The Prospective Use of Machine Translation in Promoting Inclusivity of Academic Journals Published in English

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Abstract

The increasing dominance of English in academic publishing presents challenges for non-native English-speaking scholars, particularly in achieving publication in international journals. This study explores the potential of neural machine translation (NMT) as a tool to facilitate academic writing for these scholars. While machine translation (MT) has historically been met with skepticism, advancements in NMT have significantly improved translation quality and thus it has turned into a prospective tool in aiding academic writing. The paper examines the role of MT in translation workflows, the barriers faced by non-native scholars in publishing, and the possibility of integrating NMT into academic writing with post-editing support. By leveraging their expertise in their respective fields, scholars can refine machine-generated translations with targeted post-editing, potentially reducing costs and time associated with professional proofreading and translation services. The study suggests that NMT, when used strategically, can enhance accessibility to international academic publishing, particularly in technical and scientific fields where domain-specific terminology is well-defined. The findings emphasize the need for structured post-editing guidelines to maximize NMT effectiveness. Ultimately, this study advocates for a collaborative approach where scholars and translators work together to optimize machine translation outputs, therefore inclusivity and broader participation in global academic discourse can be promoted.

Keywords: machine translation, academic writing, inclusivity, translation, post-editing.

İngilizce Yayımlanan Akademik Dergilerin Kapsayıcılığını Artırmada Makine Çevirisinin Potansiyel Kullanımı

Öz

Akademik yayıncılıkta İngilizcenin artan hâkimiyeti, özellikle uluslararası dergilerde yayımlanma konusunda ana dili İngilizce olmayan akademisyenler için çeşitli zorluklar doğurmaktadır. Bu çalışma, nöral makine çevirisinin (NMÇ), bu akademisyenler için akademik yazımı kolaylaştırıcı bir araç olarak potansiyelini incelemektedir. Makine çevirisi (MÇ) tarihsel olarak şüpheyle karşılanmış olsa da, NMÇ'deki gelişmeler çeviri kalitesini önemli ölçüde artırmış ve böylece akademik yazımı destekleyici umut vadeden bir araç hâline gelmiştir. Bu makale, makine çevirisinin çeviri iş akışındaki rolünü, ana dili İngilizce olmayan akademisyenlerin yayımlama sürecinde karşılaştıkları engelleri ve NMÇ'nin akademik yazıma son okuma ve düzenleme (post-editing) desteğiyle entegre edilme olasılığını ele almaktadır. Akademisyenler, kendi uzmanlık alanlarındaki bilgi birikimlerinden faydalanarak, makine tarafından üretilen çevirileri hedefe yönelik son düzenlemelerle iyileştirebilir ve böylece profesyonel dil düzeltme ve çeviri hizmetleriyle ilişkili maliyetleri ve zaman kaybını azaltabilirler. Çalışma, özellikle alan odaklı terminolojinin belirgin olduğu teknik ve bilimsel alanlarda, stratejik bir şekilde kullanıldığında NMT'nin uluslararası akademik yayıncılığa erişimi artırabileceğini öne sürmektedir. Bulgular, NMT'nin etkinliğini en üst düzeye çıkarmak için yapılandırılmış son okuma ve düzenleme yönergelerinin gerekliliğini vurgulamaktadır. Sonuç olarak, bu çalışma, akademisyenler ve çevirmenlerin iş birliği içinde çalışarak makine çeviri çıktılarının optimize edilmesini savunmakta ve böylece küresel akademik söylemde kapsayıcılığın ve daha geniş katılımın teşvik edilebileceğini öne sürmektedir.

Anahtar sözcükler: Makine çevirisi, akademik yazım, kapsayıcılık, çeviri, makine çevirisi sonrası düzenleme

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Introduction

Translation has always been an essential component of global communication, enabling interactions across languages and cultures. However, traditional human translation methods face significant limitations, particularly concerning high costs, extended time requirements, and limited scalability (Hutchins & Somers, 1992; Koehn, 2009). These limitations become more evident when dealing with language pairs or text types that do not guarantee sufficient economic returns to justify human translation efforts. Consequently, many translation tasks remained neglected or underserved, leading to substantial gaps in linguistic accessibility and global information flow (O'Hagan & Mangiron, 2013).

The emergence and evolution of machine translation (MT) technology offer a viable solution to these long-standing problems. Machine translation, especially neural machine translation (NMT), significantly increases translation productivity by reducing both the time and costs associated with traditional translation processes (Wu et al., 2016; Castilho et al., 2017). The capability of MT to swiftly process large volumes of text means that previously ignored language pairs or less economically attractive text types are now becoming increasingly feasible and attractive to translate (Way, 2018). This broader feasibility fosters greater linguistic diversity and inclusivity within the translation industry, enhancing global communication and information dissemination (Pym, 2020).

Additionally, as MT technology becomes more accessible and user-friendly, its use cases have diversified beyond the traditional confines of professional translation. Non-professional users—such as tourists, students, or business professionals—are increasingly integrating translation tools into their everyday routines, which expands the role of translation from specialized professional services to an everyday communication utility (Gaspari & Hutchins, 2007; Doherty, 2016). This democratization of translation tools is significantly reshaping public perceptions of translation and redefining its place in daily life.

With the advent of new technologies coming out each passing day, people are getting new opportunities for making themselves more productive and effective. That is, as new technologies emerge, people are starting to find new ways to exploit these technologies. By doing so, they can improve the quality and quantity of work they do in a given time period. As we have seen in the last couple of decades, workplace and the way things are handled are changing in swift pace and every day presents new opportunities for us to improve what we do and how we do it. With these developments, areas of work that were previously ignored or avoided because of costs or workload are getting fresh attention from various circles.

Related example for such a newly embraced area of work is machine translation and several new concepts and ideas that are created as a result of the benefits of machine translation. With turnaround time of translation and increasing volume of translation works, language pairs and text types that were not efficient in terms of costs and time are now getting attention and diversity in translation sector as a whole is on the rise. With the prevalence of MT, its use cases begin to diversify and people who are not professional translator use translation tools in their everyday lives.

In this paper, it the aim is to present a possible use case for machine translation and its prospective benefits to the people who are not translators. It can be said that publishing in academic journals can sometimes be challenging due to language barrier if you are not a native speaker**.** Most of the time, academic writers need a native speaker to review and edit their text in order to be able to publish them in international journals. In this case, neural machine translation (NMT) systems including Google Translate can be used to write in English or translate existing text into English by scholars and they might get a post-editing service for the final version of their texts. This might be useful in that every scholar can be said to be experts in their fields and they are expected to be familiar with related terminology and writing styles. Therefore, if they gain

experience about translation via NMT and become familiar with possible errors that they might encounter, NMT can be used in academic writing processes and post-editing guidelines can be used to finalize the text. There are obviously various factors to bear in mind for such a work including text types, domain specific style or the specifications of publishers but when these are taken into consideration, it can be said that NMT can at least facilitate the process if not revolutionize it. The first section of this paper presents an overview of machine translation technologies and their evolution. Section two discusses the case of acceptance of academic journals as well as discussion regarding such issues as the inclusivity of academic journals when it comes to non-native English speaking scholars. Section three discusses the impact of MT on academic writing and implications of getting familiar with MT systems for scholars with reference to getting accepted by academic journals.

1. Machine Translation

Machine translation is a concept that has been around for quite a while and led to a lot of discussion with varying standpoints. Scholars have presented their ideas about its efficiency or usability in various text types (Bowker & Buitrago Ciro, 2019; Läubli et al., 2018), and there has also been discussion about whether machine translation can be adopted as a justified tool in professional translation (Vieira & Alonso, 2020; Moorkens et al., 2018). However, today most of the doubts about machine translation have faded away and it is a significant part of translation industry and its implications for the quality and quantity of translation are realized by more and more people. Machine translation is generally defined as a computerized system designed to produce translations from one natural language to another, either autonomously or with human assistance (Hutchins and Somers, 1992). Initially machine translation was seen as a tool to fully automize the translation process without human intervention but later it was established that human is a factor in translation process with the machine translation and human-computer interaction gained importance. In the last fifty year or so, machine translation has undergone massive changes and improved substantially. With these improvements, works carried out by using machine translation have diversified and gained volume. Accordingly, research on machine translation and its possible implication for the translation industry and the world as whole have increased significantly.

When the history of machine translation is addressed in brief terms, it can easily be seen that it has a long background conceptually and theoretically. The use of mechanical dictionaries to overcome barriers of language was first suggested in the 17th century (Hutchins and Somers, 1992). People conceptualized machines that could eliminate human factor in interlingual communication and facilitate human interaction via machines. The initial goal of machine translation was to build a fully automatic high-quality machine translation that did not require any human intervention (Quah, 2006). The European Association of Machine Translation defines machine translation as the application of computers to the task of translating texts from one natural language to another. Likewise, the International Association of Machine Translation (IAMT) characterizes machine translation as a process in which input is received in the form of complete sentences, which are then rendered into corresponding full sentences in the target language (Hutchins, 2000 in Quah, 2006). These definitions represent variations of a fundamental concept centered on source or input-language texts and target or output-language texts. Drawing upon these definitions and the characterization of machine translation, it is possible to examine efforts directed toward developing machine translation systems capable of producing meaningful and effective outcomes, thereby serving as an auxiliary tool in translation projects. Notably, the 20th century witnessed numerous proposals for international auxiliary languages, with Esperanto being the most prominent example. However, significant attempts to mechanize translation did not emerge until the mid-20th century. (Hutchins & Somers, 1992). In 1933, two independent patents related to machine translation were registered in France and Russia. One of these was developed by French-Armenian inventor George Artsrouni, who designed a storage device

using paper tape to retrieve equivalent words in another language. A prototype of this device was reportedly demonstrated in 1937**.** (Hutchins & Somers, 1992). In 1964, the government sponsors of machine translation (MT) in the United States established the Automatic Language Processing Advisory Committee (ALPAC) to assess the feasibility and future potential of MT. In its highly influential 1966 report, ALPAC concluded that MT was slower, less accurate, and twice as costly as human translation. The report further asserted that there was no immediate or predictable prospect of useful Machine Translation, effectively shaping the direction of future research and funding in the field. (Hutchins & Somers, 1992). The report discarded the need for improvement and development of machine translation systems and instead it suggested that technologies and gadgets that could be a help for translation be developed. The ALPAC report was seen as being shortsighted and today when we look at state of art in machine translation, we can easily that it is worth the effort, money and time. The conditions were of course different at the time and needs and expectations of the society were different considering the available resources.

In the late 20th century onwards, work on machine translation has accelerated and new features and capabilities have been added to machine translation systems. Especially, with the world embracing a more open-border policy and interaction of people from different cultures on the rise, the 1990s and early 21th century saw tremendous change and improvement in the field of translation. Moreover, with the digital age and new technologies flourishing every day, these times were of great help in terms of the improvement translation technologies, as well. The development of machine translation aimed to create programs capable of generating preliminary translations of texts within well-defined subject domains. These translations could then be revised to produce high-quality outputs at a cost-effective rate. Alternatively, in their unedited form, these translations were intended to be comprehensible to subject-matter specialists for informational purposes and to be utilized in real-world applications with minimal or no human intervention in the translation process. Humans are obviously always a fundamental part of translation process and they design and function translation systems but reducing the human effort in the actual translation work might considerably increase the efficiency of translation industry if not reduce the quality of translated works. The practical effectiveness of a machine translation (MT) system is ultimately determined by the quality of its output. However, defining what constitutes a "good" translation—whether produced by a human or a machine—remains a highly complex and challenging task, as translation quality is influenced by numerous linguistic, contextual, and subjective factors (Hutchins & Somers, 1992). There have always been disputes about the qualities of a “good” translation and scholars have put forward different opinions and theories regarding what should be counted as a good translation. With such an environment, there are naturally opposing views as to the expectations from machine translation in terms of quality and text-type specifications along with various more complications. Given the inherently complex and elusive nature of translation, researchers and developers of machine translation (MT) systems can ultimately aim only to produce translations that are useful in specific contexts. This necessitates the establishment of well-defined research objectives to guide development efforts. Alternatively, they may focus on identifying appropriate applications for the types of translations that their systems are capable of generating (Hutchins & Somers, 1992).

In recent years, automation and translation productivity have gained importance thus leading to increasing efforts towards developing machine translation (MT) systems. Neural machine translation (NMT) represents the latest of these efforts (Ragni & Vieira, 2022). With the developments NMT systems, translation landscape has witnessed great changes in terms of both the quality of MT and the volumes of translated works. NMT has been useful in increasing the quality of translated works and it also opened up new opportunities for those who are not translation professional but somehow need translation. In this study, this perspective is put forward and the possibility of non-professionals using NMT to facilitate their translation process.

2. Academic Journals and the Issue of Acceptance

In the academic society, the issue of publishing articles and academic work is an important aspect of the profession. Academicians are constantly encouraged and promoted by their institutions to produce more academic work and in most cases, publishing is a criterion for admission and promotion. When this is the case, scholars are always in a rush to get their works published. Moreover, universities or institutions demand that the publisher should be international and most of the major international publisher come out in English. The predominance of English as the global language of scholarly publication is well documented. In 2004, English accounted for 74% of the 52,000 periodicals indexed by Ulrich's Periodical Directory. Furthermore, over 90% of social science articles in journals monitored by the Institute for Scientific Information (ISI) were published in English, highlighting the language's widespread dominance in academic discourse (Lillis & Curry, 2006). As English is the dominant language in the academic world, for those who are non-native to English face certain difficulties when they want to get their work published on ground of language. The nonnative-English-speaking scholars, it can be argued, are at a disadvantage compared to their native-English-speaking peers when it comes to writing up the results of their research for publication (Flowerdew,2000). Several studies have examined the conditions faced by non-native and multilingual scholars in publishing their work in English. While there is a growing body of research on multilingual scholars' academic writing, the majority of these studies have primarily focused on textual features rather than the broader academic literacy practices and experiences of the writers. (Lillis and Curry, 2006). Key challenges in academic publishing include understanding the implicit and explicit rules of the publishing process, navigating the mediated nature of publication, and adapting content to align with journal expectations. Additionally, distinguishing between content and form presents a significant difficulty, as does the issue of geographical isolation, which can limit access to scholarly networks and resources (Flowerdew, 2000).

Non-native speakers have certain difficulties in getting their works published because of so-called language barrier and they generally need a native speaker to review their work only about the language elements. However, this person to review the paper might not necessarily be a specialist in the field and he/she becomes an authority on the text regardless of academic background. And this kind of work actually most of the time requires collaboration of the writer and the reviewer, which adds another layer of work to scholars' calendar. Non-native-speaking scholars with limited exposure to English and fewer opportunities for peripheral participation in academic discourse are likely to face greater challenges in publishing their research internationally compared to those with more extensive engagement in English-language scholarly communities (Flowerdew, 2000).

Considering the drawbacks faced by non-native scholars in getting their works published in English journals, we can assume that machine translation can also be help for them as a collaborative act and also with the help of professional translator as a post-editor, they can feel more comfortable in creating scholarly publications. Moreover, using machine translation can possibly reduce the amount of time and money spent in the preparation process.

3. Translation Process and Academic Writing

Professionally, translation is process consisting of different step to achieve a desired result and a translated text. Generally, pre-editing and post-editing terms are used in translation process, especially when there is a machine translation. In order to be able to benefit from the MT, texts are pre-edited to get minimum errors and to increase the effectiveness of MT. Also, following the translation by MT, texts are post-edited in terms

of certain criteria defined previously. With the processes of pre and post editing, translated text are expected to fulfill the expectations of whoever is going to use it for their specific purposes.

In the scope of this study, we focus on the academic writing conditions of non-native scholars in English. Such scholars might make use of machine translation and after they can get professional help from a post-editor. Moreover, if these academicians can get knowledgeable about working principles of MT, especially neural MT, and if they can be familiar with the ways to use it better for their purposes, they can be expected to produce linguistically more quality works and increase their acceptance rates. Another important point in this regard is the time and money spent to create academic works. It can be regarded that experiences that scholars might need translation and review work for their papers and this might cost them a certain amount of money, which sometimes can even exceed the admission fees. However, with the help of MT, they can produce texts and they can get post-editing services probably for a lower fee. It can be argued that in science branches rather than humanities and social sciences, NMT can yield effective results and considering the fact that scholars are familiar with the related terminology in their specific fields, they can possibly create acceptable texts.

Here, it can be implied that by use of NMT translation, we can enable these individuals to write and publish their scholarly works for lower prices and less time as well as without the burden of needing others' supervision. As previously mentioned, non-native speakers need native speakers in order to review their texts. To this end, NMT can be said to be worth trying as an aid in academic writing given that these individuals get the fundamental workings of machine translations and translation practices in general.

Conclusion

This paper is intended to explain the brief history of MT and its use cases along with the discussion about its implications for the translation industry and academic writing communities. MT has a long conceptual history and several scientists and professionals have thought upon its improvement and uses in translation. Also, governments dedicated funds for the development of an effectively operating MT system. With the digital age and technological advancements, today we have very successful MT systems and it has become an indispensable part of translation industry for quite a time.

With the current state of art in NMT, it can be suggested that it can be used to facilitate the writing and publishing processes of academic texts and it can a great help for scholars that are not native speakers of English. With a comprehensive study that includes the analysis of texts from certain science branches and defining the most commonly encountered errors, a framework of post-editing-like guidelines can be created thereby paving way for the possibility of making it more feasible for nonnative writers of English to make use of NMT and post-editing in creating their academic texts. With this in mind, it can be said that by reducing the costs and time needed for academic writing tasks, scholars can be encouraged to have more publications and it can also open-up new job opportunities for professional translators and scholars who are interested in translation.

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