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TECHNOLOGICAL ADVANCES AND AI, HOW THEY AFFECT THE WORKING LIVES OF TRANSLATORS, AND WHAT IMPACTS THEY ARE HAVING ON THE EDUCATION OF FUTURE TRANSLATORS

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Abstract: Theoretically, the task of translating from one language to another is still the same as it was only twenty or thirty years ago. In practice, however, the paths that translators take to achieve (more or less) the same results are changing all the time. This is because of changes in the media being worked in and with, as well as the increasingly powerful tools which are there for translators to use. These changes inevitably mean that the training which future translators receive has to be changed and adapted to reflect the changes in the way in which they will have to work, and even to reflect changes in the role of the translator.

Keywords: translation, translator training, technological advances, technological change, machine translation, post-editing.

Translators have been taking texts written in one language and translating them into another language for almost as long as humans have used the written word. To be able to do this, translators need to know both the source language and the target language as well as possible, ideally having a native-speaker-like knowledge of both languages. This is crucial because for translations to be successful, the translator first needs to fully comprehend the meaning of the original text, or, to be more precise, the meaning which the author of the text *intended* and wanted to communicate when s/he wrote it. The translator then needs to create a new version of the text in the target language, which should be as close as possible to the original. However, some changes may very well be necessary, for example to adjust the contents of the text as needed for a slightly (or possibly even very) different purpose which the text might have for a possibly (very) different target group in the target language. Some changes will also be necessary because languages are not one-to-one mirror images of one another. One example of what this can lead to is that a word or concept may have multiple meanings or associations in one language, but there may be no possible translation in the target language that will allow for all of these meanings or associations to be retained (one of the primary aims of translating usually being not to change any part of the meaning of a text, or even any other facet, unless there is a good reason for doing so). Thus, the work that translators do, and indeed have already

done for many centuries, is often much more complicated than most people without direct experience of translating would think.

Let us now look briefly at the impact approximately five hundred years ago of one famous translator and the translations he produced and at the role that technological advances had in increasing the importance of his translations. In the early 16th century, when Martin Luther translated the Bible into Early New High German (first publishing the New Testament in 1522, then the Old Testament in 1534), it meant that suddenly there was a well-translated version of the Bible which ordinary people would be able to read and understand because the language Luther used was the German vernacular commonly used by ordinary German people at the time. Those who could not read themselves would still be able to understand the language, and thus the content of the Bible, so long as they could find someone else who could read it to them. This meant that the Catholic Church and its clergy no longer had the monopoly that they had previously had over the interpretation of the contents of the Bible, and Luther's translation thus also played an important role in the Reformation. Furthermore, Luther's Bible also played a very important role in the development of the German language. This in its turn was important for the development of a German national identity through the widespread use of an accepted common language, which also developed as a result of the widespread use of the Bible as translated by Luther.

However, the technology available to Luther, and also to the translators working on the Tynesdale Bible and then the Kings James Bible in England a little later was still very basic. Nonetheless, there was a game-changing new technology that had been developing and improving during the hundred years prior to Luther's translation, namely the printing press, and in particular, the improvements that Gutenberg had made to printing technology. This remarkable new technology made it possible for books to be printed, and printed relatively easily and much more quickly than before, instead of having to be copied laboriously by hand over months and years by monks in monasteries. Moreover, the fact that the actual procedure of copying the Bible, or rather printing it was no longer in the hands of the monks was also of great importance. The Roman Catholic Church could no longer define in which language the Bible was made available. Nor could the Roman Catholic Church even dictate the interpretation of the contents of the Bible, interpretation being an inevitable part of the process of translating. Furthermore, as the technology developed, so printed books became increasingly less expensive and thus access to the printed Bible became increasingly widespread. This in turn increased the impact of the new Bible translation in printed form.

In the case of the Luther Bible, the process of translating the text from one language to another was not as such much influenced by the technologies available at the time. The main reason for this being that there was no technology available at that time which would have had a dramatic impact on the translation process. However, the *impact* of the translation which Luther produced was only as great as it was due to the availability of the *printing technology*

which allowed the translation to be made available to such a large number of readers, a number that had been literally unknown hitherto. In this case, technology played a key role.

Let us now look at the situation today. We are once again in an age marked by very dramatic technological developments. Today, not surprisingly, the changes are much more rapid than they were 500 years ago. This is due to the fact that it is also in the nature of the most recent technological developments – and the effects they have had on the increasingly globalised world we live in – that the individual technological changes should in themselves lead to other developments which in their turn also increase the rate of technological change. These rapid changes are having many and varied effects on the everyday lives of people all over the world today, both during their work as well as outside of their working environments. Depending on how one sees them, these developments can be seen as a virtuous (or alternatively a vicious) circle.

Living, as we do, in times of such dynamic change, it is very useful to be flexible and to try to keep up with the changes around us. Changes in the technologies, and therefore also in the tools that are available to us on the market can have a very significant impact on the processes we use to get things done, and therefore also on the work which people do. This applies just as much to translators as it does to many other professions.

The tools which translators use on a daily basis have changed dramatically in the last twenty or thirty years. Thirty years ago, translators received the jobs which they were to process as texts which had been hand-written or typed on paper, or what we have nowadays come to call 'hard copies'. If they were particularly unlucky, and this did happen frequently, they received them also as partially or even completely difficult to read faxes. Today, translators will usually receive their jobs in digital form, which will normally not only mean that the texts are easier to read, it also means that the texts can be processed in a totally different manner than if they first have to be typed into a digital format by hand.

Receiving emails with the jobs to be translated as attachments has revolutionised the working lives of translators, also because it has made working from home or almost any place in the world with Wi-Fi access possible. This in itself already makes email appear a seemingly miraculous technology, from a translators' point of view, which we have all in the meantime come to take for granted even though it has truly revolutionised communication all over the world. It must, however, be said that even a technology which many people see as very beneficial may have very considerable downsides for other stakeholders, for example postal services providers. The number of letters posted in the United Kingdom has dropped very significantly in recent years as a result and this trend is expected to continue (PricewaterCoopers, 2013, p. 7)[1]. The new technology of email can thus be seen as a concrete threat to paper communication in Britain. Similar developments are likely in other economies,

[1] The volume of United Kingdom inland letters dropped by an average of 3.1% p.a. from 2005 to 2008 and by 6.3% p.a. from 2008 to 2013, and is expected to continue to drop during the years 2013 to 2023.

although it must be noted that the impact of email will vary from country to country depending on a number factors. One important factor is whether the government of that country is strongly in favour of digital communication, e.g. the government of Denmark, or places a lower priority on digitisation, for example Germany (PricewaterCoopers, 2013, pp. 14-15). Another important factor is how well the economy of that country is growing, or not growing, as the case may be. On the other hand, the impact of the popularity of shopping on the Internet has led to growth for parcel delivery services such as UPS and DHL, and in so doing, has contributed significantly to the traffic congestion and poor air quality in many of our cities. Technological advances can thus be seen to lead to both positive and negative changes, although the precise impact of a technology may vary according to differing contextual factors.

PDF files (short for Portable Document Format files) have also been a big step forward for translators. PDF files have the big advantage of allowing documents to contain both text and images, and of looking the same on different computers. This makes translating the contents much easier than with other file formats, which may appear different when displayed on different computers. Also, PDFs are usually considerably easier to decipher than the faxes of old, particularly but not only in respect to images and diagrams.

The digital revolution has also had a very big impact on the sources used for doing research, and on how this research is done. It is not at all long ago that translators used books called dictionaries. These were expensive to buy, heavy to carry around, and slow to use as looking up a word or phrase involved physically leafing through the book to find the appropriate entry. Some translators preferred dictionaries with thumb indexes, which allowed them to slightly speed up the process of finding a word, but these cost more money and not everyone liked working with them. Translators also typically had bookshelves filled with rows of other reference books relating to the areas that they had specialised in. They also often found themselves going to libraries to do the research which they could not do at their desks in their offices. The advent of electronic dictionaries, first as software which was bought on CDs and installed locally on PCs, and then later as online tools (or locally installed software/apps) has changed all that. So too has the Internet and all of the resources it has to offer.

The Internet has also more recently started to offer online translation tools, such as Google Translate (Google Translate, 2018) and DeepL (DeepL, 2018). These are already having an impact on the translation market/work of professional translators – everyone can get "translations" for *free*, online, anytime. This means that anyone with access to the Internet can type or copy and paste any text they wish to have translated into a tool and receive a translation of that text into any one of a long list of languages. Furthermore, the same functions will increasingly be offered by apps on smartphones, so the user may not even need to be online. The biggest problem that these online tools pose to the indiscriminate user is that the translations they provide are often not perfect, sometimes even horribly wrong. The reason most users use these translation tools is partly due to their own lack of knowledge of one of the languages involved, and also sometimes laziness as it is quicker to copy and paste a text into a

tool than it is to translate it word for word and sentence for sentence oneself. However, there is the significant danger of mistakes and other imperfections in the text not being recognised and corrected, as the user is not competent enough to produce a good translation without such a tool.

The availability of free translations via Google Translate or DeepL etc. (whether they are in fact good enough for the purposes they are intended for or not) also potentially devalues the work of professional translators, as potential customers will ask themselves "Why pay a professional translator when I can have the same product for free?" What implications does this have for translators in training?

As can be inferred from all of the above, students learning how to translate nowadays will find themselves working in a very different world than students who graduated only a single generation earlier. Thirty years ago they would have been with working hard copy dictionaries, encyclopaedias and other works of reference, they would usually have been working under significantly less time pressure, they would have received hard copies of the texts they had to translate and would have most probably delivered the translation to their customers in printed form. Teaching the practical skills required by translators thus involved giving practice in the use of the various tools which translators had at their command:

- typewriters/word processors/PCs,
- dictionaries/thesauri/encyclopaedia etc.,
- and most importantly, of course, their brains.

A translator's brain, both 30 years ago and today, contains innumerable items of knowledge about very many things, for example about what words/phrases/sentences can mean (usually with reference to the context that they are found in), about how things and processes work, and indeed about how the whole world and everything related to it works. It also contains strategies for finding solutions to many of the problems and difficulties that translating from one language to another poses for translators.

Assessing the progress the students were making was relatively uncomplicated thirty years ago: Examinations could typically take the form of pen-and-paper translations, with the use of one or more dictionary and possibly other reference material being permitted (or not, as the case may be). If the invigilator supervising an exam ensured that no one looked at and copied their neighbours' translations and that everyone stuck to the time limit, then there was little opportunity for cheating or anyone getting an unfair advantage by use of any translation aids which were not permitted.

Leaping forward to the modern day and age we see a different picture. Just as 30 years earlier, translators need to learn the skills that they will apply, using the tools at their disposal. These have however changed a little:

- Firstly, they need to learn how to use PCs (or Macs) and Word, but these tools have become far more powerful than before, providing, amongst other little helpers, powerful spellcheckers with autocorrect functions, as well as grammar checkers, both of which reduce the learners' need to know how to spell and write correctly. Or arguably, the students do not believe that they need to be able to spell or write due to the fact that they have become used to either only typing the beginning of a word and then using the autocomplete function to finish the word for them or to typing something which approximates the word they mean and then again relying on the software to sort out the spelling for them (both of which have become particularly popular due to the widespread use of WhatsApp etc.). However, a limited ability to notice and correct spelling mistakes or grammatical imperfections will turn out to be a big handicap when translators have to proofread and correct translation produced either by translation tools such as Google Translate or DeepL, or produced by translation memories (such as Trados Suite, MemoQ or Across) which have been used increasingly widely since the 1990's and are now an integral part of most translators' arsenals.
- Secondly, instead of the relatively limited resources in terms of dictionaries/ thesauri/encyclopaedias which student translators used to have at their disposal have been replaced by the virtually unlimited resources which are now available via the Internet. Many, but not all of them free.
- Thirdly, a translator's brain is still the single most important and (for now) most powerful tool s/he has. Without an intelligent and well-trained brain it is still very difficult to do a good job. Notwithstanding all the new tools and advantages a translator has nowadays.
- Students of translating will still have to learn about the contents of seminal works as Snell-Hornby et al's "Handbuch Translation" (1998/2006), but as these books do not cover any of the technological changes and their impacts on translating since they were published, they will be out of date virtually on the day they are published. The only solution for this would be to publish the books online and update them regularly, along the same lines of Wikipedia, but most publishing houses (and indeed authors) may not be ready for this yet.
- More than ever before, translators will also have to learn soft skills and marketing. They will have to be in a position to clearly and convincingly show their customers (or potential customers) the value of employing a professional translator instead of using a free online tool. Failure in this key area could lead to failure as a translator, irrespective of how good the translator is at translating itself.

The tools have not only changed the processes involved in translating, they have also changed the tasks that translators have to carry out, for example translators are being increasingly employed to post-edit machine-translated texts instead of translating the texts themselves. Furthermore, the tools are a potential threat to the profession of translators. It is the

express expectation and aim of Google Translator to use Artificial Intelligence (AI) to allow the Google Neural Machine Translation system to develop the tool to the point where it "will end up being at least as good as people at doing translation" as Google's Geoffrey Hinton states (Saragosa, 2017). DeepL and other competitors will no doubt be working towards similar targets. To what extent they achieve them remains to be seen in the future, but machine translation tools have in recent years certainly made surprisingly good progress in their quest towards this target.

Thus, new technologies and how professional translators use them impact not only the teaching of translators' skills but also the assessment of student progress. Do we want to assess primarily how well our students know a language, or do we want to see how well they are able to work under real-life conditions, or at least conditions which come as close to these as seems reasonably possible? The latter option brings along with it a certain risk of cheating, of relying too heavily on machine translation and the like and too little on the student's actual language skills. Or does it? Once they have completed their training and work as translators they will inevitably use machine translation tools, databases and the Internet as a source of information on both content and language. They will not work in solitary chambers using hard copy dictionaries and similarly outdated tools. So, examinations are a crucial part of the way translators' training has to be changed in order to keep up with the conditions translators work in. We will have to find a way to test language skills as well as the ability to use the media and tools available in a competent manner. Our students, future translators, will use online dictionaries and databases; let us give them the tools to do so in a smart and sensible way.

As teachers, we are faced with the challenge of how to set exams that will differentiate between students who are able to distinguish between a good DeepL translation and a bad one on the one hand, and those who will unthinkingly go for the first result that an online dictionary provides them without realising there may be a double meaning or a better choice of translation in the given context on the other hand. As teachers, we also have to stay in touch with professional translators to keep our fingers on the pulse of what is currently happening in the world of professional translating. With the people who use new technologies in their everyday work and who can provide us and our students with examples of the benefits and the challenges of these tools. We also have to trust our students to use online tools and sources to improve their translation skills rather than to cheat. After all, it is in their best interests to leave our universities with the skills they will require in their professional lives. However, if we feel we cannot trust some of our students enough and that a section of them will abuse unlimited access to the Internet, then we should consider the alternative of setting exams without access to the Internet. This will be a little less realistic as regards the work of professional translators, but will create fairer examination conditions, with a level playing field for all participants.

Technologies will inevitably continue to develop and change, producing new applications and tools. This will continue to happen in the future, raising new opportunities and new challenges. It is going to be extremely interesting to see how things develop in the future, all

the more now that Artificial Intelligence promises to push back the boundaries and take translators far beyond what had previously been believed to be possible. It is also going to be very interesting to see how we deal with these changes, both as translators, and as translator trainers.

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