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The Impact of LLM-driven Technologies on TI Education

El impacto de las tecnologías LLM en la formación en T&I

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ABSTRACT: This paper analyses the impact of large language model (LLM) tools in the area of translator education. It starts with a general analysis of the questions raised by the wide availability of LLM tools in education, and goes on to consider the challenges associated therewith from the perspective of the three main agents involved in higher education, namely universities, teachers, and students. The paper concludes with an outline of possible ways of addressing these new developments in translator education, including the need for closer collaboration, an analysis of affordances and risks, and a focus on ethical issues stemming from the use of LLM tools.

KEYWORDS: LLM; ChatGPT; translator education; translator training.

RESUMEN: El presente artículo analiza el impacto de las herramientas LLM en el ámbito de la formación de traductores. Comienza con un análisis general de las cuestiones que plantea la amplia disponibilidad de estas herramientas en el ámbito de la educación y pasa a considerar los retos asociados a las mismas desde la perspectiva de los tres principales agentes implicados en la educación superior, a saber, las universidades, los profesores y los estudiantes. El artículo concluye con un esbozo de posibles formas de afrontar estos nuevos avances en la formación de traductores, que consisten en una colaboración más estrecha, un análisis de oportunidades y riesgos y una discusión de las cuestiones éticas derivadas del uso de estas herramientas.

PALABRAS CLAVE: LLM; ChatGPT; formación de traductores.

1. INTRODUCTION

The ample availability of AI-driven technologies is having a huge impact in many areas of life. It is particularly notable in education, where this development raises two

fundamental questions which curriculum-makers and educators are obliged to confront. The first concerns the integration of AI into teaching to promote learning; the second concerns a possible change in educational goals in order to prepare students for a labour market in which AI literacy will be in high demand (cf. Long and Magerko 2020, 1). While the first issue can be approached adequately by simply getting well acquainted with the relevant tools and staying up-to-date with developments (cf. Kohnke, Moorhouse and Di 2023, 546), the second issue is much trickier to address, since it requires educational institutions and teachers to anticipate possible developments and respond quickly to the demands of the labour market.

In university education within the humanities, the most disruptive changes have been caused by large language model (LLM)-based tools, which allow students to generate text for a wide range of purposes, including different textual genres, translations and research-oriented texts. Large language model tools pose challenges for all disciplines in the humanities and have sparked debate concerning novel forms of teaching, preparing tasks and conducting testing. Although this also includes translation studies, teachers of translation and interpreting (TI) degrees have approached the appearance of LLM tools rather calmly, having likely been seasoned against hype and apocalyptic visions by the neural machine translation (NMT) revolution in 2017. Back then, the general availability of NMT systems initiated a broad debate on the integration of technology (beyond TI-specific tools for professionals) into education, and many universities, therefore, modified their curricula or adapted their courses in order to integrate these tools into their educational programmes. However, while NMT systems mainly affected the teaching of translation, the availability of LLM tools nowadays impacts many more areas of TI degree programmes, especially translation, translation-oriented language training, and academic writing. In this paper, I will conduct a general and TI-focused analysis of the impact of LLM-based technologies from the perspective of the three main agents of the educational context, which are universities (as educational institutions), teachers, and students, and will outline possible ways forward.

2. CHALLENGES

2.1. *Challenges for Universities*

The challenges which rapid technological innovation with disruptive potential poses for universities are manifold. I will focus on two questions which I consider the most pressing in the wake of the release of LLM tools. The first is the adaptation of curricula, and the second is adequate communication with a variety of stakeholders.

The process of designing and adapting curricula can be influenced by social, discipline-related, technological and pedagogical changes (cf. Schmidhofer 2020, 79) and may be constrained by the formal procedures imposed by institutional or national regulations. Given that curriculum changes often involve a considerable number of people or committees, actioning even small changes can turn out to be a long and arduous process. Technological developments with far-reaching potential, such as LLM tools,

affect curricula in two ways: (1) the programme's aims and associated graduate profiles and competencies, and (2) pedagogical and evaluation procedures. While the latter usually affect actions at the course level and are often within teachers' power to decide (this will be discussed in section 2.2), adaptations in programme aims, graduate profiles and competencies concern the programme as a whole and often imply changes that must be approved at different levels within the university hierarchy.

The impact of AI tools is expected to vary across professions, but it is envisaged that it will be considerable in the language industry (Eloundou et al. 2023, n.p.). This perspective, together with frequent prophecies in the media about the possible obsolescence of language professionals in the near future, puts pressure on institutions to adapt their curricula to suit the new times. For the time being, the integration of *AI literacy* as a goal and competency to be developed within TI programmes seems to be the most common strategy. Broadly, literacy in AI involves understanding what AI is, its features, how it works, and how it makes decisions and learns, as well as adopting a critical stance towards its output, its range of action, and the ethical considerations (cf. Long and Magerko 2020, 6-7). Likewise, AI literacy has been linked to professional machine translation literacy (Krüger 2023, 303-10). The development of AI literacy can be assigned to specific courses, or it can be integrated into existing courses on TI-oriented technology or even translation courses. The latter option offers the advantage that it does not necessarily entail curricular changes, since the descriptions in curricula are often sufficiently broad. The debate about the conceptualisation of AI and how to best integrate it into curricula is ongoing and will probably be one of the major topics in TI education in the coming years.

However, such changes in curricula—although promoted by university management and/or stakeholders—also require broad consensus among—and commitment by—teaching staff. Teachers must be willing to embrace such changes and acquire new qualifications; alternatively, institutions can hire additional personnel for courses that require advanced digital competence. Furthermore, universities are well advised to listen to teachers' concerns, not least because—as the experience from debates about the integration of NMT has shown—these concerns affect their beliefs about how translation should be performed and taught, not to mention their qualifications (or lack thereof) in terms of integrating new tools.

The second challenge faced by universities is their ability to communicate effectively that the programmes they offer are up-to-date and to prepare students adequately for job profiles that are in demand. The most important target group of this communication effort is potential students who should be encouraged to enrol. Institutions might also wish to bring important changes to the attention of key players in the industry, such as international organisations or companies, so that they can strengthen their ties with these stakeholders. Finally, it might also be in their interest to publicise their modernisation efforts among the general public in order to convey the image of a state-of-the-art university that is deserving of public funding.

2.2. *Challenges for Teachers*

The challenges for teachers in higher education can generally be divided into two areas: the acquisition of new skills for LLM use in and for teaching, and the integration of LLM tools into teaching and learning, with all the associated implications.

Regarding the first topic, teachers might wish—or also be required by institutions—to develop digital competence, which Kohnke, Moorhouse and Di (2023, 546) conceptualise to include technological proficiency (understanding the technology, being able to use it, and staying up-to-date with changes), pedagogical compatibility (planning and implementing tasks and supporting learners in autonomous learning), and social awareness (adopting a critical perspective on potential drawbacks, risks and ethical issues).

Teachers who have developed such digital competence are best prepared to incorporate LLM tools into teaching and learning procedures. At the current stage, it is of paramount importance to carefully design a strategy for LLM integration and consider all the implications of such a step (cf. Akinwalere and Ivanov 2022, 6-9). Such an approach would prevent the precipitous use of technology based solely on the mostly unconscious desire to belong to the forerunners or imposed by the pressure to appear to be up-to-date technologically. The appropriate strategy should consider and provide answers to the following questions:

- a. For what purpose will I integrate LLM tools into my classroom? Is it to acquire competencies laid out in the course goals? Or rather, to develop digital competence?
- b. How can I use LLM tools to attain my course goals and improve my teaching?
- c. Can my implementation strategy support autonomous learning in my field? If yes, how can I promote efficient use and good practices for this purpose?

The reflections that should ideally accompany the integration of LLM tools should address the following questions:

- a. Is the time dedicated to the use of LLM tools time well spent?
- b. Do my students possess a sufficient degree of digital competence for responsible and efficient use of LLM tools, or will I need to support them in its development?
- c. How does the use of LLM tools interact with competency development in my discipline?
- d. What ethical considerations should be taken into account?

Finally, teachers might be confronted with students outsourcing their coursework to LLM tools. This might force teachers to rethink tasks and evaluation procedures and address the benefits and risks associated with LLM tools, even though initially they might not have intended to do so. It is, therefore, unlikely that teachers can disregard LLM tools entirely, and the advice is to integrate these tools proactively into their classrooms (cf. Dempere et al. 2023, n.p.).

2.3. *Challenges for Students*

The sudden availability of LLM tools has unsettled students as much as teachers, and it has confronted them with many questions about the role these tools can and should play in learning, not to mention the digital competencies that are demanded of them in the job market. Even though in translation studies students have already experienced abrupt technology-induced changes, at least since the advent of NMT tools, generative LLM tools are adding a new layer to the debate on the role of technology in translator education, particularly in relation to production processes and job profiles in the translation industry. A recent qualitative study among TI students at the University of Innsbruck showed that the issue often generates different responses, ranging from mostly positive attitudes concerning the possibilities offered by technology to deep concerns about the consequences of integrating such technologies, most of which cannot yet be fully comprehended (Müller 2023, 61-5). Students also often express a wish for further information and training, and request that AI be integrated into their university curriculum so that they can be better prepared for work in the industry. However, they also acknowledge the difficulty in developing suitable guidelines due to the rapid developments in LLM technology.

These findings are in line with results from other disciplines. A study of 850 Chinese university students (Zhang et al. 2023, 1) revealed that over 80 % expressed «cautious rational optimism». Qualitative studies that focus on student perceptions of LLM tools have revealed that students acknowledge the affordances which LLM tools (mainly ChatGPT) can offer in terms of learning, where they can be used as a peer tutor or as help in generating ideas (Xiao and Zhi 2023, 5-6). At the same time, findings reveal that students are also conscious of the need for a critical attitude and are aware of possible risks such as plagiarism (Xiao and Zhi 2023, 8-9) or cheating in exams; for example, in Yan's study (2023, 13957-58) on the use of ChatGPT for writing in language class, students were found to request that its use be limited to self-learning endeavours and prohibited in tasks and tests.

2.4. *Challenges Specific to Translator Education*

As of March 2024, there is hardly any literature extant on the use of LLM-based tools in translator education. In a seminal talk about the role of generative pre-trained transformers (GPTs) in translator education, Pym (2023, 37:55-46:13¹) identified two strands in the integration of LLM tools into translator education; these are training students to work with the technology, and training students in what the technology cannot do. The first involves getting students to experiment with the tools both with and without the help of teachers. The second highlights the importance of fostering interpersonal skills, which can help translators build trust (for example, with clients), and also comprises expertise in prompt engineering, skills in project management, and attention to editing and revision, with a strong focus on specific end-users, among other topics.

¹ The numbers refer to the minutes of the video included in the reference list.

In addition, research on translations generated by LLM-based tools can provide us with hints about possible future needs in translator education. Karpinska and Iyyer (2023, 1) showed that ChatGPT 3.5 could produce better translations than Google Translate when provided with full paragraphs. Similarly, Lee (2023) highlighted the superiority of ChatGPT when compared to NMT systems in terms of sentence coherence and cohesion. The author also posited that the versatile use of LLM tools in tasks demanded by the language industry would significantly change the job profiles of translators who, paradoxically, in the future might «do anything but translate, serving for instance as bilingual consultants or language project managers working at a remove from translating per se» and «pivot their creative energies away from the technicalities of linguistic equivalence toward the logics of metadiscourse» (2023, 13).

Such developments also raise questions about the competencies that should be developed in translator education, and particularly translation competency. Although translation competency has already been re-conceptualised in light of the availability of a huge amount of external data (Krüger 2018, 115-28), the new developments raise the question afresh and force us to ask what translation competency in the time of AI might involve.

3. WAYS FORWARD

Given that LLM tools are here to stay and will continue to shape the labour market and education, universities, teachers and learners are best advised to take onboard these changes and try to implement the necessary adaptations in order to learn and work efficiently in an AI-infused world. In this vein, I will discuss three aspects which I consider fundamental to the coherent and successful integration of AI in general and LLM-based tools in particular into university translator education.

The first aspect, though it might be stating the obvious, is the need for increased collaboration at the departmental, national and international levels in order to discuss needs and impacts and design courses of action. Among these various levels, I would highlight the first as being particularly relevant, based on my own personal experiences in my department in the wake of the release of NMT tools. At the end of 2018, a working group open to all teachers was formed whose aim was to discuss ways of integrating NMT into courses and to issue guidelines for the whole department. Despite initial resistance by a few teachers (some of whom wanted NMT completely banned from classrooms), discussions finally led to a consensus which resulted in a gradual introduction of NMT tools at the BA level, without use in exams, the aim being to promote translation competency (as it was understood at the time), and full integration at the MA level. Although this might not sound revolutionary, the benefit of this decision was that the department spoke with one voice and teachers acquired information, guidelines and arguments with which to regulate NMT use in their classes. A similar strategy is currently being implemented for LLM tools with a wider scope, also targeting language training and courses on academic writing.

The second aspect involves focusing on ways of integrating LLM tools beneficially into teaching and learning (cf. section 2.2). This means redefining the goals of curricula and courses by adding the development of translation-oriented AI literacy as a goal of the programme or course and using this literacy—once it has been developed to a certain level—in teaching. In this context, I would like to highlight the importance of a keen awareness of the associated risks for learning. These include the possibility of adverse outcomes because of cultural or generational differences between groups of users (Akinwalere and Ivanov 2022, 8) and the varying accuracy of the output and its uncertain usefulness for the intended purpose. Further risks associated with learning include reduced interpersonal interaction and an overdependence and overreliance on technology (Chukwuere 2023, n.p.), the latter bearing the further risk that it could hinder the development of critical thinking skills and «lead to students becoming passive learners who simply accept the responses generated by the system without questioning or critically evaluating the accuracy or relevance of the information provided» (Fuchs 2023, n.p.).

The third aspect addresses ethical considerations associated with the use of LLM tools (cf. UNESCO 2023, 10-2). The main concerns are academic integrity, the risks of outsourcing one's efforts to a tool, the risks of plagiarism due to the opaque use of sources by LLM tools, and inaccurate results. Closely related are legal topics such as a lack of regulation and privacy issues. Furthermore, as the UNESCO document highlights, ChatGPT «is not governed by ethical principles and cannot distinguish between right and wrong, true and false» (2023, 11). Tests have shown that although these tools claim to hold no opinions of their own, their selective use of facts reinforces certain opinions, views and perspectives. Further concerns include the perpetuation of stereotypes and cultural biases associated with the use of data from certain (geographical) areas and inequality in accessibility due to censorship, internet availability and costs.

4. CONCLUSION

In this paper, I have reflected on the relatively short period of impact that LLM tools have had on translator education, relying on my perspective as someone involved in translator education and translator education research, and have outlined the challenges and potential ways forward in terms of adapting to this technological revolution, which in many ways has only just begun. I expect these changes to have a profound effect on the way in which translation is performed in the language industry, which will, in turn, feedback to translator education. Undoubtedly, we will discover the exact scope of this revolution in the months and years to come.

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