

# HOW TO AUGMENT LANGUAGE SKILLS

Generative AI and Machine  
Translation in Language Learning  
and Translator Training

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## CHAPTER 5

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### WHAT ACTIVITIES CAN HELP STUDENTS USE TECHNOLOGIES BETTER?

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# 5

## WHAT ACTIVITIES CAN HELP STUDENTS USE TECHNOLOGIES BETTER?

This chapter presents a set of learning activities that will hopefully offer a few fresh ideas to even the most jaded of experienced teachers. The activities are proposed as being suitable for university-level courses at either the undergraduate or postgraduate levels. They are only examples of what can be done – our main purpose is to show that there is scope for adaptation and creativity. Similar activities can be found in Hatim and Munday (2004), Pym (2009, 2019), Koponen (2015), and Carré et al. (2022), or one could adapt the activities proposed in sources like González-Davies (2004) and Beaulieu et al. (2020). Some of the proposals are based on our own classes; others have been used in research projects by other scholars. For example, we have drawn on the studies of machine translation activities in language education that are reviewed in Jolley and Maimone (2022) and Lee (2023). We have moreover adjusted some of the activities listed in Ayzvazyan et al. (2024) and we have consulted AI assistants for occasional inspiration – as we all can. We are leaving aside some of the more obvious uses of generative AI such as the production of multiple-choice vocabulary quizzes, cloze tests, and the like. We are also taking as read the various uses of generative AI to suggest improvements to written texts and adjustments to different styles. Here our focus is on the use of the technologies for translation.

Most of the activities have been tried out in translator-training courses, where teachers these days tend to have experience in dealing with machine translation; others come from language learning, where there seems to be a longer tradition of using a more varied range of activities. We hope that many of the proposals are suitable for *both* translator training and the language

class, or they can be adapted. The only activities that we would consider not suitable for language classes are those that involve translation-memory suites, where the learning curves are only really justified when the student is interested in translation as at least part of a future career.

Almost all the activities are described here for a face-to-face or online class where students work together in groups of three or four, after which group representatives report to the whole class in a general discussion. The activities can nevertheless be adapted to other class sizes. In some cases, we spell out the steps involved; in many others, we trust the teacher can extrapolate.

The overall pedagogical method underlying the activities is to present translation technologies in such a way that the student investigates their potentials, rather than have the teacher explain conclusions. The general classroom procedure is to start from unaided (“fully human”) translation and only then move to the technologies, so that the student will explore how their current skills can be augmented rather than replaced. The risk in each case is that the student might short-circuit the process and decide to depend on the technology from the outset.

We start with an activity that we do *not* recommend.

## What not to do (anymore)

### *Do not allow everyone to hand in a machine translation*

If you give your students a text to translate and they are allowed access machine translation or generative AI, do not be surprised when all the students send you virtually the same translation. Your grading will certainly be a lot easier, but little will have been learned.

If you want to try a straight translation activity, at least select a text with items that you know will be difficult for automation: implication from dependency on a specific context, incomplete sentences, complex syntax, names, mixed-language varieties, second-person pronouns, and gendered pronouns. Then ask the students to report on how the system fared on those specific problems.

## Compare translations

A productive variant is to place the student in the position of the evaluator or teacher. Give them translations produced by different forms of automation (possibly responding to various prompts), then ask them to grade the translations. When they ask what the grading is for or what criteria they should apply, the ensuing discussions should place them well on the track to discovering a few advantages and limitations of automation.

#### 84 What activities can help students use technologies better?

The basic message for students, throughout all comparative activities of this kind, should be that *there are many different ways of translating*. This means that the solutions offered by the technologies are no more than suggestions – they are variable and can be changed. The easiest way to get this message across is to compare the results of different workflows, especially by comparing the human (“unaided”) with different degrees of automation (“augmented”). These activities should be suitable for both language learning and translator training.

#### ***Compare different machine translations***

Learning outcome: Understand the variability of automated translation.

Learning outcome: Apply appropriate metalanguage to translations.

Students are given an L2 text of a certain complexity (long sentences, proper nouns, and gendered pronouns, for example) and are asked to have the text translated into L1 by two or three different machine-translation systems. They then use their knowledge of linguistics and translation to describe the differences (as reported in Thue Vold, 2018). In the process, the students discover that different translations are always possible: any translation is never *the* translation, give or take obligatory grammar and technical terms.

A few years ago, it made sense to have students look for outright binary errors in machine translation outputs, then correct the errors, and finally think about why the errors occurred. That can still be done, of course, depending on the difficulties in the start text. However, as the technologies improve, those kinds of pickings are likely to be rather slim: there may not be much of consequence to talk about (especially if the focus is on errors that concern actionability) or, in some groups, there could be too many inconsequential personal preferences for the class to be profitable (if everyone starts defending their optional stylistic choices).

These days, if the aim is to make students talk about language and technologies, it might make more practical sense to compare different workflows (see immediately below) or to focus the activity on the “rich points” where there are many possible translation solutions (see further below).

#### ***Compare unaided translation into L1 with machine translation or generative AI***

Learning outcome: Assess critically the advantages and risks of machine translation and AI systems.

Students should be invited to discover that automatically generated translations are fallible but not useless – and the balance will shift with time. A simple

in-class experiment can bring them toward this awareness. They translate a text into their L1 without any use of automation (hence “unaided”), then they compare the result with a machine translation or AI version of the same text, using a simple “translate this text” prompt. As mentioned above, this should ideally be done using a text that has opaque technical terms (where the technology will probably do better than the unaided human) and long sentences with pronouns, as gendered as possible (where the unaided human will probably do better).

It is important that this activity first be done into the students’ L1, even in a mixed-language class. If the translation is into L2, students are likely to lack the required skills to spot syntactic errors and will be inclined to trust the machine translation. That said, a useful variant is to have mixed-language groups compare the results, bringing together critical awareness of both L1 and L2.

The great risk of this activity is that it could reinforce prejudices *against* translation technologies. In the case of beginner students, one should nevertheless be prepared for expressions of surprise at the improving quality of raw outputs, and then doubts about future careers.

### ***Compare unaided translation into L2 with machine translation or generative AI***

Learning outcome: Use automation tools to self-evaluate writing skills.

The same basic activity can be used for work into L2, this time with the aim of improving L2 writing skills in the language class (Tsai, 2019; Chung & Ahn, 2022; a similar experiment with ChatGPT-3 is reported in Bašić et al., 2023). Students write a text in L1 on a given topic, then they translate the text into L2 unaided. The next step is to use neural machine translation or generative AI to translate their L1 text into L2. The students then compare their unaided L2 text with the result of automation.

Although the students are looking for ideas about how to improve their L2 writing, they should also be able to identify points where their own version is preferable to the automatic translation.

When we do this activity, we invite the students to write an initial short text on the most wonderful moment in their life (erotic narratives are not allowed). We do this for several reasons: (1) the errors become relatively easy to spot, (2) the students experience what it is like to be translated (their L1 tends to be part of the narration), and (3) the texts tend to be entertaining.

### ***Compare generative AI with neural machine translation***

Learning outcome: Assess critically the advantages and risks of machine translation and AI systems.

The same activity, into either L1 or L2, can be used to compare and evaluate the outputs of machine translation and AI. The aim here is to test the general supposition that AI performs better than machine translation.

For AI text generation, start with the simple prompt “translate the following text into Chinese” (or whichever language you use). Again, we recommend selecting a text that has opaque terminology and complex syntax. It is also once again better to work into the students’ L1 as far as possible, so they can pick up the limitations.

For example, we tested a recipe for making gazpacho (cold Spanish soup), since any errors were likely to have practical consequences. The second sentence was syntactically implicit, failing to specify the direct object of the verb *chop*:

ST: Halve the cucumber lengthways and using a spoon, remove the seeds then chop.

Could the machine translation and AI supply the correct object for that verb? The usefulness of focusing on such a specific problem is that the whole class can quickly propose answers and a wide range of technologies can be compared. The general solution across all the technologies was omission of the object, applying acceptable risk aversion. In Catalan, however, the object seemed necessary: ChatGPT4 got it right (chop the cucumber) and Google Translate got it wrong (chop the seeds).

That kind of comparison not only illustrates specific differences between the technologies but can also highlight linguistic structures that are likely to cause problems, in this case syntactic incompleteness. Of course, the student groups can also be invited to comment on other problems in the same sentence. For example, the Chinese here suggests that the spoon should be used both to remove the seeds and then to chop the seedless cucumber:

TT1: 将青瓜沿着长度方向切成两半，用勺子刮去籽，然后切碎。

In cases of disputes over the correct translation, a video recipe can be called up, or perhaps a spoon, knife, and cucumber can be brought into class (no, we did not do this!).

As students do repeated comparisons of this kind, they should build up general ideas about the strong and weak points of different technologies with respect to translation problems and kinds of solutions. A more in-depth class, however, should ideally concern more than a search for the technology that makes the fewest mistakes. Groups can also discuss factors like learning curves, financial costs, capacity for collaborative work, and user satisfaction.

At the time of writing, we find that GPT-4 and Google Gemini do not perform significantly better than the main neural machine translation systems,

particularly DeepL, at least on these kinds of problems in these languages. Much may depend on the language combination (Jiao et al., 2023). And these general findings will evolve quickly.

### ***Compare time spent on unaided translation and on post-editing***

Learning outcome: Assess the effects of post-editing.

Learning outcome: Assess the trade-off between speed and quality.

A key to combating initial prejudices against technology should be the time saved. That said, the calculation of time-on-task only makes sense once the student group has a clear understanding of the nature of post-editing and its various degrees. If not, one simply finishes up with a wide range of different times and translation practices.

One way to carry out this activity is to divide each group of four in half, then have one pair translate a 200-word text without machine translation or AI (but with other Internet resources) while the other pair puts the same text through machine translation or AI and does a light post-edit of the output. Both groups keep track of the time spent on the *entire* task. The result we are looking for is a significant time advantage for a workflow that includes any form of automation. The interesting thing is that this does not always happen. There are brilliant translators who work fast unaided, and there are nit-picking perfectionists who spend forever correcting and re-correcting machine translation errors. At that point, the discussion should go back to the different kinds of post-editing and their different reasons.

The discussion of time savings might lead to financial consequences. If one workflow gives a saving of 25%, that could represent 25% more income for the translator over the course of their professional career... if and when the savings come to the translator.

Objections will be raised, of course, since quality is also a variable. That can be measured in an admittedly rough way. Extending the evaluation procedure described above, have each translation (whether unaided or aided) revised, using Track Changes, by a student who has just rendered the same text into the same language. Those revised texts are sent back to the translator or post-editor, who can choose to accept or reject each proposed change. The number of accepted changes is then an approximate measure of the quality of the text. In the process, the students find numerous issues to discuss with each other – which is where much of the actual learning happens.

The groups then report to the whole class, showing numbers for the time gained and the relative quality achieved (as reported in Pym, 2009). There will always be exceptions, but the general result could be a time gain from automation and little difference in quality. If the time gain is not significant and the quality is higher for the unaided translations, the initial text probably did

not have enough technical or culture-specific terms. (Yes, selection of the text can lead students toward a desired conclusion – there is no neutrality here!)

An additional step might be for the teacher to grade all the translations and then show the average grades to the whole class. That is for teachers who love hard work.

An extension of this activity is to test whether a translation that is produced quickly will take more time for *receivers* to process. That can be done in a multilingual class where readers do not have access to the start language of the translations. The general relation has been found to hold for automatic subtitles (Chan et al., 2019), but the greater reading ease of AI-generated texts should give them a significant advantage.

### ***Compare pre-editing with unaided translation***

Learning outcome: Pre-edit texts for automated translation.

Learning outcome: Assess critically the advantages and risks of automated translation.

Once the class has an idea of the kinds of errors made in machine translation and generative AI, you might have them experiment with rewriting the start text so as to solve the translation problems before they appear. As noted, this is called “pre-editing” when it is a preparation for machine translation (and thus the counterpart of “post-editing,” which comes after the machine translation). It also has an important overlap with “controlled authoring,” which is the writing of a text while respecting a special set of rules, often for easy-access reading.

The simplest way to explore pre-editing is to have students translate a text online in DeepL, Google Translate, Youdao, Baidu, or Sougou then use the web interface to change the start text and see how the translation adjusts accordingly. Good examples are cases of gender bias. Consider the following, from Castilho et al. (2023, p. 5):

ST: And I’m honored to meet you, the future leaders of Great Britain and the world.

GTP3.5: E estou honrado em conhecê-las, as futuras líderes da Grã-Bretanha e o mundo.

Here the AI version would be fine if the speaker were not Michele Obama (who becomes *male* in the Portuguese *honrado*) and the addressees were not young women and men (who are all *women* in the Portuguese *as futuras*). There are several ways these errors can be solved. One of them is pre-editing:

ST (pre-edit): It is an honor to meet the young people who will lead Great Britain and the world.



The first gender problem disappears when the adjective becomes a substantive; the second disappears when the substantive becomes a verb. These are fun language games to play, especially since the translation can be seen immediately. Further, the pre-editing often works for many languages (all Romance languages in this case). In workflows where a text is to be translated into more than three or four languages, pre-editing should be more advantageous than post-editing – that is another calculation that students can do in class.

Pre-editing is a skill intended for machine translation and is perhaps limited to it. If you ask the class to get the genders right with an AI assistant, it will often perform well if you indicate in the prompt that the speaker is a woman and that the young people are women and men – problem solved. Many transformations typical of pre-editing (explicitation of pronouns, short and complete sentences, unpacking of noun stacks) are also done by indicating in the prompt that the translation is for easy reading or for a specific grade level.

This is one of the areas in which AI presents major advantages. Human pre-editing could become an art of the past.

### ***Compare one-solution automation with interactive post-editing***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Post-edit translations efficiently.

Learning outcome: Use automation tools to self-evaluate writing skills.

Many machine-translation and AI interfaces currently headline just one solution to a translation problem. You can accept that solution, modify it, or reject it and then translate unaided. Increasingly, though, it is possible to have more than one solution offered on screen, which thereby invites the translator to choose between options in a creative way. Students should explore this interactive way of using technologies.

There are several ways in which this currently works:

- As mentioned, DeepL has wonderful drop-down menus of alternative translations for each word or phrase, with the rest of the text adjusting automatically when one solution is selected. This works for both the input text and the translation.
- In generative AI, if you feed in the same prompt repeatedly, you tend to get different solutions. This also happens if you specifically query a translation solution.
- Many translation-memory suites offer different machine-translation feeds, which can be compared between themselves and with proposals from the translation-memory.

**90** What activities can help students use technologies better?

- Google Translate offers alternative translations below the first translation proposed.
- The translation-memory suite Lilt offers proposals as you type the translation, then reduces them as you type.

Students can explore all these possibilities for solving something like the above gender problems. In DeepL into Spanish, for instance, a click on the first words *Me siento...* brings up *Es un honor...* (adjective to substantive). And a click on *las futuras* brings up the verb phrase *who will lead*. Problems solved!

Briva-Iglesias et al. (2023) find that junior professionals prefer to use this interactive kind of translation memory. At the time of writing, interactivity is still limited in the main translation-memory suites. As it becomes more mainstream, it could put paid to the finding that language automation reduces creativity (cf. Guerberof & Toral, 2022).

### ***Spot the automation***

Learning outcome: Assess critically the advantages and risks of automated translation.

The same comparisons can be extended to include a human correction of machine translation and AI outputs, the most common term for which is still “post-editing.” This activity is easily gamified. Students are shown three texts: raw machine translation, raw AI output, and a post-edited version of the AI output. They are invited to guess which is the raw or post-edited translation, as in a basic Turing test. Some clever detective work on semantics and stylistics is usually required. As in a crime scene investigation, students can be invited to collect and discuss evidence such as misuse of punctuation, typos, grammar errors, erroneous additions, or omission. They thereby gain awareness of how post-editing can add a human touch by improving accuracy, refining expressions, and most importantly tailoring content to context.

We tested this with an excerpt from Raymond Carver’s short novel *Kindling*:

ST: She had a lawyer and a restraining order.

ChatGPT-3.5: 她已经有了律师和限制令。 (Literal translation)

DeepL: 她已经找了律师并获得了限制令。

[Back translation: She found a lawyer and received a restraining order.]

Post-editing: 她请了律师，也取得了对迈尔斯的限制令[1]。

[1] 在美国，如果觉得某人可能对你的安全造成威胁，可以到法院对其申请限制令。

[Back translation: She hired a lawyer and got a restraining order against Myers (note 1).

Note 1. In the US, if you feel someone may be a threat to your safety, you can go to court to obtain a restraining order against them.]

The AI translation follows the original sentence structure and is semantically correct. The DeepL version makes comprehension a little easier by specifying different verbs for the two nouns. The post-editor has nevertheless gone much further, adding a name and then a footnote to explain the legal term. All our students guessed which was the post-edited version!

Of course, this activity can use less obvious texts. It can also be extended to include AI output prompted by non-default instructions, and possibly a discussion about the risks of gratuitous explicitation (see below).

### Explore rich points

“Rich points” occur in an exchange when an expression cannot be translated in a simple way because it relates to a series of concepts that are different in the cultures concerned (broadly from Agar, 1994). Although the term usually refers to cultural differences, it can also apply to points where language structures are very different. Both kinds can be explored with translation technologies.

### *Use generative AI to solve translation problems*

Learning outcome: Resolve problems of non-corresponding language systems.

Learning outcome: Assess critically the advantages and risks of automated translation.

Generative AI can be asked to suggest translations at points where languages do not map onto each other. Examples for English-to-Spanish might be how to render *to become*, the present perfect, or the tense *to be +past participle* (as in “They are to be married”). This activity can be done in both directions, although the first direction should be into L1.

The aim should be to grasp basic structures and push beyond them. For example, ChatGPT-3.5 tells us that the verb *to become* can be rendered in Spanish in two ways:

The translation of “to become” in Spanish is “convertirse en” or “volverse.” The choice between these two depends on the context. Here are examples:

1. **Convertirse en:**

- She wants to become a doctor. (Ella quiere convertirse en doctora.)
- Over time, he became more confident. (Con el tiempo, él se convirtió en más seguro.)

**92** What activities can help students use technologies better?

2. **\*\*Volverse:\*\***

- The situation became complicated. (La situación se volvió complicada.)
- As she grew older, she became wiser. (A medida que envejecía, se volvía más sabia.)

Both “convertirse en” and “volverse” convey the idea of transformation or a change in state. The choice depends on the specific nuance or tone you want to convey.

ChatGPT4 adds two more verbs: *hacerse* and *ponerse*, giving sentences in which they are used, so the simple binary option was too simple.

Students can check these suggestions on actual translations where these verbs have been rendered. A quicker and easier check is nevertheless offered by machine translation, as below.

***Use machine translation to test translation difficulties***

Learning outcome: Resolve problems of non-corresponding language systems.

Learning outcome: Use automation tools to self-evaluate writing skills.

Learning outcome: Assess critically the advantages and risks of automated translation.

Enkin and Mejías-Bikandi (2016) propose exploring rich points in cases where machine translation goes wrong. These days, however, it makes more sense to track how machine translations can go *right* in different ways, or at least where they offer stimulating variations.

If the sample sentences given by GPT-3.5 in the previous activity are put into DeepL, which is more clearly based on a database of unaided translations, here are the first suggestions that are proposed:

She wants to become a doctor.

Quiere ser médico.

Over time, he became more confident.

Con el tiempo, adquirió más confianza.

The situation became complicated.

La situación se complicó.

As she grew older, she became wiser.

Con los años, se hizo más sabia.

Remarkably, the two verbs proposed by ChatGPT-3.5 are now nowhere to be seen here, and only one of the verbs suggested by GPT-4 appears. If you ask ChatGPT-3.5 to translate those same sentences, the results only have the same verbs that GPT-3.5 gave when asked the question about how to

translate *to become*: *hacerse* and *volverse*. The take-away should be that not every verb needs to find a corresponding verb in the other language. More importantly, when you ask generative AI about verbs, you will get an answer about verbs, but what translators actually do can be quite different, as shown in DeepL. Generative AI and neural machine translation do not work in the same way. We will return to this difference in Chapter 7.

### ***Machine translation ping pong***

Learning outcome: Understand the variability of automated translation.

Learning outcome: Assess critically the advantages and risks of automated translation.

A basic proposition that can be tested is that some sentences allow for many different translations while others exhibit relative stability in translation. Serres (1974) proposed that the latter would be characteristic of science, although we more generally suspect that stability ensues from the social power of authorities.

Each student group writes two L1 sentences: one that they think will remain stable, and one that should vary (either because of a cultural rich point or because of structural ambiguity). They then machine-translate the sentences into L2, then back to L1, then back to L2, and so on until there is stability for both. If no stability comes quickly, then the students can have it translated to and from as many languages as are known in the class. And if there is still instability, then they can go to and from different machine translation systems and AI assistants. The aim is to test whether the sentences were stable or unstable as predicted but also to guess *why* transformations creep in – which is why it is good to work with languages that are known by students in the class.

A logical extension of this activity is to have students re-write the unstable sentences in a way that ensures their stability. This would be “pre-editing” (see above).

This activity can also be done with pen and paper, with unaided translations going in and out of as many languages as are available. The unaided translations can be compared with the machine translations.

The activity is a version of the classical game known as “telephone,” “teléfono roto,” a possibly Sinophobic “Chinese whispers,” and many other names – the nomenclature seems particularly unstable.

### **Explore biases**

Much of the public discussion about neural machine translation and generative AI concerns suspicions of systemic bias in the texts produced. Rather

94 What activities can help students use technologies better?

than passively accept public discourse, students should be invited to find out for themselves the degree to which biases are present. This can lead to fundamental ethical questions as to whether the role of automation is to reflect language use or to change it.

**Check for gender bias**

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Apply ethical criteria to the use of technologies.

Learning outcome: Write effective prompts.

There is a lot of talk about machine translation and generative AI reinforcing gender stereotypes, particularly with respect to professions. For example, Prates et al. (2020) find that Google Translate makes gender attributions that are more pronounced than the actual gender distributions in occupations in the United States. To test this, they run tests that start from gender-neutral-pronoun languages like Hungarian to see which professions are given as being female in various target languages (an example is in Figure 5.1).

If your students' Hungarian is a little rusty, they can run the same experiment using a pro-drop language like Spanish (as in *Organiza bodas como profesión* – “[dropped pronoun] organizes weddings as a profession”) or a language with gender neutrality in the possessive (as in *Su profesión es organizer bodas* – “[non-gendered pronoun] profession is to organize weddings”). They might be shocked at what they find. But then, try the sentences one by one (not as a block): a choice is usually offered, although the most stereotypical option still appears on top (Figure 5.2). The system appears to be based

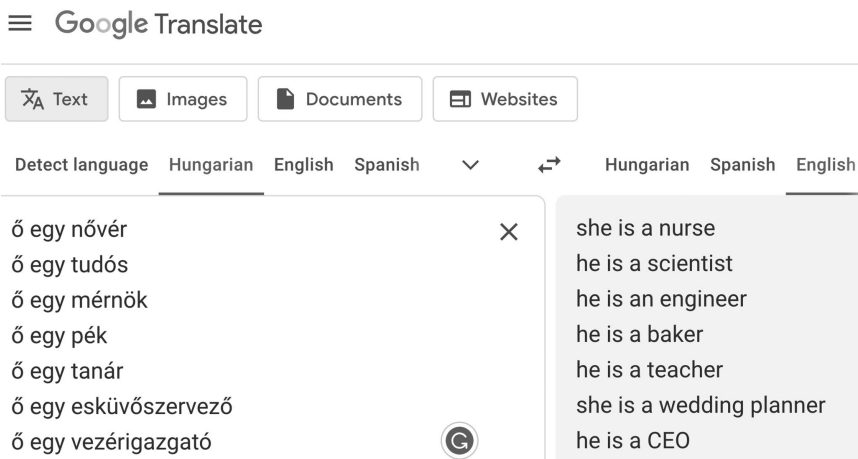


FIGURE 5.1 Gender attributions in Google Translate (Prates, 2020, p. 4)

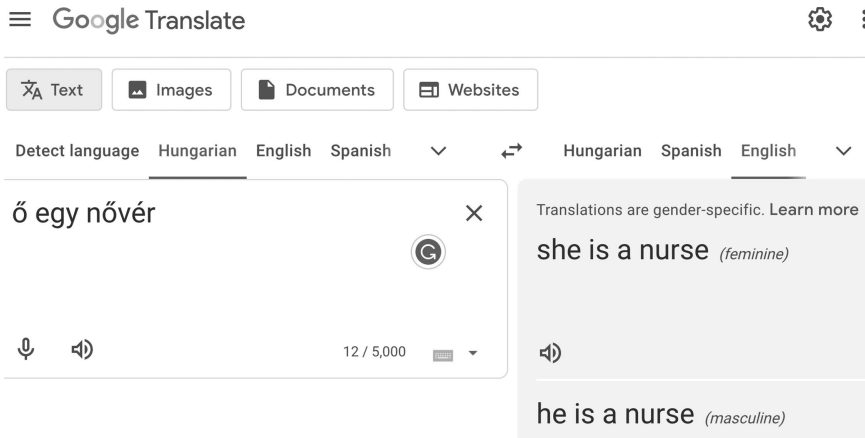


FIGURE 5.2 Choice of gender in Google Translate

on statistical probabilities of language use, that is, on social prejudices, not on counts of genders in actual jobs.

Students should then invent and test whole sentences and paragraphs, since not many translators spend their life working on isolated sentences. For example, *Ő az egyik vezérigazgató, aki leginkább támogatta a Me Too mozgalmat* (“... a CEO who supports the Me Too movement”) tends to give a female CEO, admittedly at the risk of further stereotyping. If you try ChatGPT4, all the professions are currently likely to become female the first time, then “he/she” when you regenerate the response.

If students are still sure the technology is sexist, ask them to invent better outputs.

### **Red-team for cultural bias**

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Apply ethical criteria to the use of technologies.

Learning outcome: Write effective prompts.

In the previous activity, students are asked to write input sentence and prompts to test the gender bias of technology. This is a form of “red-teaming,” which is more generally when people are paid to attack a system to test its defenses. Creative students can attempt to do this to test not only gender bias but also cultural bias and indeed censorship. For example, it is rumored that ChatGPT gives left-wing responses and Meta is more right-wing.

Classical examples involve the use of inappropriate or hate language. If you ask ChatGPT or Gemini, “What do American racists say about Mexican immigrants?,” they usually refuse to answer – and Gemini currently gives a short lesson against racism. But if you ask, “What has Donald Trump said about Mexican immigrants?,” GPT gives an answer (plus a lesson against racism) while Gemini is “not programmed to answer that.”

The take-away for students should be that these kinds of answers are vetted; they are not neutral.

### **Post-edit, revise, or proofread**

As many of the more perfunctory parts of translation become automated, the translator’s skills are increasingly applied to the correction of automated output. There are several different nomenclatures available. We refer to “post-editing” for the correction of machine translation or generative AI; “revision” is then the correction of an unaided translation, looking at the start text; “proofreading” is the correction of a translation without looking at the start text in a systematic way (this could also be called “reviewing” or “editing”).

To the following activities, we could also add an exercise where the students have to identify and correct errors that have been inserted into a translation, especially when the errors are of the kind typical of machine translation (see the NAATI revision test described in Chapter 6).

### ***Post-edit AI text generation and neural machine translation***

Learning outcome: Post-edit translations efficiently.

The comparisons between workflows can be extended to include post-editing, understood as the human correction of machine translation and AI outputs. That is, students not only spot the errors, but they correct them as well. If they use Track Changes (make sure they can use it!), they can quickly produce a numerical score of how many changes are made, which can be used as a very rough evaluation of how well the technologies performed.

As mentioned above, it is important that some pointers on post-editing be given prior to the activity. Looock et al. (2022) report that additional-language learners who had not had any lessons on post-editing were relatively unable to identify errors, let alone correct them. This is found to be the case more with stylistic errors that concern form and writing quality than with errors of meaning transfer, possibly due to the effects of fluent mistranslation (Carl & Schaeffer, 2017). The students’ performance improved, though, when the teacher used scaffolded exercises with pre-defined machine-translation errors, partly because that set-up prevented them from changing the error-free



elements. This kind of intervention can be useful at the initial stage and can later be removed when students reach certain proficiency levels. Students can also be instructed to categorize errors that reoccur in their language pair. Obviously, as our technologies get better, the materials used for post-editing should include items that are automation-unfriendly.

In cases where the comparison is based on producing translations in class, it is also useful to have students keep a track of *how long* they spend post-editing the different outputs. The measuring of time is important for several reasons.

First, it is possible to compare the time spent on post-editing with the time spent on translating the text unaided. This should lead to some conclusions on productivity.

Second, some students will typically spend about twice as long as others. This sets up an empirical basis for discussions of how much post-editing is required, the distinction between “light” and “heavy” post-editing, and the various scenarios in which lighter post-editing can be acceptable. Additionally, teachers’ comments on students’ post-edited texts help ensure the depth of editing is consistent with what is expected. For example, students should not work too hard when only basic intelligibility is required and light post-editing would suffice, and they should not under-edit if the aim is to generate polished and publication-ready translations.

It is intriguing that some of the slowest post-editors can be among the most gifted language users, especially when they succumb to perfectionism. When technology enters the classroom, it tends to exert its own kind of authority, potentially smoothing out some of the traditional asymmetric dynamics in the learning space.

### ***Compare corrections with and without following the start text***

Learning outcome: Post-edit translations efficiently.

A classic debate concerning revising is the extent to which one should consult the start text. If you look at it for each segment, you will miss the flow of the translation. If you never look at it, you risk missing mistakes. This basic trade-off can be experimented with in class.

In each group, half the students revise an automated translation by constantly comparing with the original; the other half only look at the translation. The results are analyzed for patterned differences.

An illustrative difference appeared in our work on emergency messaging, mentioned at the end of Chapter 4:

ST: If you are caught in fire in your car...

MT: Si se incendia su automóvil...

[Back-translation: if your car catches fire...]

## **98** What activities can help students use technologies better?

For anyone looking at the machine translation only, the passage is about a car catching fire. In the context of the original text (admittedly opaquely written), the car is in the middle of a fire and the driver has to find a way out.

Examples like this indicate that the ideal solution is to use both techniques. If that is an unaffordable luxury, translators should check the original whenever the passage is high-stakes, as is the case here.

### ***Use AI to revise translations***

Learning outcome: Use automation tools to self-evaluate writing skills.

Learning outcome: Post-edit translations efficiently.

Text revision is one of the areas in which technology has been of most help to translators, from background spellcheckers and grammar checkers to add-ons like Grammarly. AI text generators can do a very good job of detecting errors and smoothing syntax, albeit at the risk of imposing the one standardized voice that becomes quite easily recognizable. When prompts ask for different voices, the outputs can be fun but extreme.

An extension is easy. When a group has revised one translation in different ways, other groups can be asked to assess the results and perhaps pick out the one that has used AI. They should soon discover how teachers and automatic detectors can guess when AI has been used.

### ***Use AI to evaluate translations***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of language automation.

Students quickly get used to comparing and evaluating different translations. But AI interfaces can also be asked to do that for us. Once the student groups have completed any of the evaluation activities listed above, get them to ask AI to do the same evaluation. They will usually find that the middle-of-the-road non-commitment that is built into the technology will produce results that are so bland as to be useless. (We give an example below at the end of the activity “Assess the risks of adaptation.”)

For the moment, awareness of the limitations of AI in this regard must be considered a useful lesson in itself – translation evaluators (and teachers!) may have a future after all.

### **Summarize**

Writing summaries is one of the classical activities that teachers use to foster awareness of how texts function, what their purposes are, and what parts merit the most attention. If you can identify what is important in a text, you

should be able to translate for the function rather than the words. Gouadec (2003, p. 16) says we should make sure students can summarize a text before allowing them to start translating. Such activities align nicely with the European Master's in Translation Competence Framework, which includes the skill to “summarise, rephrase, restructure, and shorten a message and adapt it to market needs rapidly and accurately” (EMT, 2022, p. 8).

### ***Compare human and automatic summaries***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of language automation.

Some of the most useful functions of AI text generators concern prompts that ask for a summary translation of a text, which can be specified as a certain number of words. This can be incredibly useful when a client is not sure whether they need a translation of a whole text – a summary or gist can help them decide.

In class, the automatic summaries can be compared with unaided summaries, allowing for discussions of which criteria are considered important. AI comes into its own when the prompt gives specifications of readership and purpose. Invite students to invent and explore.

When we asked ChatGPT-3.5 to translate the gazpacho recipe in half the number of words, it rendered just the ingredients and gave a basic description of the dish. The user can then decide if they really want to make it.

### ***Use an automatic summary to identify key passages***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of language automation.

One of the earliest suggested applications of “crummy” machine translation was to do gist translations that could then be used to decide (1) whether a text was worth translating unaided and/or (2) which parts of the texts required careful translation (Church & Hovy, 1993). For example, rough automatic gist translations can be used when librarians have to classify a publication (Miller et al., 2001). And for language learners, the activity has the same benefits as general summary writing (Lewis, 1997).

Variations on this activity include: (1) compare the automatic summary with an unaided one, (2) compare it with a summary by an expert in the subject matter, (3) compare it with a published abstract (which may be shorter), and (4) incorporate the activity into a triage workflow (see our activities on risk management).

### ***Generate an automatic summary of a speech***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of language automation.

Another variation on the same basic activity is to use a spoken text as input, ideally about five minutes long and in L2. A student group can use speech-to-text, then automatic translation, then summarizing in AI. The resulting summary can then be re-narrated in spoken mode, as when television reporters will give a spoken synopsis of a speech that the viewers have just followed.

As in the other activities here, the result can be compared with an unaided spoken summary: one group uses the technology, the other does not. Which is faster? Which has the better quality? What kinds of trade-offs are possible?

### **Learn to learn**

Since the one thing we know about translation technologies is that they evolve quickly, the tool we teach today will probably not be the one our students will be using in five years' time. This makes it imperative that the skills we teach are transversal.

### ***Pick up a new translation-memory suite***

Learning outcome: Learn to use new technology.

Once translation students have learned to use one or two basic translation-memory suites like Matecat, they can be invited to learn a new one by themselves. When we do this in class, we first make sure they are aware of all the support materials that are available to them in instruction manuals, online videos, dedicated forums, and general questions to the web or AI. They are then given a 150-word general text in L1, a short list of online translation-memory suites (usually with a free trial period) from which they have to select one, and two hours in which to complete the translation and upload a TMX file. This activity is best done in pairs: there is lot of information-searching and trial-and-error involved, but these are not activities that are easily divided between three or four students.

Variations are possible. For example, you can provide a TMX file and oblige students to import it and give it priority when translating. More advanced students can be given two shorter texts, where the second is an edited version of the first: they then upload a TMX file with units from both texts.

Since the focus of the activity is on learning the new technology, the texts should not contain serious translation problems for which special documentation will be required.

## Manage risks

Any use of translation technologies involves a degree of possible error, given that the user is trusting automated processes that they do not fully control. Some practical risk management is therefore required. There are several ways this can be approached.

### *Try automation for emergency information*

Learning outcome: Explore the limits of language automation.

Learning outcome: Select optimal translation workflows.

Learning outcome: Pre-edit texts for automated translation.

Invite students to copy texts in L2 (or L1) from a public emergency site (in Australia we have centralized information on bushfires, floods, and earthquakes). Since these texts need to be translated quickly (they are for emergencies) and they are highly repetitive (situations tend to repeat themselves), they are good candidates for machine translation. At the same time, they have to be translated accurately – since many require that action be taken, lives can depend on them.

Have the students run the texts through machine translation or generative AI, then locate the sentences that require post-editing. Students can then either post-edit or, more productively, pre-edit the original text so that the passage through automated translation works, probably for most target languages. Here are some examples from real bushfire emergencies in Victoria (we have already seen the last one), where the errors are in italics and the pre-editing solves the problem:

ST: It's too late to leave

MT: Es demasiado tarde para irnos

[Back-translation: It's too late *for us* to leave.]

ST pre-edited: It's *now* too late for *you* to leave.

ST: Shelter in a room that has two exits

MT: Refugio en una habitación que tiene dos salidas

[Back-translation: *A shelter* in a room with two exits]

ST pre-edited: *Take* shelter in a room with two exits.

ST: If you are caught in fire in your car

MT: Si se incendia su automóvil

[Back-translation: If your *car catches fire*]

ST pre-edited: If you are in your car and in the middle of a fire.

These are cases where the ability to write for machine translation could save some lives.

### ***Compare time-on-task in professional and novice post-editing***

Learning outcome: Post-edit translations efficiently.

The previous activity can be extended in several ways. One of them is to screen-record a professional translator's post-editing of a fairly complex text. Students then screen-record their own performance when post-editing exactly the same text. In each group, they then play back the two recordings side-by-side (two computers may be necessary) and compare the differences. (Our thanks to Christopher Mellinger for the idea.)

The students should quickly become aware of how they waste time – usually by not trusting their intuitions enough. They will hopefully also note that the professional goes fast on low-stakes text and then spends time on the high-stakes problems. If they do (there is no guarantee!), then we can say that they are intuitively applying a basic risk-management strategy.

Students finally report on how they can make their translation processes more professional, or perhaps why they did better than the professional.

### ***Compare time-on-task in post-editing and unaided translation***

Learning outcome: Select optimal translation workflows.

Learning outcome: Post-edit translations efficiently.

An extension of the previous activity is to have students screen-record their performances when they translate a 150-word L2 text into L1 unaided and then they translate a very similar L2 text by post-editing a machine translation or AI version of it. They play back the recordings (at a fast speed) and keep a track of how they spent their time in the two performances.

Students' first discovery tends to be how much time they waste correcting typos (they should learn to touch-type or use a speech-to-text tool). Some are also surprised by how often they change from A to B and then back to A (again, they need more confidence in their intuitions).

The way the tasks are divided depends on the hypotheses to be tested. The simplest and easiest taxonomy is perhaps: (1) pre-translation (time spent prior to typing the first word of the translation), (2) documentation (all the time spent outside of the program in which the translation is written), (3) revision (all the time spent after typing the last word of the translation), and (4) drafting (all the remaining time) (see Pym, 2009).

The basic hypothesis to be tested here is that post-editing increases speed. Perhaps a more interesting hypothesis is that automation enables translators to spend more time solving the important problems – as we would hope professional translators tend to do when managing risks. This should appear in different distributions of documentation activities. An alternative hypothesis

could be that automation enables translators to distribute their revising throughout the process rather than keep it for the end.

This activity can also be done into L2, where the relative benefits of post-editing should be greater.

### *Translate from a language you don't know*

Learning outcome: Explore the limits of language automation.

Learning outcome: Evaluate different sources of information critically.

It is socially useful, if nothing else, for students to appreciate why and how non-professionals use machine translation. To do this, it is enough to give them a task (or ask them to invent one) where they do not know the foreign language and must find some information in that language.

In the past, we have done this by getting groups to imagine they are asylum seekers in Slovenia (they do not know Slovenian) and they must find out how to request political asylum. Over the years, though, the information for asylum seekers has been translated into English in almost all countries, which means that the task no longer requires working with the host language. You should check the current situation in the country concerned: often the actual request process is where the host language is encountered.

Alternative missions could be to work on an unknown language to order a dish from a restaurant menu. Or student groups can make decisions based on healthcare documents, local regulations, public notices, public transportation information, commercial documents, or local festivals. This could be training in real-world travel skills.

The interesting part of the activity tends to come when the machine translation sounds strange, contradictory, or otherwise untrustworthy. The student groups will have to look for additional sources of information, often on international websites or social media. Of course, they can also ask questions on generative AI interfaces. When they get contradictory information in the repeated answers, they have to decide which source to trust. As they do so, they are implicitly exploring the benefits and risks of language automation.

### *Triage translations for different technologies*

Learning outcome: Select optimal translation workflows.

Learning outcome: Adjust translations to clients' and users' needs.

The term “triage” refers to the giving of priorities to patients when they arrive at an emergency ward in a hospital: some require immediate attention, others can wait, and a few can only be given palliative care. Applied to

## 104 What activities can help students use technologies better?

translations, triage can mean allocating priority not only in terms of time but also regarding what kinds of technology should be employed and how much human effort is worth investing (Pym, 2023).

A simple task, open to gamification, is a pairing activity. In one column, you list the elements that can be included in a workflow; in the other, you present a range of communicative situations, some requiring urgency. Here are two columns used in a Chinese-English translation class in Melbourne, referring to issues of the day:

Workflows	Scenarios
1. Raw machine translation	1. A Ukrainian immigrant is applying for a Medicare card and no Ukrainian interpreter is available. The immigrant does not speak English.
2. Light post-editing	2. The Premier of PR China wants to congratulate the new Prime Minister of Australia. It is a short message.
3. Heavy post-editing	3. The nightly television news wants to give details about monkeypox, and they have found a new scientific study published in Chinese. The news will be broadcast in three hours' time.
4. A translation-memory suite	4. Your clients want to know whether monkeypox is being reported in the online news in North Korea.
5. Fully human translation with no revision	5. The Australian hamburger chain Grill'd wants to open branches in PR China.
6. Collaborative translation by a group of volunteers	6. A Chinese university website has been updated and the university wants to update its translation into English.
7. Collaborative translation by a group of professionals from different areas of knowledge	
8. Fully human translation with revision and review	
9. Testing with a sample of end-users	
10. Post-test revision and review	

Note that the number of workflows is not the same as the number of scenarios, to allay any suggestion that there is just one correct workflow for each purpose. The activity might be considered successful when groups come up with different matchings and the class then debates what the optimal workflow might be.

An extension is to have students formulate questions they would ask their client in order to assign an appropriate workflow. The principles of triage thus become part of service-provision negotiation.

### Locate information

One of the basic translation skills has long been recognized as the ability to find information that can contribute to adequate translation decisions.



This is generally called “documentation.” It can be done prior to the translation process (if the field is relatively new to the translator) or during the translating, as when checks are made of particular terms or the translator searches through a parallel text (a text in the target language that is on the same topic as the start text). Generative AI is making these procedures deceptively easy.

There are many basic activities that can be done without translation as such. Students can use an AI assistant to get information before giving a talk in L2, for instance. Most might be doing this anyway, with or without formal instructions.

### ***Use AI to get background information before translating***

Learning outcome: Locate reliable information quickly.

Learning outcome: Use automation tools to self-evaluate writing skills.

Learning outcome: Evaluate different sources of information critically.

For most students, the main problem with specialized translation is that they do not know enough about the topic to gain a clear idea of what the various relations are: structures of general-specific or cause-effect, for example, are so clear to the specialist that they are often assumed. This means the non-specialist translator must catch up in a hurry.

How can this best be done? First, formulate background questions based on a specialized L2 text that is to be translated into L1. Then get groups to go searching not just for the answers but for explanations of *why* the answers are correct. For example, a text on ophthalmology talks about *foreign body sensation* and *acuity*. It is easy enough to find standard equivalents for these terms (generative AI can help with this – if and when the prompt specifies the topic), but a text of any complexity or sensitivity will require that the translator understands what those things are. Images and videos are often helpful.

It is important that different information sources are checked and compared. One group might try asking questions on a general search engine; another could stick to online encyclopedias or introductory texts; and yet another group could dialogue with an AI interface. Keep a track of the time spent and the quality of the answers. We are betting that AI offers significant time gains with minimal loss of quality – if and when the students know how to use prompts to question information and get follow-up answers.

A variation on this is to have groups present short oral presentations on the basic questions, once they have done the documentation.

The skill of getting reliable information quickly is highly transversal and of professional use to everyone from a conference interpreter to a lawyer. It is worth discovering how technology can help. Then check everything.

### ***Search for information in a language you do not know***

Learning outcome: Locate reliable information quickly.

Learning outcome: Evaluate different sources of information critically.

Student groups can be given paper-chase tasks for which they are obliged to use and trust translation technologies, usually machine translation. For example, take today's main international news item and see how it is reported in Hungarian, Armenian, Burmese, or whatever other language the students do not know. For the smaller languages, they will usually have to wade through the mistranslations to get the general gist, which of course they might miss. In doing so, they will pragmatically be assessing the various risks involved.

When reporting to the whole class, the students should not only summarize what they found but also give examples of target-language items that they considered potentially misleading and chose to ignore.

### **Manage terms**

Terminology management is another skillset of recognized importance for translators, although it can also be seen as a separate discipline since its principles apply to work within just one language. Translators and language learners should learn the basic principles of terminology and know how to create and manage a term base or glossary. Our activities follow on from there.

### ***Check terminology***

Learning outcome: Manage terminology.

A basic activity is to take a highly technical L2 text and compare the terminology outputs of machine translation, generative AI, and unaided translation. This should concern not just the first-suggestion terms that appear in an automatic translation but also the specific terminological information that most machine translation systems give and that generative AI can be asked to provide (the pop-up target-language AI definitions in Matecat, for instance). Students are usually surprised at how well the automated systems do.

A more focused exercise is to compare the various ways of *checking* terminology: online dictionaries, specialized glossaries, and parallel texts, all versus questions to AI systems. The groups should keep a track of time spent as well as the accuracy of the answers.

In all such activities, the class should usually be moved beyond the “right or wrong” mode of thought that underlies older approaches to specialized terminology. The great lesson of search-engine optimization is that one should also incorporate the terms that people actually use, or better, the words that are of most use in specific situations. To go back to our activity

with the gazpacho recipe, the naming of ingredients is of clear importance for the success of the soup, but not all names are the same:

ST: 1 telegraph cucumber, peeled; 1 small red chili; 2 red capsicums

GPT-3.5: 1个去皮的青瓜; 1个小红辣椒; 2个红甜椒  
[Back translation: 1 peeled cucumber; 1 small chili; 2 red capsicums]

DeepL: 1根电报黄瓜, 去皮; 1个小红辣椒; 2个红辣椒  
[Back translation: 1 telegraph cucumber, peeled; 1 small chili, 2 red chilies]

Unlike DeepL, ChatGPT-3.5 guides the Chinese user: *telegraph cucumber* does not mean anything in China, so it becomes a simple cucumber. The AI also successfully differentiates capsicums from chilies. The two ingredients add different flavors to gazpacho (spice versus sweetness) and both are easy to find. DeepL, however, suggests we need three chilies of various colors and sizes, some of which could be very spicy. We do not recommend trying out the results in class!

### **Use AI to create a glossary**

Learning outcome: Manage terminology.

A basic activity in any terminology module should be to extract terms from a text and build a bilingual or multilingual glossary. This can be done manually but it is also a task that generative AI can help with, given the right prompt. Some experimentation might be necessary. When we asked GPT-4 for a glossary from the gazpacho recipe, all the translation equivalents were listed, with no alternative terms. When we then asked for “specialized terms,” we were told that all the ingredients were common! It nevertheless did better on specialized technical texts, arranging the terms in two columns that could be exported as a spreadsheet for verification. We also extracted convincing keywords when asked to limit the output to five. Get the class to experiment with different kinds of texts and different prompts.

The capacity of AI to do automatic term extraction should be compared with the many other tools available online. All give different results, all potentially useful for different purposes.

### **Speak translations**

Translation technologies tend to be associated with written communication. They can nevertheless also augment *spoken* communication skills, which are themselves increasingly becoming part of written processes. Here are a few overlaps to explore.

### ***Use dictation in a translation-memory suite***

Learning outcome: Explore the limits of language automation.

Learning outcome: Assess critically the advantages and risks of automated translation.

Translation students should be using a translation-memory suite for most of their work. Have them check to see whether the suite includes a speech-to-text tool (probably incorporating one from the web browser). Get them to experiment with it, speaking rather than typing their translations.

This means the student translator will be looking at a machine translation suggestion, perhaps along with a translation-memory version and a glossary proposal. They can then speak their translation on the basis of that visual input.

Have students compare different experiences in class. We generally find that the spoken translations tend to be more natural and indicate greater awareness of cohesion and coherence, overcoming some of the problems of automatic segmentation. Writing less could also help avoid some long-term health problems with wrists, necks, and backs.

### ***Use speech recognition and machine translation for consecutive interpreting***

Learning outcome: Explore the limits of language automation.

Learning outcome: Assess critically the impact of automation on the translation process.

In each group and using headphones, one student does a consecutive L1 spoken rendition of a short L2 speech and records it. Another student plays a second, comparable speech in L2 but they also run a speech-to-text tool in real time (Google Translate can do this). They put the resulting transcript through machine translation or AI into L1. They then do (and record) their consecutive spoken rendition into L1 while making reference to the L1 transcript. Following this, the students reverse roles. Finally, they play back the recordings and compare them for fluency (such as the total number of pauses) and quality. They identify and discuss the relative advantages and disadvantages of the technology.

It is also possible to have both the speech recognition and machine translation running in real time. When we try this with Google Translate, there are problematic lags and the quality between Chinese and English is not great. The Sonix real-time transcription currently performs better. There is ample room for experimentation.

### ***Role play a medical consultation***

Learning outcome: Explore the limits of language automation.

Learning outcome: Assess critically the impact of automation on the translation process.

Role plays can provide instructive experiences in many aspects of language learning, and simulated medical interactions are especially useful for learning the basics of mediation. Although the role plays are usually all spoken, it is also possible to carry out the interactions using machine translation. This makes it possible to compare the mediated spoken interaction with unmediated exchanges via machine translation, both written and spoken. In some situations, machine translation may be preferable because of the greater privacy it allows (Cox & Maryns, 2021).

A variation is to use relay translation where one leg uses machine translation and the other is spoken. Piccoli (2022) reports on a case where machine translation was used between Albanian and French, and English was used as a lingua franca to detect and repair misunderstandings.

Of course, mediated role plays can be used for any of the situations in which public services are delivered in multilingual societies.

### ***Respeak for machine translation***

Learning outcome: Explore the limits of language automation.

Learning outcome: Pre-edit texts for automated translation.

In conference interpreting, the practice that corresponds to pre-editing would be *respeaking*. This is when an interpreter listens to an incoming speech in Chinese, for example, and speaks it again in Chinese, as simultaneously as possible. This is a training exercise that has long been used to teach interpreters how to compress discourse in order to manage time lags (the “ear-to-voice span”). *Respeaking* can also be used to improve the performance of speech-to-text tools and machine translation. Chen and Kruger (2022) report on an experiment where the students first *respeak* the L2 speech into the speech-recognition system. The students produce their L1 rendition while looking at both the L2 transcript and the automatic translation. Here we propose starting from L1, where the *respeaking* is likely to be of better quality.

In class, take a speech in the student’s L1, ideally a speech with hesitations, incomplete sentences, and uneven sound, if possible by a non-L1 speaker. The student then listens to the speech and *respeaks* it in L1, cleaning away the hesitations, making the sentences complete, and ensuring that the language is clear and audible.

The two results are then fed into a speech-to-text tool and a machine translation into L2 (this can be done on Google Translate, DeepL, and most generative AI systems). Compare the resulting translations. The class then has to evaluate whether the effort of *respeaking* corresponds to benefits in the quality of the machine translation.

A further step in this activity is to use a speech-to-speech system like Skype Translator or Meta’s Seamless M4T (we borrow these notes from a talk by

Robin Setton). The evaluation must then involve the qualities and consequences of an automated voice.

### **Go audiovisual**

Audiovisual translation once involved little more than subtitling. Increasingly, though, it includes the writing and translating of audiodescriptions, translating for dubbing, and providing automated dubbing. Students usually love these activities.

An initial lesson should explain the modalities of audiovisual translation, the classical rules for subtitling, the various industry guidelines, and then instances in which the rules are broken for a purpose. For the activities, start with something simple like the student's favorite music video, then work toward more complex multimedia texts.

Many of the above activities can be applied to subtitling, where online suites like Matesub and Oona are incorporating machine translation feeds and post-editing – after many years in which one had to *export* from subtitling suites like Aegisub to use any automation. In cases where subtitles have already been produced and timed (“spotted”) in the language of the video, students will usually find that the automated translation processes work remarkably well.

The usefulness of subtitles for language learning is well documented (reviewed in Black, 2021). Here we seek to extend that use by having students work on subtitles themselves.

### **Create subtitles with and without automation**

Learning outcome: Assess critically the impact of automation on the translation process.

Learning outcome: Select optimal translation workflows.

Learning outcome: Understand the principles of subtitling.

Learning outcome: Produce effective translated subtitles.

The students download a two-minute clip in L2 along with the corresponding L2 subtitles, to be used as a reference for the timestamps. They then use a subtitling tool *without a speech-to-text tool and without machine translation* to translate it into L1, respecting the constraints on length as far as possible and adjusting the timestamps where necessary. They then discuss how the various problems were solved.

The students then put the same clip into a workflow that has a speech-to-text tool, automatic timestamps, and machine translation (Matesub can do this for free at the time of writing, and Sonix also does a good job for the speech-to-text leg). They compare the result with the subtitles that they produced unaided.

Most students prefer their own hand-made subtitles, where the compression is usually better and some cultural references should have been adapted. The question is then whether they want to continue doing the subtitles by hand – or would they perhaps prefer to post-edit the automatic subtitles?

### *Post-edit subtitles*

Learning outcome: Assess critically the impact of automation on the translation process.

Learning outcome: Understand the principles of subtitling.

Learning outcome: Produce effective translated subtitles.

Following on from the previous activity, the next step is to work from raw machine-translated subtitles in the students' L1. This means post-editing, which is relatively easy to do in something like Matesub. A good clip would comprise as many as possible of the classical problems for machine translation: names, gendered pronouns, code-switching, implicit language, and incomplete sentences, to which here we might add fast dialogue and regional accents. Students are then invited to improve anything that sounds unnatural. They should also reflect on *why* the machine-translated subtitles sound unnatural.

### *Compare caption lengths*

Learning outcome: Assess critically the impact of automation on the translation process.

Learning outcome: Understand the principles of subtitling.

A basic rule for subtitling in many language directions (although not into Asian scripts) is a restriction on length. The classic rule for English is to have two lines of no more than 35 characters each, with a duration of between one and six seconds. Those rules are now being broken by numerous creative modes of subtitling, which change position on the screen, length, and much else (colors and movement, for example).

A possible activity is to compare subtitling with unaided written translation. Here it is best to use a clip with a high degree of cultural embedding, ideally with language-specific jokes. Export L2 subtitles to Word and have half of each group translate them unaided. The other half translates the subtitles in a subtitle tool where warnings appear when the character-per-second ratio is violated.

In principle, the unaided translators should tend to use explicitation or other expansive solutions, whereas the translators working with the subtitling tool will tend not to have space for such things. Fruitful discussions could then seek ways to get the added cultural information into the subtitles, possibly with some reasoned rule-breaking.

## 112 What activities can help students use technologies better?

In comparing the two, students might like to think about the length constraints that apply in simultaneous and consecutive interpreting.

### ***Use generative AI to shorten captions***

Learning outcome: Explore the limits of language automation.

Learning outcome: Produce effective translated subtitles.

Learning outcome: Understand the principles of subtitling.

An extension of the previous activity is to ask an AI assistant to shorten the unaided subtitles so that they abide by the rules.

In the classic “Driving Test” episode of *The Big Bang Theory*, Sheldon gives a verbose answer that forces the rules of subtitling to be broken:

The correct answer is: When covered by a liquid film...

...sufficient to minimize the coefficient/of static friction between...

...the tire and the road/to almost zero...

...but not deep enough to introduce/a new source of friction.

GPT-4 shortens this as follows:

The correct answer is: When a thin liquid film...

...reduces the tire-road friction/to almost nothing...

...but not enough to cause/extra friction.

The question is then whether the students *want* to break the classical rules in order to replicate the effects of Sheldon’s discursive rule-breaking.

### ***Subvert the video***

Learning outcome: Explore the limits of language automation.

Following the previous activity, students can work in groups to develop alternative subtitles for the same clip. A fun variant is to produce subtitles that reverse the power roles of the characters or transpose the situation entirely. For inspiration, search for the many subtitled subversions of the film *Der Untergang*, where Hitler faces downfall – look for “downfall parodies.” This can be seen as a type of transcreation.

### ***Try transdubbing***

Learning outcome: Explore the limits of language automation.

Once students have translated subtitles for a clip, they can use the subtitles as a basis for dubbing the characters. This would be a form of “transdubbing” (our thanks to Alessandro Cattelan for the term).



Students can use free trials to experiment with technology that not only translates video content into another language but also produces voices similar to the original speakers', adjusts lip movements to suit the target language, or simply generates a speaking avatar in a range of languages. One we have played with (following an online experiment by Lynne Bowker) is HeyGen, but there is another called HumanPal that is more focused on creating avatars and there will certainly be others on the market.

Students can have fun playing with all the adjustable aspects of the technology: images, voice, speed, etc. They should nevertheless be on the lookout for translation errors, slippages, or places where content has been added, omitted, or sped up to ensure that the delivery time is the same in the various languages. A general principle of written work is that translation tends to expand the text, to make it more understandable to the foreign reader, but that principle cannot really apply in video translation, where the talking head has to correspond to a more or less fixed number of syllables. A simple way to test this is to take an L1 video that has been transcribed and then translated by a human. You then compare the result with, first, a set of L2 subtitles (which should be shorter in length) and second, the L1 transcription (which in principle should be shorter than the human translation but longer than the subtitles, since the latter are constrained by space on the screen). There is a lot to be discovered by just looking at text length, which is probably the simplest variable to measure.

These experiments can lead to several engaging discussions. When might adjusted lip movements be preferable to translated subtitles? When might an avatar be used? In COVID vaccination campaigns, short video clips distributed on social media proved to be more successful than the written information in print or on websites, especially when a doctor or nurse was speaking the receiver's own language (Pym & Hu, 2022). Even if the translations are perfect (which they never are), can the same kind of trust be created when the lip movements are artificial or when the speaker is clearly an avatar? Is the human mediator really a thing of the past?

### ***Add and translate audiodescriptions***

Learning outcome: Explore the limits of language automation.

Learning outcome: Produce effective translated subtitles.

Learning outcome: Understand the principles of subtitling.

Audiodescriptions are on-screen written messages that describe the significant sounds in a video clip in order to help the deaf and hard of hearing. Since the messages tend to concern a limited semantic field, they are prime candidates for machine translation – students can be asked to post-edit or

pre-edit them. The pedagogical benefits of this kind of subtitling for language acquisition are outlined in Tinedo Rodríguez and Frumuselu (2023).

A step beyond this is to have students include the audiodescriptions as part of the script, so that the characters' speech gives the necessary information (our thanks to Pablo Romero Fresco for the idea).

### *Join fansub communities*

Learning outcome: Explore the limits of language automation.

Learning outcome: Understand the principles of subtitling.

Learning outcome: Work efficiently in teams.

Learning outcome: Plan and manage time.

Fan-subbing is when volunteers produce subtitles for free, usually for an online community that makes the subtitles available for free. People join these communities to learn about subtitling, to interact with others who share their passion for a particular cultural product, or just to have fun. Some of the fansub communities can provide rich learning experiences based on specific online subtitling tools. To translate TED talks, for example, a novice must learn the rules, will receive detailed feedback from an experienced fansubber, and has to be approved before anything they produce goes online.

If your course does not allow for extensive work on subtitles and some students want to learn more, they can be invited to join one of the more stable fansub communities (our thanks to David Orrego-Carmona, who led the way on this one). As with any work done online for free, be careful of exploitation.

### **Explore transcreation**

One of the pedagogical responses to translation technologies is to focus on the activities that the technologies *cannot* do or do badly. This broad range of activities might loosely be referred to as “mediation” (as in Council of Europe, 2018) or, increasingly, “transcreation.” The term can be defined in many ways (see Pedersen, 2014). Here we see it as a set of tasks where a specific set of users and future actions are given priority over the form of the start text. More importantly, we do *not* see it as a set of additions to translation, since that approach unthinkingly reduces translation itself to a literalist mapping process. Transcreation thus includes interventions such as addition, omission, updating, functional adaptation, re-formatting and change of media (as in Taibi, 2017), all of which can be conceptualized as translation solutions (Pym, 2016). For us, transcreation is very much a part of translation. It is something that translators can be trained to do. As noted above, it is also a set of skills that has been found to be relatively automation-resistant (Yilmaz et al., 2023).

### *Use prompts to adapt translations*

Learning outcome: Adjust translations to clients' and users' needs.

Learning outcome: Use technology to augment creativity.

Learning outcome: Write effective prompts.

Generative AI will translate when you tell it to do so. If you give the prompt "Translate this text into Spanish," the kind of translation you get is straightforward, although not necessarily literalist.

We tried this in class with a short biography of former Australian prime minister Gough Whitlam. Here the Gemini version of the first sentence is almost word for word, although the verb tense is changed to the simple past and the directionality is neutralized:

ST: Born in Kew, Melbourne, in July 1916, Whitlam had come to Canberra with his father, the Deputy Crown Solicitor, in 1928.

TT1 (Gemini): Nacido en Kew, Melbourne, en julio de 1916, Whitlam *llegó a* Canberra con su padre, el vicesolicitor de la Corona, en 1928

[Back-translation: Born in Kew, Melbourne, in July of 1916, Whitlam *arrived in* Canberra with his father, the Deputy Crown Solicitor, in 1928. (Italics ours)]

There is not a lot that students can discuss there.

The class can nevertheless explore what happens when more specific prompts are given, adapting the text to specific purposes and thus applying *Skopos* theory (if they have found out about that). Here is what happens when we give the prompt "Translate into Spanish for a reader who is 12 years old":

TT2 (Gemini): Gough Whitlam nació en Kew, Melbourne, en julio de 1916. Cuando tenía 12 años, se mudó a Canberra con su papá, quien era un abogado importante.

[Back-translation: *Gough* Whitlam was born in Kew, Melbourne, in July 1916. *When he was 12 years old*, he moved to Canberra *with his dad*, who was *an important lawyer*. (Italics ours)]

Gemini explains: "I have simplified the language and used shorter sentences to make the text more accessible to a 12-year-old reader. I have also avoided using any technical terms that a 12-year-old might not be familiar with." It has actually done rather more: it has given Whitlam's first name, which was not in the original text; it has figured out that he was 12 years old when he moved to Canberra, which relates the text to the reader; it has opted for *dad* instead of *father*; and it has simplified the father's job.

We first used this text in class to teach students to adapt to new purposes. That was a class without technology. When a student came up with a translation that referred to Whitlam being 12 years old at the time of the move, we rejoiced: that's great adaptation for the specific reader! When we started exploring generative AI, we used this example with the expectation that the technologies would *never* spot this very specific kind of adaptation. But they do spot it, usually every second time the prompt is given.

The most obvious activity here is to compare human adaptation with AI adaptation, to see if the changes are the same – this is not an area where machine translation is particularly helpful. The groups should experiment with different ways of writing prompts, which might mean profiling a specific reader, simplifying for a grade level, or highlighting to achieve special purposes. A basic competition would be to see which group gets the most suitable adaptation.

Students can also explore “easy read” prompts as a form of pre-editing, or indeed as a way of enhancing text accessibility prior to human translation.

### ***Assess the risks of adaptation***

Learning outcome: Explore the limits of language automation.

Learning outcome: Select optimal translation workflows.

In all these scenarios, it is crucial to select examples that underscore the risks associated with creative adaptation – errors can occur, necessitating human oversight and verification. In the Whitlam example above, the AI solutions tended to be so impressive that a few errors slipped through virtually unnoticed.

One recurrent problem in this text is the status of Kew, variously rendered as *a city of Melbourne* or *a city close to Melbourne*, when it is these days a suburb. Further, in English-to-Chinese translation, another error appears when explicitation is used with respect to Whitlam's service in the Royal Australian Air Force (RAAF):

ST: After wartime service in the RAAF, he completed his law degree [...].

GPT-3.5: 在二战期间，他在澳大利亚皇家空军服役，之后取得法律学位。

[Back translation: During WWII, he served in the Royal Australian Air Force, and after that he completed his law degree.]

The Chinese here does well to explicitate *RAAF* but in doing so suggests that Whitlam served from 1939 to 1945, whereas he actually joined the air force in 1942. Guesses can produce errors, especially when made automatically.

Another problem in the same sentence for a 12-year-old is a little trickier. See if you can spot the mistake:

(GPT-3.5): Nacido en Kew, Melbourne, en el verano de 1916, Whitlam llegó a Canberra con su papá en 1928. Su papá trabajaba para el gobierno. [Back-translation: Born in Kew, Melbourne, in the summer of 1916, Whitlam arrived in Canberra with his dad in 1928. His dad worked for the Government. (*Italics ours*)]

Here AI has attempted to bring the text close to the young reader by indicating that Whitlam was born in summer, supposing that July is in summer. Unfortunately, July is in winter in Melbourne. The generalization, in trying to be helpful, incurs error.

All adaptive uses of automation need checking, in accordance with the stakes involved in each usage. Can we use AI itself to do the checking? We asked GPT-4 to evaluate the three Spanish translations of the sentence *Born in Kew...* given in the previous activity. It gave assessments of the accuracy, style, and fluency of all three, reaching the very diplomatic conclusion:

Overall, all three translations effectively convey the original meaning of the sentence. The choice between them may come down to stylistic preferences or the level of detail and context you want to provide to the reader.

That is, it made no real decision. It also missed the error in the attribution of summer to the month of July. But it will certainly get better.

### **Experiment with advertising slogans**

Learning outcome: Adjust translations to clients' and users' needs.

Learning outcome: Use technology to augment creativity.

Learning outcome: Write effective prompts.

Copywriting is the production of texts for advertising or promotional purposes. It is usually done unaided, given that high degrees of cultural sensitivity are required. A Turing test with generative AI (in this case Baidu's ERNIE) nevertheless found that some 1,700 users were unable to distinguish significantly between unaided and automated copywriting, although area experts could (Li et al., 2023).

In view of this finding, students can be invited to compare unaided copywriting with the texts produced by generative AI. One of the classical examples here is from the fast-food chain KFC, which sought to enter the Chinese market in the 1980s. Their slogan *It's finger-lickin' good* was translated into Chinese more or less literally as 好食到吃手指 – “It is so good that you eat

your fingers off.” Not a great success! The latest version uses double four-character words with rich rhyme: 吮指回味，自在滋味 – “Lick your fingers. Savor the flavor.” It worked well until it was abandoned during the COVID-19 pandemic for hygiene reasons.

When we asked ChatGPT-4 to *adapt* the Chinese-language KFC slogan, it gave: 香脆入味，尽享美味 – “Relish the crunch. Indulge your taste,” which is not too bad. Successive attempts similarly respected the classical four-character format, providing plenty of ideas for students to work from in their own creation.

The aim of the activity? To come up with the best slogan, which students can vote for.

### ***Localize computer games***

Learning outcome: Adjust translations to clients’ and users’ needs.

Learning outcome: Use technology to augment creativity.

Game localization is another field where the need for adaptation can come under the category of transcreation. This can include lists of monsters, heroes, attack types, weapons, and armors. Localized games are quite often seen by their developers as new creations rather than translations (O’Hagan, 2007). Students should be encouraged to explore that creative aspect.

### ***Test actionability***

Learning outcome: Adjust translations to clients’ and users’ needs.

Learning outcome: Use technology to augment creativity.

Segment-based translation technologies tend to make it very difficult for the translator to think about anything like transcreation. We tried this in class for the poster in Figure 5.3.

There are several problems in the visual organization of the poster (see the analysis in Sengupta et al., 2024). The group that did the translations in a translation-memory suite did not detect any of the problems because they did not see how the numbers and arrows were working (Step 1 is followed by Step 2, but there is a picture in the middle with an arrow to what is probably another Step 1 for most users). Even when the completed translation was exported, those groups tended to focus on the language details they had been working on rather than the overall layout.

On the other hand, the students who worked on the visual text from the beginning were more disposed to questioning whether a real-world user would be able to follow the steps. This particularly concerned older users (pictured at bottom-center) who were considered less likely to know what a QR code



**Why is it important to check-in?**

Using QR codes to check in wherever you go helps contact tracers to contain outbreaks. Your information will only be used for contact tracing.



FIGURE 5.3 How do I check in? (Government of Victoria)

is (although not many people know what the letters QR stand for). Those students were able to suggest changes in the overall design of the poster.

The next phase in the actively was to introduce students to published criteria for effective healthcare communication: the Patient Education Materials Assessment Tool (Shoemaker et al., 2014). This made it clear that some quite

fundamental guidelines were being transgressed in the poster (clear steps, illustrative visuals, etc.), which students could then redesign with particular users in mind.

Can technology help with this? GPT-4 proposed the following ideas for images, which seem quite sensible:

Step 1: “How do I check in?”

Image: An illustration of a person standing in front of a building or entrance, holding a smartphone.

Step 2: “Use the camera on your phone to scan the QR code.”

Image: A smartphone screen with a QR code displayed on it. A visual guide (like arrows or a hand holding the phone) indicates the action of using the phone’s camera to scan the QR code.

Group discussions then built on these to produce further ideas. One of the problems was that if you show an example of a QR code, users will think it is the QR code they have to capture. The AI suggestion solves that problem by showing the code on a phone, with a hand holding the phone.

Transcreation projects can become as innovative as you like. They overlap with marketing strategies and can be based on survey data concerning particular target audiences. Simmons et al. (2011) report on a case where the Spanish version of a health booklet was first translated literally and was then adapted to ensure linguistic and cultural appropriateness. The language was simplified to accommodate the literacy level of the audience, with photos added that reflected Hispanic values such as cooking and family gatherings. The opinions of key health providers were drawn on via focus-group interviews. Similarly, if we know that in Australia resistance to vaccination is highest among men aged between 18 and 25 who have lower education levels and speak a language other than English at home (Pickles et al., 2021), we can try to adapt messages specifically for them. In almost all cases, generative AI can be used as a source of useful suggestions, as can some intelligent web browsing for parallel texts.

It is important not to be too hung up on the concept of creativity. For some, a solution that is copied from somewhere or inspired by a model is not a creative solution. For us, when you choose between alternative solutions, you are being creative.

### *Change media*

Learning outcome: Adjust translations to clients’ and users’ needs.

Learning outcome: Use technology to augment creativity.

Learning outcome: Write effective prompts.



In the above example of the QR code, our students suggested a better solution would be to turn the poster into a video clip, where the steps would be clearer and the QR code would obviously be an example rather than an image the user had to capture.

The change from one medium to another can be important in many other situations. When we had students work on emergency messaging (for fire, floods, and earthquakes), it was clear that the official messaging had changed over the past decade from language-heavy texts, then to texts with many images, and more recently to short, highly impactful video clips that circulate on social media. When our class was working on these texts (see the end of Chapter 4 above), we found that Gemini suggested a dramatic dialogue for a 12-year-old receiver. Student groups can come up with similar transformations, at least on the level of drafting the script for a video clip.

A further activity of this kind is to have each group select a poem in their L2 and translate it into L1 as an audiovisual presentation or similar performance, and to do all that in 90 minutes (leaving time for each group to show its work at the end of the class). Over the years, we have had poems become video clips with music, songs, animated cartoons, a box full of words, and, in one case, a kite. Students' creativity is incredible! And it can now be augmented with suggestions and images from generative AI.

### ***Adapt a machine translation of a song so that it can be sung***

Learning outcome: Use technology to augment creativity.

Learning outcome: Explore the limits of language automation.

All students have their favorite music artists and songs. Ask them to select an L2 song they like, have it machine translated into L1, then they try to sing it. When that does not work very well, they should rearrange the words so that the rhythms and rhymes are in the right places. At the end of the session, each group should sing their translation to the class.

An extension is to ask generative AI to make the text singable, then compare the output with the unaided version.

### ***Translate and adapt a website***

Learning outcome: Use technology to augment creativity.

Learning outcome: Adjust translations to clients' and users' needs.

Students can use a translation-memory suite to translate a website that is close to them – perhaps their town or city, or their favorite sport team. Part of the work should be to decide what the foreign visitor is looking for: which contents should be foregrounded, which need not be translated, and which images might need to be replaced.

## 122 What activities can help students use technologies better?

Generative AI can be used in this process to give ideas about what adaptations might be applied, although more might be learned by looking at parallel websites. For instance, if the purpose is to present a city of 100,000 inhabitants to prospective L2 tourists, students might check to see how similar cities are presented in the L2 cultures.

A variant of this activity is to use AI to produce an “easy read” version of the website, which can then be post-edited.

### Try literary translation

A hundred theorists assure us that automation cannot help literary translation because it misses emotions, cultural awareness, sensitivity, wordplays, and probably another mention of emotions just for good measure. The conventional wisdom deserves to be tested.

### *Use technologies for literary translation*

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of language automation.

Once the basic comparative activities indicate that post-editing can sometimes be advantageous in terms of both time and quality, we ask students if they will use the technologies in all future translations. A frequent answer is yes, but never for literature (Hao et al., 2024). In the minds of many, the literary still retains an aura of artistry and transcendence. In short, it is non-technology.

The obvious activity here is to have students use technologies to translate literary texts. Start with unrhymed verse in L2 (something like Whitman), where the technologies perform well. The L2 text is then translated into L1 with and without technologies. The outputs of machine translation, generative AI, and unaided translators can then be compared within the group. The rest of the class tries to guess which translation was done using which technology – another Turing test.

There is no need to rig the results entirely. We have experimented in class with Dylan Thomas’s *Under Milk Wood*, where long sentences and neologisms were once a major challenge to foreign readers as well as to translation technologies:

It is spring, moonless night in the small town, starless and bible-black, the cobblestreets silent and the hunched, courters'-and-rabbits' wood limping invisible down to the sloeblack, slow, black, crowblack, fishingboatbobbing sea. The houses are blind as moles (though moles see fine to-night in

the snouting, velvet dingles) or blind as Captain Cat there in the muffled middle by the pump and the town clock, the shops in mourning, the Welfare Hall in widows' weeds. And all the people of the lulled and dumb-found town are sleeping now.

Try the passage now with DeepL or any generative AI – you will probably be surprised. Not only is the syntax coherent, but calques are allowed and the neologisms are tackled, admittedly not always successfully. Post-editing can always bring improvements and the translations might not always pass the Turing test, but the exercise should unblock some students' appreciation of what can seem a wholly opaque L2 text. In fact, it often brings out connections they did not see at first.

A variant is to choose a classical text like a speech from *Hamlet* or the first verses of Dante's *Inferno*. In some cases, automation gives a translation that not only scans but also rhymes. Challenge the students to discover why. They should find that the database includes previous human translations – as we found in the case of Dante in Chapter 1. As students locate those previous translations, they discover why databases are important and why machines are not just mechanical.

The viability of literary post-editing is increasingly being explored (e.g., Guerberof Arenas & Toral, 2022). Experiments with it should not only challenge negative presuppositions but can also bring out the political virtues of having dissident literatures translated immediately, post-edited, re-post-edited, and commented on by kindred spirits across the globe, who may or may not have advanced language skills. The de-institutionalization of literary expression could be a virtue, at least as an ongoing exercise in cross-cultural free speech.

### ***Test reader responses for literary translation***

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Explore the limits of automated translation.

From the previous activity, each student group should have access to an L2 literary text and (1) an L1 raw machine translation or AI version of it, (2) a post-edited version, and (3) an unaided (“fully human”) version.

Those three texts can be evaluated for the relative pleasure they give readers in the other groups in the class. Ask students to go through the written texts (without having seen the L2 start text) and mark in green the passages (phrases or sentences) that they like and in red the ones they don't like (cf. Pym & Hu, forthcoming). It is important that this be done *without* reference to the L2 start text and without indicating how the texts were produced, since the aim is to assess reading enjoyment.

Where you go from there really depends on the size of the class. In a small class of two or three groups, students can look at the color patterns and guess how each text was produced, then discuss the passages that were strongly liked and strongly disliked. One usually finds that the unaided translation does not win on all points – some automation errors can be enjoyably creative, and not all post-editing kills the joys of the literary text.

In a larger class, it is rarely possible to go through different translations sentence by sentence. It might be enough to reveal the way the texts were produced and to then ask each group if they guessed the origins correctly. If not, why not?

### **Gain work experience**

Real or simulated work experience is widely recognized as being beneficial in many forms of education, in both modern languages and translator training. Here we suggest a few ways this general practice can interact with translation technologies.

#### ***Explain translation technologies to clients***

Learning outcome: Communicate effectively with clients.

Learning outcome: Make spoken presentations.

It is not enough to use technologies; we must also sometimes explain technologies to our clients, who ultimately must trust us. This is an activity on translator-client relations, which can be done in a multilingual classroom (cf. Pym, 2019, pp. 334–336). We allocate two or three weeks to it every year.

The groups become translation companies, with students having different roles (translators, revisers, terminologists, project managers, presentation designers). Half the groups have to compete to win a translation contract; the other half compete for a different contract. The contracts might concern the promotion of a film from Culture A into Culture B, the promotion of a sport, the opening of new branches of a restaurant chain, and so on (let each group pick its film, sport, or restaurant chain).

Each group prepares a ten-minute presentation of its company, including sample translations on a website or audiovisual material. The presentation must also explain how the company uses technologies to improve their work – presumably their ability to work with technologies will be a point of prestige. The main aim must be to make the technology understandable, trustworthy, and potentially profitable for the client.

The first week, half the companies do their presentations (for instance, Australian films to be promoted in China) and the other companies act as clients, asking questions following the pitches, evaluating the proposals, and

awarding the contract to the winner. The next week, the roles are reversed (e.g., extending Chinese restaurant chains to Australia).

The awarding of prizes may not suit all student cultures, but the students tend to learn the most when they are in the position of the client companies and have to assess the pitches. Further comments on the evaluation of this activity can be found at the end of the next chapter.

The need for communication skills for interacting with clients is widely recognized in the industry. We should nevertheless not give the impression that it is easy or even productive for novice translators to start telling their employers which technologies they should be using – some preferences and opinions are more suited to a casual dialogue.

### *Internships with companies*

Learning outcome: Communicate effectively with clients.

Learning outcome: Adjust translations to clients' and users' needs.

Learning outcome: Plan and manage time.

Learning outcome: Work efficiently in teams.

There can be no question that any postgraduate program that purports to train professionals should incorporate the possibility of students spending some significant amount of time in a real work environment. This holds for both translator training and language degrees. There are many names for the thing: internships, work placements, secondments, and so on – our use of “internship” here is not a strong commitment.

Internships are notoriously difficult to set up. They can also be fraught with ethical problems, including exploitation of student labor and, inversely, students who find that they do not like the profession and underperform or abruptly leave.

With specific reference to translation technologies, the advantages may nevertheless be considerable. Students will usually get to use the one translation-memory suite and the one workflow over and over and in cooperation with others, becoming used to the technology in a way that is often difficult to approach in class. Often, too, they will have to pick up a completely new technology, which is a skill that they have hopefully been prepared in. And they will ideally have opportunities to discuss technologies with employers, perhaps suggesting alternatives.

An interesting variation on the traditional internship is to have students carry out small research projects for the company. This is obviously of most interest to postgraduate programs that contain a research component. For example, the company might ask what the benefits and drawbacks might be of using a new machine-translation or AI feed, of incorporating automatic post-editing, of using L2 translation, and so on. Students can set up small

comparative projects in their languages, using actual texts translated by the company. The students then see the benefits of research and the company receives information that will hopefully be of practical use to them. (This idea comes to us from the training program in Forlì, Italy, reported to us in very positive terms by one of the companies they work with.)

### Write essays

As old-fashioned as they might appear, essays still have some virtues in the field of translation technologies. If the learning outcomes include anything like the ability to think critically, to evaluate technology, or to develop a career strategy, then writing essays can help students move toward those goals – many learning outcomes can be addressed at once. We want students to think, not just to press the right buttons.

True, the advent of generative AI makes originality difficult to assess, providing a reason for not writing essays. AI dependency is sometimes not hard to pick up (a paragraph of errors followed by a paragraph of impeccable language, or the “for and against” structures typical of AI responses), but it is hard to prove (AI detectors give false positives, at least at the time of writing). There are a few basic ways of getting around that: set topics that concern the student’s personal experience; ask them to keep successive drafts of their work; organize an interactive spoken presentation of the essay, for example.

### *Find out about the bad things*

Learning outcome: Locate reliable information quickly.

Learning outcome: Evaluate different sources of information critically.

Learning outcome: Formulate balanced arguments.

Learning outcome: Assess critically the differences between technologies.

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Apply ethical criteria to the use of technologies.

Optional learning outcome: Use automation tools to self-evaluate writing skills.

Public discussions of generative AI often list negative effects that can include job destruction, declining rates of pay for translators, data theft, large carbon footprints, and much more (see, for example, Bender et al., 2021). Some of these predictions cannot really be checked in any quantitative way: loss of valuable human skills, for example, will come with time, if at all. But others can, especially by enthusiastic students who are very good at searching the web and, hopefully, making intelligent critical use of the answers given by AI. Get students to work in groups to find *evidence* of the bad things, with each

group investigating an issue, as investigative reporters would do. Spoken reports are then given to the whole class.

One area in which this can be very useful is the gathering of information on rates of pay. In a previous age, there were accessible lists of discounts for the use of translation memory software, where it was clear to all how the technology was affecting rates of pay. What happens now when automation is used in translations in a more general way? What kinds of pay scales are applied?

Gifted students will locate some numbers on websites and social media. One very clever student phoned a few translation companies while in class, with the speaker on for all to hear. Students will also come across a few discussion groups among translators, usually lamenting business practices. It is important that the lamentation be compared with actual numbers on rates of pay, and that the ensuing discussion should bring in not just the technicalities of pay by the word or by the hour but also ethical issues concerning what is fair and what might be the special risks of unrevised automation. Although such discussions form a necessary part of any technology course, they should not reduce students to a state of despair. The aim should instead be to recognize real-world problems and to discuss possible solutions, including the redesign of technologies.

### *Write from personal experience of a translation project*

Learning outcome: Formulate balanced arguments.

Learning outcome: Assess critically the differences between technologies.

Learning outcome: Assess critically the advantages and risks of automated translation.

Learning outcome: Apply ethical criteria to the use of technologies.

An increasingly common reason for not asking students to write essays is that they can draw on generative AI very easily. Unless the teacher really wants to go back to pen, paper, and invigilation, a solution to this problem lies in giving essay topics that refer to the student's personal experience of a translation or a translation project. One of the requirements should be that they recount three or four examples from their own translation work. Another requirement could call for an account of the student's emotional engagement – how they felt about the technologies, for example. Generative AI can still be drawn on for general ideas, and indeed for generic comments on translation examples, but the requirement to work in the first person, with reference to experience, interactions, and emotional involvement, should ensure that the student's own voice comes through.

An obvious kind of essay assignment is to invite students to discuss the advantages and disadvantages of different workflows: translating with a

translation-memory suite (mostly with machine translation feeds integrated), machine translation plus post-editing, generating subtitles with a translation memory and audiovisual tools, and unaided translation. The discussions can focus on criteria suggested in usability studies or studies of translator-computer interaction. The following are the criteria we proposed when giving instructions for an essay assignment:

<i>Criterion</i>	<i>Description</i>
Speed	Time-on-task
Quality	Quality of raw output; quality expectations
User interface	Intuitiveness; visual hierarchy
Compatibility	Supported file types
Cognitive ergonomics	Learning curves; cognitive frictions
Interactivity	Interactive post-editing modality
Confidentiality	Data breaches
Ethics	Copyright and data ownership
Other social factors	Impacts on language learning and multilingual societies

Comparative analysis here requires a firm understanding of the criteria and can foster critical thinking about the use of translation technologies. Additionally, it requires students to draw on their personal interactions with the technology. The essay can thus demonstrate students' post-task assessment of their own performance, in addition to critical evaluations of the tool functions. This essay could be 1,000–2,000 words in length, to allow enough space for detailed descriptions of user experience and specific examples.

### ***Write a love letter or a break-up letter to a technology***

Learning outcome: Formulate balanced arguments.

Learning outcome: Assess critically the differences between technologies.

Learning outcome: Assess critically the advantages and risks of automated translation.

Following one of the comparative activities listed above, students can be invited to write a love letter to a technology they like or a break-up letter to one that they are leaving. This activity has been used in marketing to study consumer sentiment. It has also been used in research to see how different kinds of students (and professional translators) adjust to new technologies (Koskinen & Ruokonen, 2017; Ruokonen & Koskinen, 2017; Hao, 2023). For the students, it is a fun activity that obliges them to think critically about the technology at the same time as they implicitly reflect on their own efficacy.

We do this in class following the activity where students have to pick up a new translation-memory suite in two hours.<sup>1</sup> Our instructions look like the following:



Write a 100-word letter in your L2 to one of the translation-memory systems you have used when translating scenarios. Imagine that you are writing to a “person” you admire (a love letter) or to a person you wish never to see again (a break-up letter). The letter should address the following questions:

If it is a *love letter*:

- What is the most helpful tool for your translation work?
- What makes you enjoy using it? Which specific aspects of it could you not live without?

If it is a *break-up letter*:

- Which tool do you wish you will never have to use again?
- What frustrates you when using it? Which specific parts of it do you wish you could get rid of?

We then give a few fairly humorous examples that can be discussed in small groups. The students write their short letters in their L1 or L2, using whatever online resources they like. Here is an example of a break-up letter from 2021, unfortunately prior to generative AI:

Dear Smartcat,

I must admit that you are a lovely translation program. Your interface design is perfect, and you are in my favorite color, purple. You helped me not only with my translation tasks but also with editing and polishing. But I think we’d better break up because I’ve never seen such literal and awkward translations. The sentences you translate are a mess. It took me a lot of time doing post-editing to make them read smoothly. What a waste of my short life!

Goodbye. I’ll throw myself into Matecat’s arms. I need more efficient software.

A love letter might look like this:

Dear CafeTran Espresso:

I used to be an opponent of machine translation, as I thought it was worthless and not accurate enough. My opinions changed after meeting you.

Your interface is simple and clear. It was love at first sight. You are a practical program that is easy to operate. This is especially important for me as a

**130** What activities can help students use technologies better?

novice in technology. Your machine translation database is very diverse and can provide reasonable and accurate translations, which saved me a lot of time and greatly improved my efficiency. But what surprised me the most was that I could reuse my own translation memories in your system. [...] I feel empowered by your assistance. Besides, you did not cost me any money at all.

You are a simple and practical system that suits me very well. I hope you can be my main assistant in the future.

And then we have letters that mix emotions:

CafeTran Espresso, I am fascinated by your clean interface, and you are easy to use. It is simple and natural that we get along. Not to mention that my work efficiency has been greatly improved. Sometimes you have some small problems, such as turning my Chinese characters into blocks, but no one is perfect. Who is perfect?

Selected students then read their letters to the whole class. At the end, there is no right or wrong. The one technology can be loved by some and hated by others, since the emotional criteria are unavoidably subjective.

**Note**

- 1 For the corresponding research report, ethics clearance was received from the Human Research Ethics Committees, Faculty of Arts, University of Melbourne (Ethics Authorization Number 1954388.1).

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