal dissemination of information. In some cases, MT is used to produce texts that are intended to be published, such as abstracts for conferences. However, in these cases, the resulting texts are meant to be used only for a limited amount of time and will not become long-lasting reference materials. When the respondents know that texts will be highly visible, used for a longer period, the medium of distribution is more stable (such as printed documents) or the product aims to have a broader reach, then raw MT is not considered a suitable solution and there is an awareness that some degree of human involvement is needed.

The general use of MT in low-risk settings is often combined with developing language skills: users leverage MT to subsidise their knowledge when writing in a foreign language.

“El meu domini de l'anglès és limitat i els programes de traducció automàtica en línia em permeten, de forma ràpida, obtenir una versió en anglès del meu text (en català o castellà).”

“My English proficiency is limited, and online MT engines allow me to quickly produce an English version of my original text (in Catalan or Spanish).”

² <https://www.ebu.ch/eurovision-news/european-perspective>

³ <https://tech.ebu.ch/eurovox>

In some contexts, the respondents use MT to speed up the process of creating multilingual versions of emails or course syllabi, documents that are probably required by institutional guidelines to be multilingual. In these cases, end users are often offered the resulting text in all language versions at the same time, and some can contrast and compare the information offered:

“[Faig servir la TA] per confirmar si el fragment que estic escrivint o pensant en una llengua estrangera es formularia de manera similar a les diferents plataformes de traducció automàtica”

“[I use MT] to check if what I’m writing or thinking in a foreign language resembles the output of different Machine translation engines”

Some of the respondents who are language or translation teachers explained that they recognise students using MT in text-production assignments. Since the popularisation of online MT systems, this has been a challenge in language education and translation training (Carré et al., 2022; Lee, 2020; O’Neill, 2019). In coping with these cases, teachers have integrated contrastive analysis into their classes to exploit the use of MT:

“[Quan penso que l’estudiant ha fet servir un traductor automàtic], aprofito les errades per mostrar problemes de contrastivitat de la combinació lingüística o característiques pròpies de l’àrab”

“[When I think students have used MT], I use the mistakes to discuss the contrastive issues of the language combination or specific characteristics of Arabic”

Translator trainers face the additional challenge of ensuring their students develop translation skills, learn to identify and navigate the linguistic and cultural challenges of different texts, and acquire the critical skills to implement MT resources. Finding a solution to these challenges means the selection of texts for instruction and assessment is more demanding. One of the respondents commented how the availability of MT has altered how they assess the suitability of a text to be used in translation exercises:

“La TA ha cambiado definitivamente la manera de buscar textos potenciales para evaluación; han de ser textos con problemas que un traductor automático no solucione fácilmente para que el estudiante no se sienta tentado a copiar y pegar (y posteditar mínimamente) la versión que le facilitan.”

“MT has drastically changed the requirements for texts to be used in assessment. Texts must include issues that MT cannot solve easily so that students don’t consider to simply copy and paste (and marginally post-edit) their version.”

MT has raised the stakes and increased the demands on translator trainers to ensure they can support their students in the development and improvement of translation skills. Trainers need to ensure MT solutions do not become a shortcut that prevents students from practising and honing their translation skills. Post-editing is considered part of the toolbox that a professional translator can rely on (EMT, 2022), but translators also need highly developed language, translation and cultural skills.

In other academic settings outside of translation, MT is seen as a tool to tackle inequality and promote multilingual exchanges (Ramírez-Castañeda, 2020; Steigerwald et al., 2022). Research suggests that MT can be a useful tool to access information in a foreign language and to help in the production of academic articles (Parra Escartín & Goulet, 2020; Steigerwald et al., 2022). The MT output can be used to inform the production process, but users should be aware of the challenges and limitations of MT to be able to compensate for its shortcomings (Bowker & Buitrago Ciro, 2019; O'Brien & Ehrensberger-Dow, 2020).

5. Changes in behaviour and awareness

As shown above, the responses indicate that MT is seen as a valuable tool to assimilate information and support text production. Interestingly, additional information in the comments suggests users who answered the question posed by *Revista Tradumàtica* approach MT usage with a critical view, following principles that resemble MT literacy as outlined by Bowker and Buitrago Ciro (2019). Their answers display some awareness of the shortcomings of MT and strategies to deal with them. MT, even if fast and effective in some contexts, needs careful assessment from the user. Respondents pointed out that raw MT output is rarely fully suitable for communicative purposes and requires some degree of human monitoring or fixing to be efficient in different communication settings.

“La [traducción automática] no garantiza que la traducción propuesta sea la más óptima (sic.), pero ahí es donde entra en juego la capacidad de crítica del usuario.”

“[MT] does not guarantee that the suggested output is optimal, that is where the user's critical skills come into play.”

Details in the responses show users have developed strategies to classify different tasks and assess whether MT is suitable in each context or not. This emerging classification is in line with proposals that suggest a careful assessment of every situation is needed to ensure a successful implementation of MT and post-editing (Nitzke et al., 2019). Firstly, users seem to assess the risk of using MT and tend to rely on MT for what they perceive as low-risk situations, such as reading the news for information, looking up words or processing daily communication. When using MT to support text production or language learning, they recognise that they need to engage with the output, revise it and edit it (similarly to professional post-editing). Finally, when it comes to translating longer reports, some users appreciate the task would require professional or additional human involvement to achieve a given goal.

In terms of awareness, the respondents indicated that they are familiar with differences across MT engines and language combinations. They cited different uses for freely available online engines such as Google Translate, Yandex, Bing, Reverso, DeepL and Softcatalà. It is possible to see that the respondents have engaged critically with different systems and regularly assess how effective they are for their intended purposes, often assuming that there could be errors in the transfer process. For instance, one of the

respondents mentioned they normally use Google Translate for general queries, DeepL for academic text production in English and Softcatalà for Catalan.

Furthermore, the users also commented on how the engagement with MT engines has modified their text production processes in their source languages. Some respondents comment that their awareness of how the systems operate has led them to adopt strategies to produce simpler source texts in their language. They have realised that certain structures, stylistic choices, or language features can be more error-prone, so they have adjusted their writing and made it simpler to better the chances of obtaining suitable MT output.

“També he de canviar sovint un conjunt d'elements de l'idioma de partida. Per exemple, en portuguès utilitzem molt sovint la veu passiva. Quan vull obtenir una traducció a l'anglès, per exemple, evito la reiteració d'aquesta estructura. De certa manera, doncs, canvio la lògica del meu propi idioma. El mateix passa, per donar un altre exemple, amb les oracions subordinades o coordinades, que tenen un pes diferent en les diverses llengües.”

“I also often need to change elements in the source language. For example, in Portuguese, we very often use the passive voice. When I want to produce an English translation, for example, I avoid replicating this structure. In a way, then, I change the logic of my own language. The same happens, for instance, with subordinate or coordinated sentences, which have different meanings in the various languages.”

Although not widely adopted by the industry, pre-editing has been discussed in professional settings and is recommended “if the [source] text is unnecessarily complex, incoherent, or does not meet the established editorial standard” (Sánchez-Gijón & Kenny, 2022, 99) to potentially improve the quality of the output and reduce post-editing effort. Equally, the concepts of clear writing and controlled language are also recommended when dealing with texts that will need to be translated (Bowker & Buitrago-Ciro, 2019; Miyata, 2021). However, this alteration in the production of originals indicates a broader influence of MT on the source language and opens a discussion regarding the quality of original texts and the impact of translationese boosted by presumed MT patterns among general users.

6. Accessibility and inequality

The answers to the question posed by *Revista Tradumàtica* provide a good overview of how MT usage has become normalised among users. The benefits of MT technologies are evident and its remarkable and apparently seamless integration into people's life denotes that it complements the modern lifestyle: people are used to using MT and feel the systems have the capacity to meet some of their needs. The answers, even if limited to 17 respondents with knowledge of multiple languages, indicate that users engage with MT for different purposes and have developed strategies to assess the efficiency of the systems in different settings. The respondents are not naïve about the accuracy of MT,

understand that its output needs to be used with caution depending on the purpose of the target text and know that human involvement and editing are needed to improve the quality of the translation. Furthermore, they describe different uses of MT in text production and offer examples that illustrate changes in behaviour to accommodate for the limitations of the systems.

One of the risks of the fast integration of MT as an accessibility tool is that it can cement the impression that translation is a simple one-to-one replacement process that current algorithms can execute to high standards. In this sense, general users of MT can be overconfident technology users who display a high level of algorithm appreciation – human preference for the advice provided by an algorithm (Logg et al., 2019)– to the detriment of human involvement. This type of belief could further contribute to the invisibility of translation, undermine language learning initiatives, and accentuate precarious working conditions for professional translators. Interestingly, the responses collected indicate that there is an awareness of the limitations of the technology and suggest users implement MT with caution and engage with MT output critically. As a starting point in human-computer interaction, this assumption is much welcomed, as it counters the idea of translation being a solved problem and promotes the need to see MT as a tool to support human exchanges rather than a resource that replaces human judgement and actions.

While a careful and informed implementation of MT can support accessibility and help in addressing inequality in society, indiscriminate implementation and provision of MT can reproduce and amplify power imbalances (Bender et al., 2021; Birhane, 2021; Vieira et al., 2021). MT systems are resource-intensive and powerful languages such as English –with a much larger digital footprint and resources– receive more attention than systems translating low-resource languages (often spoken by endangered communities and minorities). As a result, MT outputs for language combinations with low-resource languages often vary in quality. End users might not be aware that a system translating between English and German could almost certainly work better than a system translating between English and Kurdish or Tigrinya. The respondents to the survey noticed some of these differences, but it is difficult to ensure that all communities of users are aware of the potential risks.

When tackling social inequality and accessibility issues in society with MT, language coverage remains an issue and deepens the divide between richer and more powerful languages and poorer minor and minoritised languages. The number of languages supported by openly available online systems has been increasing rapidly in recent years. Currently, these systems include around 150 languages with about another 150 in different stages of development. This means that the large majority of languages in the world have not been covered by MT engines. Even among high-resource languages, English is in a significantly better position than any other language. There are initiatives to speed up the process for low-resource language systems (Bapna et al., 2022), but ensuring quality levels comparable to those of high-resource languages will take effort, time and money.

Discussions about the use and implementation of MT need to be accompanied by bottom-up reflections on the systems and their consequences. The rapid pace of the adoption of MT in society has meant that scholars and researchers need to keep up with it to continuously assess its impact and contribute to solving possible arising issues. MT engines reflect the datasets, assumptions and methodologies that are used to train them. The capabilities and affordances of current systems depend on the patterns they identify in the training data. For instance, MT output tends to reproduce biases such as gender bias, inclusivity and sexism (Stanovsky et al., 2019; Vanmassenhove et al., 2018). While awareness of these issues is growing in the translation studies, computer science and AI communities, it is not a given that regular users will be alert to identifying them and equipped to diminish their impact. The answers provided by the respondents suggest that their awareness and mistrust of the systems come from their exposure and their linguistic knowledge; occasional users of MT might overestimate the capability of the systems assuming that they offer results which are comparable to high-quality human translation.

In the same way that MT helps in creating channels of communication and opening bridges across languages, it might become a constraint to some users, their expression and identity. The rules of engagement with the systems can only be defined within their boundaries and affordances. Multilingual users whose language choices are dictated by the availability of an engine or users who change their behaviour depending on what they perceive as a limitation of the system, will ultimately see their production constrained, in a way, by technological advancement. MT literacy and post-editing training have the potential to empower users to maintain continuous scrutiny over the systems, recognising the benefits they provide while at the same time helping them identify their limitations. This type of human-MT interaction, not only at universities but in society at large, could contribute towards the enlargement of the human experience thanks to AI, instead of limiting it.

7. MT, AI and automation in everyday life

Advancements in MT are part of a bigger and more aggressive deployment of AI that puts resources in the hands of the masses. As is the case with MT, this democratisation of AI often comes with an idea that the systems have achieved capabilities that challenge or match human skills; statements such as “A.I. is mastering language” (Figure 3) are common and promote AI as a set of replacement, rather than support, tools. These views assume that large language models can match human skills when engaging in text production, translation, documentation, programming, instruction writing and customer service, among other tasks.



Figure 3. The New York Times Magazine article on AI and language published on 15th April 2022, <https://www.nytimes.com/2022/04/15/magazine/ai-language.html>

Artificial intelligence is often discussed using metaphors that relate to the human brain and describe cognitive processes: thinking, understanding, learning, guessing, to name a few examples. As a result, this tends to contribute to the hype of human parity. However, even recent systems are limited to their training data, the decisions made to ensure they achieve success within a well-defined scope, and the intentions of the developers. For instance, the Limitation section of ChatGPT (Figure 4), released by OpenAI using GPT 3 in November 2022, indicates that old concerns remain valid: the system prioritizes fluency over accuracy and factuality, and optimization decisions made by the team affect the output.

Limitations

- ChatGPT sometimes writes plausible-sounding but incorrect or nonsensical answers. Fixing this issue is challenging, as: (1) during RL training, there's currently no source of truth; (2) training the model to be more cautious causes it to decline questions that it can answer correctly; and (3) supervised training misleads the model because the ideal answer depends on what the model knows, rather than what the human demonstrator knows.
- ChatGPT is sensitive to tweaks to the input phrasing or attempting the same prompt multiple times. For example, given one phrasing of a question, the model can claim to not know the answer, but given a slight rephrase, can answer correctly.
- The model is often excessively verbose and overuses certain phrases, such as restating that it's a language model trained by OpenAI. These issues arise from biases in the training data (trainers prefer longer answers that look more comprehensive) and well-known over-optimization issues.^{1,2}
- Ideally, the model would ask clarifying questions when the user provided an ambiguous query. Instead, our current models usually guess what the user intended.
- While we've made efforts to make the model refuse inappropriate requests, it will sometimes respond to harmful instructions or exhibit biased behavior. We're using the [Moderation API](#) to warn or block certain types of unsafe content, but we expect it to have some false negatives and positives for now. We're eager to collect user feedback to aid our ongoing work to improve this system.

Figure 4. Limitations of OpenAI's ChatGPT, fine-tuned from a model in the GPT-3.5 series. ChatGPT finished training in early 2022 and open to the public in November 2022. <https://openai.com/blog/chatgpt/>

While there is a tendency to be impressed with the progress of AI, its deployments require careful consideration and monitored implementation. The narrative of human parity risks obscuring the nuances of AI development (Bender, 2022; Bender et al., 2021; Birhane, 2021) and the limitations of the programmes. Translation, in particular, and human decision-making, in general, are complex processes that rarely have a single right answer. Language models and chatbots are designed to simplify these processes and output a direct answer. Even in situations where different alternatives are offered, the convenience to choose between a limited and ordered set of options changes how we engage with activities and risks normalising this simplicity. In the answers to the *Revista Tradumàtica* questions, the respondents were able to engage critically with the MT output because they had some language knowledge, are conscious about the transfer process and had a well-defined goal, but not all users will have this knowledge, and their engagement might be less critical.

If using MT is a frictionless exchange that replaces decision-making, it could put users in a disadvantaged position and have consequences that will affect the systems themselves. AI is trained with real-life data and intended to be improved with human feedback. Then, what might happen if human creativity and engagement are reduced due to the constrained imposed by AI? The improvement of MT and other automated solutions depends on the human capacity to identify errors and provide new, innovative data to refine the systems. If users simply adopt direct solutions, unchallenged, the refinement process will not take place.

8. Concluding remarks

Neural machine translation has achieved a remarkable degree of penetration in society. Together with this growing adoption, concerns have emerged regarding the risks that it poses when implemented indiscriminately or without supervision. MT output is not error-free, and these concerns are not only valid but need to be identified and addressed to pave the way towards successful solutions. Our small sample suggests that sectors in society seem to approach and use machine translation with caution and have developed mechanisms to assess its efficiency and suitability depending on the purpose of the tasks they perform. Our respondents do not expect MT to produce a perfect but a usable output that can help them complete everyday tasks. This evidence about the exposure to MT among general users with some language knowledge serves as a starting point to understanding how MT literacy could develop in the general population.

Everyday usage shows machine translation has a place and a function in a heavily technologized and interconnected society. The last twenty years since the foundation of *Revista Tradumàtica* have seen a drastic shift in the translation profession concerning technologies, but more importantly, the same period has seen how developments in machine translation prompted its implementation in society at large. MT and other AI tools can be democratising agents that support accessibility and societal development by helping with the assimilation of information and interlinguistic communication. However, it is important not to overestimate their capabilities and understand that their improvement requires careful human monitoring. The discussion of the challenges that

MT brings should be accompanied by an understanding of its organic implementation among general users to support and create conditions for successful human-MT cooperation and a recognition that human response is needed to ensure a fair, equitable and efficient integration.

Agraïment a totes les persones que han brindat la seva opinió a la Q11:

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