INTRODUCTION TO

# TRANSLATION AND INTERPRETING STUDIES

ALINE FERREIRA • JOHN W. SCHWIETER

with website

WILEY Blackwell

# Introduction to Translation and Interpreting Studies

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Edited by

*Aline Ferreira*

*John W. Schwieter*

WILEY Blackwell

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# About the Companion Website

This book is accompanied by companion website which includes a number of resources created by the editors for instructors that you will find helpful.

www.wiley.com/go/ferreira/translation

The instructor website includes the following resources:

- Answers
- PowerPoint Slides
- MCQs

Please note that the resources in the instructor website are password protected and can only be accessed by instructors who register with the site.

# 1

# The Birth and Development of Translation and Interpreting Studies

*Aline Ferreira and John W. Schwieter*

### Objectives

- Present a historical overview on the development of translation and interpreting studies (TIS).
- Discuss *translation* and *interpreting* as tasks and the challenges that professionals commonly face when performing these tasks.
- Review tools and methodologies that have been used in TIS.
- Outline key approaches to teaching translation and interpreting, literary translation, and the role of translation and interpreting in culture and society.

## 1.1 Introduction

As humans, we have been communicating since our existence. In the context of this communication, translating and interpreting have co-existed. Today, translating and interpreting are widely popular and seem to form part of societies across the globe – even in countries where the large majority of the population knows only one language. Before we begin our discussion of the historical development of the fields, it is important to clarify that translation and interpretation are different activities – even though they have some overlap. Unfortunately, the two have been used interchangeably by some individuals, probably due to their similarities. As a task, **translation** is defined here as the process in which a written text in the **source language** is converted in written form into a target language. On the other hand, **interpreting** is the process in which a person hears language input or sees signed language in a source language and converts it either simultaneously or consecutively. If the message is interpreted simultaneously, this implies that an interpreter must deliver the target message while another individual is producing language. If the message is interpreted consecutively, the interpreter will convey the message after a segment is provided by the speaker, who will pause until the interpreter finishes the previous segment.

**Reflection Question**

As you can imagine, it takes some coordination between a speaker and an interpreter who is *consecutively* interpreting because the speaker must remember to pause and allow the interpreter to perform their task. Do you think there are better places within sentences for a speaker to pause?

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According to Steiner (1975), a person performs a translation every time that they receive a message from another person – without its needing to be in another language. Steiner argued that translation processes are involved in speaking-listening and writing-reading and that a similar line of thought applies to interpreting. Therefore, both translation and interpreting are as old as language (and humans) itself. Tiselius (2010) reminds us that “Cicero in ancient Rome spoke highly of his interpreter and the services the interpreter did for him. In the Ottoman empire interpreters were called *dragoman* and their role was not just interpreting but also acting as guides, go-betweens, and door-openers to the Ottoman empire. The Ottoman empire also had sworn court interpreters” (para. 2). In ancient times, commercial transactions in small villages needed one person who would be in charge of converting a message from a source language into a target language. The first bilingual texts were found by the 18th century BCE.

As per translation, according to Soltero Godoy (1995), its origins are as confusing as everything else that involves the origins of humankind, although we tend to agree that, before translation, interpreting was already being performed. Therefore, academics have different perceptions on the development of its history. Mounin (1965), for instance, follows the history of thought and literature, in which he discusses translation in the Middle Ages, renaissance, classicism, and romanticism, until a more recent panoramic perspective from his time. Of course, translation and interpreting have changed considerably since then. According to Panov (1958/1960), the first attempt to mechanize translation was done by Russian Troyanskii in 1933, in which he intended to build a machine for “the selection and printing of words while translating from one language into another or into several others simultaneously” (p. 3). However, Troyanskii’s work was not published in English, and consequently, it did not gain attention outside Russia. American scientist Warren Weaver’s first suggestions on the use of computers for translating natural languages were presented in 1947 and 1949 (see Hutchins and Lovtskii 2000 for a review).

Both translation and intrepretation have changed considerably since researchers started to use computers for translating natural language. Many attractive options, due to their speed and cost, are available at reasonable prices. **Machine translation (MT)** has received criticism from academics who claim that it produces low-quality target texts. However, advances in technology have been quickly developing, following the rapid development of globalization. More people have access to instantaneous translation in their smartphones to solve daily language issues, such as understanding a manual, ordering food at a restaurant, online shopping, etc. The same devices are used for interpreting, in which a person gives verbal input and software interprets it into the target language – oral and/or written – which is sufficient to communicate in a non-professional settings, such as talking to a street vender who does not speak your language.

**Reflection Question**

Why do you think that the disciplines of translation and interpreting followed different historical developments?

## 1.2 Translation and Interpreting as Tasks

### 1.2.1 Translation

In the professional environment, automatization has changed the way translators work. Toral Ruiz et al. (2018) explained that MT has been widely used to assist professional human translators because it helps translator productivity compared with translation from scratch, including technical documents and news. **Post-editing** is the most common workflow for this type of documents in which **phrase- and rule-based machine translations (PBMT and RBMT)** are more acceptable as they preserve the meaning of the original, which might not be the case for texts that are more creative in nature. The authors investigated whether MT can be useful in assisting professional translation of literary text in terms of temporal, technical, and cognitive effort. Six professional translators translated fragments of 10 sentences from a novel in three conditions: from scratch, post-editing the translation produced by the PBMT system, and post-editing that was generated by **neural machine translation (NMT)**, a relatively new technology in which datasets of translated sentences are used to simulate a model that can then translate between any two languages. Keystrokes, time of task completion, total of pauses, and pause duration were analyzed. Results showed that in terms of time of completion, both PBMT and NMT led to substantial increases in productivity compared with translation from scratch. Also, translation output by NMT engines were better than those from corresponding PBMT systems. There was a reduction in the number of keystrokes in NMT context comparison with PBMT. NMT and to a lesser extend PBMT led to a reduction in pauses compared with translation from scratch.

### 1.2.2 Interpreting

In interpreting settings, communication technologies have had a modest impact on the way professional interpreters have been conducting interpretating. Fantinouli (2018) explain that there are two major technological breakthroughs that have impacted interpreting settings. The first one started in the early 1920s with the introduction of wired systems for speech transmission, leading to the rise of **simultaneous interpreting (SI)**. A patent was “filed by IBM and its adoption at the Sixth Congress of the Comintern in the former Soviet Union and at the International Labor Conference” (p. 2). Although **chuchotage** (when an interpreter stands or sits alongside a small target audience and whispers a simultaneous interpretating of what is being said) was probably long being practiced, introduction of interpretating equipment is relatively new.

The second breakthrough was the Internet. Interpreters could have access to resources that facilitate their learning through a repository of material available from any place, making their preparation faster and more accurate. A third breakthrough is ongoing: advances in technologies and functionalities in the workplace. Creation of electronic glossaries allow an increase in the quality of the interpretating performance. Remote interpreting has allowed real-time interpretation from any place in the world through phone calls and videoconferences. **Machine interpreting (MI)**, or automatic speech translation, translates the spoken input from one language into another through powerful software. Although MI had been criticized by many due to the poor quality in the past, improvements in terms of technology have been promising, and it ambitiously has situated itself as the future replacement for human interpreters. Automatic speech recognition technologies are based on neural networks, and they have reached unprecedented quality. Fantinouli (2018) explained that there are issues with MI at both technical and communicative levels. For instance, the speed and flexibility of speech recognition, along with noise tolerance and speaker independence, increase the number of errors produced in the interpretation. In terms of communication, MI is still unable to translate all information that is not explicitly coded verbally (e.g., speaker’s attitude). Since Fantinouli’s paper was published, new technologies have surged (e.g., Auto Mode, and Simul Mode), and there is no reason to believe that these technologies will cease to develop even further, providing an even better output in the next years.

## 1.3 Early Stages and Ethical Issues in Translation and Interpreting Studies

Research on **translation and interpreting studies (TIS)** has developed at a relatively fast pace, mostly due to borrowing from other fields with longer, established histories. Tymoczko (2005) presented a review on the development of the field through an analysis of particular linguistics facets, descriptive historical studies, and think-aloud protocols (TAPs). However, since Tymockzo's paper was published, we have witnessed an increase in the number of translation programs, leading to more empirically tested studies and to a broader discussion on the role of translation in our society. According to Tymockzo, early studies on translation "centered on linguistic aspects of translation, exploring the nature of translation in relation to language and linguistics" (p. 1083) and "tended to delimit or establish the boundaries of the linguistic aspects of the task of the translator" (p. 1084). She explained that translation research projects have been "obscured by the prescriptive packaging of the results" (p. 1084), which is associated with the pedagogical orientations of those involved in a particular research group. More recently, translation studies have become more internationalized, going beyond Eurocentric perspectives.

Gile (2009) explained that both reflection and research about translation "probably started with introspection by practitioners before it was taken up by theologians, philosophers and other thinkers and then by linguists" (p. 3), and the same can be said about interpreting. Translation and interpreting are social activities necessary to communication, and, because of this, researchers from other fields have always been puzzled by these very complex activities. As with translation, discussions on interpreting started with questions about its nature. However, these reflections became more practically focused in which professional and training issues were contemplated, as Gile (2009) explained. Let's consider interpreting research. At first, research on interpreting addressed **conference interpreting**, and it was organized by conference interpreters. Danica Seleskovitch played a main role in the field and her **interpretive theory of translation** in which translation is not understood as a task about words or language but rather about a message. The theory emerged in the 1970s at a time when translation was viewed as simply a linguistic task of transforming one language into another. Seleskovitch's influential theory, which many believe was elaborated even before TIS became fields in their own right, viewed translation as a triangular process that involves first translating a language to **sense** and then from sense to the other language. *Sense*, in this case, refers to the intended meaning behind the language in addition to other background knowledge (e.g., situational, verbal).

Gile (2009) explained that the initial direction of the field excluded psychological research, linguistics, psycholinguistics, and research on written translation, and it "relied mostly on introspection and on persuasion by illustration from the interpreters' daily practice and from the interpreting classroom" (p. 2). Translation, on the other hand, was developing from within academia. In the 1990s, studies on interpreting began aiming for a change of paradigm, mostly due to a wider interest in different aspects of interpreting. Interpreting also started to incorporate more scientific, empirically based studies as influenced by fields such as cognitive psychology and neurolinguistics. Translation and interpreting scholars started to co-organize conferences and editorial boards. In the 2000s, interpreting research became more open to disciplines other than cognitive sciences and started to focus on public services. However, interpreting research has developed much slower than translation research, as its community is smaller, with fewer journals and many theoretical models that still need further empirical testing. Improvements in research designs are also still needed, especially if researchers are interested in testing the models that had been previously described. However, a small research community may be more resistant to changes and academic developments. As Gile (2009) explained, “criticism, however necessary as a quality assurance mechanism, can be perceived by fellow researchers as a lack of support if not as unfriendly, and is therefore often self-inhibited” (p. 6).

Pym (2001) proposed a discussion on ethics in translation studies. He mentioned that the focus on ethics was part of a general social trend, although many scholars were not enthused to discuss ethics in the field. In that same year, Chesterman (2001) wrote about ethics in translation practices. He explained that the models of translation ethics were based on ideas of representation, service, communication, and norms, although these models might be incompatible and have different ranges of application. He suggested that there is a fifth possible model, which is “ethics of professional commitment.” Chesterman’s study showed that professional decision-making processes were then taken into account in translation research and likely helped raise awareness about these critical experimental issues. It is safe to say that these dialogues have helped researchers rethink how they collect data.

When discussing ethics in interpreting research, Tiselius (2019) explained some of the issues with data collection that researchers deal with, although this discussion is usually avoided and treated like an “elephant in the room” by many academics. She explained that while having an individual act both as the researchers and participant in an experiment can be helpful in the sense that they usually have a deep pre-understanding of the field, there are person factors that complicate things. For instance, they may also gather data from colleagues and “in some cases, in fact, the researcher’s access to data may be granted only thanks to his or her collegial relationship with the research participants” (Tiselius 2019, p. 748; see also Bendazzoli 2016). In other words, the findings that may be reported may be drawn from a context of conflict of interest.

According to Tiselius (2019), “interpreters who carry out research on other interpreters do so on their peers, whether or not they know them well” (p. 749). She illustrates this in three different cases: experimental research on SI, an observational study on health care interpreting, and an interview study with deaf interpreters. As per the first case, Tiselius identifies inconsistencies in collecting data for research on interpreting. These issues are also shared with research on translation. For instance, active interpreters are not always willing to participate in experiments for a lower remuneration, and they may feel insecure about their performance under experimental conditions. Furthermore, they might be afraid of being identified as a participant once the study is concluded, and participants would have to trust that the research will grant anonymity. After all, “the interpreting world is small” (p. 752). The second case discussed by Tiselius addressed the challenges of families with little to no proficiency in the majority language and analyzed the communication between medical staff and patients’ families when the interpreters were present and when they were not. Interpreters represent a significant cost, and “there is a reluctance to book them in advance for fear of having to pay them in case they show up and the family is not present” (p. 756). And there is no way to find a last-minute interpreter. Tiselius explained the importance of taking into account personal moral values and interpreting ethics in order to benefit patients.

In the third case, Tiselius (2019) analyzed deaf students’ experience when taking an interpreting class along with hearing students. In-depth interviews with deaf sign language interpreters were conducted. The interviews were conducted using interpreting between the sign language and spoken English, but that was not interpreters’ first language combination. The interviews were then transcribed, but the transcriber’s first language was neither English nor sign language. She showed concerns with the confounding variables in this study and with respecting what the interviewees said and the meaning of what was said. Although Tiselius and other researchers show concerns about the current status of the experimental designs in TIS, most of the studies include too many confounding variables. It sounds controversial to discuss the lack of academic norms in the academic literature if editors and reviewers chose to publish papers which do not comply with any scientific academic standards, making generalizations when the sample size is too small, or (mis) comprehending and (mis)using concepts from other disciplines that do have a lot to offer younger fields such as TIS.

According to Baker and Pérez-González (2011), as language-based activities, both translation and interpreting are often seen as falling within the remit of applied linguistics on which TIS has drawn to formulate their own trajectories. In fact, James Holmes presented a paper titled "The Name and Nature of Translation Studies" at the Congress of Applied Linguistics in 1972, later published as Holmes (1975). Translation studies, as an independent field, has grown to a point that we have different schools and trends in the discipline, such as linguistic, psycholinguistics, sociological, literary, and philosophical. However, translation studies has benefited immensely from other fields, such as psychology and psycholinguistics, especially in terms of research design and testing.

## 1.4 Developmental Influences from Related Disciplines

### 1.4.1 Psychology

The influence of psychology on TIS is striking, especially when researchers examine problem-solving abilities in translation. There is also an intricate link between a translator's emotions and their translation products that is undeniable. Rojo presented a review on the role of creativity (Rojo 2017a) and emotions (Rojo 2017b), noting that "many of the translation problems are of an open-ended kind, with no predetermined solution" (p. 354), which goes along with the view of translation as a constant process of evaluating and producing alternatives. Baker (1996) stated that creativity is an important justification for conducting corpus-based research. According to her, "one of the main reasons we want to study the patterning of any kind of language or text production, including translation, is that patterns are the backdrop against which creativity can take shape: norms enable the creative use of language" (p. 179).

Shen and Fang (2019) stated that the translation process is based on experience and cognition, and that translators must understand the meaning of the original text and map it onto the target language. Furthermore, that the translation process involves translator's understanding of various meanings of the source text, and it also represents a complex cross-language and cross-cultural creative activity. According to the authors, "translators are members of the cultural system and have the nature and status of the cultural subject" (p. 914), having, therefore, their own subjectivity while attempting to meet the cultural needs embedded in the target language. In this sense, translators should maintain subjectivity and translate source texts in a way that is acceptable to the public.

Ulvydiene (2013) looked at culture-specific items involved in translation. Translators must be aware of different cultural patterns and how their own different cultural backgrounds influence their behavior in translation. Ulvydiene presented different techniques that were applied in translations of different cross-cultural advertisements by using a discursive semiotic approach, meaning that the application of semiotics in advertising was analyzed while looking for cultural patterns that underlie language. The author found that the translator should be sensitive to the losses and gains of cultural elements while translating advertisements. Furthermore, a better understanding of the advertisement idea was observed when the translators understood semiotics and how different elements work together as a message-conveying piece of discourse. Signs, their meaning, and their intertextual relationships in persuasive advertisements must be examined further to gain a better understanding of their significance when one translates into another language.

The impact of the translator's emotional intelligence on their translation quality was investigated by Varzande and Jadidi (2015). A trait emotional intelligence questionnaire was used to gather information on participants' emotional intelligence. Participants translated a paragraph from Orwell's *1984* novel. Results showed that translation quality was affected by participants' academic experience, and no significant relationship was found between their emotional intelligence and product quality. Lack of previous research on the topic does not allow us to make comparisons, although other studies, with a more homogeneous sample, would help us to better understand the role of emotional intelligence in translation.

**Reflection Question**

Other than emotional intelligence, what aspects do you think would be relevant to investigate in translation studies?

## 1.4.2 Psycholinguistics and Cognitive Neuroscience

### 1.4.2.1 Word Translation

Researchers in psycholinguistics have shown interest in TIS. Schwieter and Ferreira (2014) carried out a study investigating the mental processes that underlie translation at the word level. They compared the semantic relatedness effect (translation facilitation or interference) when participants translated individual words from their third language (L3) into their first language (**L1**) and from their L1 into their **L3**. Sixty English (L1) language learners of French (**L2**) and Spanish (L3) performed two Stroop word-translation tasks – one in each translation direction. We refer to translation into the L1 as **direct translation**, while translating from the L1 into a non-L1 is called **inverse translation**.

The **Stroop effect** refers to the difference in reaction time between congruent and incongruent stimuli. Participants in Schwieter and Ferreira's (2014) study verbalized into a microphone the translation equivalent of the words that were displayed in the center of the screen. However, accompanying these words were other words and pictures that served as distractors. The results showed that translation speed and accuracy was dependent on the direction of translation and whether they were presented in same semantic categories, such as "cat, dog, cow" versus belonging to different categories, such as "airplane, carrot, house". Specifically, there was no support for a semantic relatedness effect in L1 word translation, but there was support for it in L3 word translation. Participants were only able to benefit from the relatedness of distracters when the words being translated were in restricted semantic categories. Furthermore, L1 word translation was slower in the context of distracter pictures, but L3 word translation was slower in the context of distracter words. In all, the study demonstrated that translating words into the L1 may be a conceptually mediated procedure and therefore is susceptible to conceptual (i.e., pictures) distracters. On the other hand, translating words into the L3 may be lexically mediated and more vulnerable to influences of lexical (i.e., word) distracters. The study also provided supported for the revised hierarchical model (Kroll and Stewart 1994). The model represents the architecture of word-to-concept mapping in the bilingual memory. The model argues that L1 words are more strongly mapped onto the concepts they represent than are L2 words and that at low L2 proficiency levels, L2 words must first be associated with their L1 translation equivalent before accessing their concept.

#### 1.4.2.2 Reading and Sight Translation

Chang (2009) conducted a study to investigate whether the task of translating or interpreting individual words into an L2 is more cognitively demanding than into an L1. Physiological and neurological measures were collected using eye tracking and functional magnetic resonance imaging (fMRI) to test the applicability of both methods to translation and interpreting tasks. In the first experiment, five female novice interpreters with L1 Mandarin and L2 English completed a typing task to explore whether the language of input and type of task would have an effect on other variables. The participants were asked to sight interpret one short story from English into Mandarin and one short story from Mandarin into English. The fMRI revealed higher brain activity when carrying out interpreting from L1 into L2 compared with the reverse direction.

In Chang's (2009) second experiment, eight L1 Spanish speakers with L2 English participated in six tasks: reading Spanish, reading English, typing Spanish, typing English, translating from English into Spanish, and translating from Spanish into English. An eye-tracking device measured pupil diameter, number of fixations, task time, fixation frequency, blink frequency, and fixation duration. The results suggested that the tasks were more demanding when reading and sight translating into the L2. Although the participants in the first experiment produced written sight interpretation and participants in the second experiment produced verbal sight interpretations, the fMRI and eye-tracking results indicate similar asymmetries exist when comparing L1-to-L2 and L2-to-L1 directions. The study is a clear example of how research methods from neighboring disciplines such as psycholinguistics and cognitive neuroscience can help to develop more robust empirical measures.

**Reflection Question**

How is reading different from sight translation?

#### 1.4.2.3 Memory and Brain

As early as 1890, William James, whom many consider the "father of American psychology," presented a distinction between what he called primary and secondary memory. He argued that primary memory is related to the information that occupy the stream of thought, while secondary memory is related to the knowledge of events that belong to former states of mind. The construct of memory has been studied at length within interpreting studies. For decades, it has been pointed out that working memory is one of the most important aspects of SI, as perhaps first noted by Walter Keiser at the International Association of Conference Interpreters in Paris in 1965. A few years later, Atkinson and Shiffrin (1968) proposed a model in which **short-term memory, or primary, active memory,** is responsible for retaining information temporarily until it is transferred to a more stable **long-term memory** store.

The term *working memory* has often been used interchangeably with *short-term memory*; however, working memory refers to the entire framework of processes that are responsible for temporarily storing and manipulating information – it works as a memory buffer that maintains information while it is being processed. Short-term memory is only one component of this framework. Today perhaps the most accepted model explaining working memory is Baddeley and Hitch's

(1974). Their explanation of working memory is based on three components: two temporary storage systems and one system for controlling attention called the central executive. One of the temporary storage systems is used for holding speech-based information (called the phonological loop), and the other storage system is responsible for holding visual and spatial information (called the visuospatial sketchpad). The central executive is responsible for ensuring that working memory resources are executed and used according to the goals of the task at hand. Working memory has a limited capacity, meaning that it restricts the types of tasks that humans can process concurrently. To read more about working memory and its relationship to language, see Schwieter and Wen (2022), which includes a special introduction by Baddeley.

Early studies on memory have investigated performance of novice and professional interpreters. For instance, Gerver (1974) investigated the effect of noisy listening conditions on the performance of 12 professional simultaneous interpreters. Participants were asked to shadow and perform a simultaneous interpretation from French into English at three signal-to-noise ratios. Results showed that noise negatively affected the memory storage of texts that were shadowed and interpreted. There were also more errors when interpreting than when shadowing at lower signal-to-noise ratios.

Lambert (1989) conducted a study on interpreting and lateralization. In language science, brain **lateralization** refers to whether there is a left- or right-hemisphere tendency to do various things with language – including translating and interpreting. In Lambert's study, beginning and professional interpreters were asked to shadow a 12-minute speech which they heard through headphones in French and English. These custom-made headphones included a dial which enabled the experimenter to restrict the recorded material to the left, right, or both ears. When comparing the three input conditions, the results showed that participants made fewer errors when the message was presented in one ear compared with both ears simultaneously. Specifically, when shadowing in an L2, participants are free to process "the incoming information through either or both ears. However, there is a suggestion that when shadowing in one's L1, subjects process incoming speech better through the right ear" (p. 156).

**Reflection Question**

The role of working memory when translating is different than when interpreting. Why do you think this is the case?

Christoffels et al. (2006) conducted a study to compare working memory and language skills among simultaneous interpreters, bilingual university students, and Dutch teachers of English. The participants performed several experiments, including a word retrieval task in which pictures were presented separately in English and Dutch on a computer screen, and participants had to name the pictures as quickly as possible. In a word translation task, 72 words in English and 72 words in Dutch were presented separately, and participants orally translated them from Dutch into English and from English into Dutch. In a speaking span task, 42 words were selected in English and Dutch. The words were presented in sets of two, three, four, and five words, and participants were asked to silently read and remember the words. After each set was completed, participants had to produce a sentence for each of the words in the set that they recalled. In a memory task, sentences were presented on a computer screen, and participants tried to remember the last word of each sentence. Finally, a lexical decision task was given in which participants needed to determine whether words presented on the screen were real English word or nonwords. The results showed that interpreters outperformed university students in speed, accuracy, and working memory capacity. Interpreters also performed better than English teachers but only on the memory task. Overall, the findings suggest that performance may be determined more by proficiency than by cognitive resources. Furthermore, they also suggested that the superior working memory skills of the professional interpreters may be related to several task components of SI because interpreters develop a simultaneity of comprehension and production processes to manage two languages, which is also potentially related to increased cognitive control.

Another study asking whether interpreters have better working memory than non-interpreter bilingual individuals was carried out by Signorelli et al. (2012). Three groups of younger interpreters, older interpreters, and non-interpreters performed a reading span task, a nonword repetition task, an order- and category-cued recall task, and a task measuring articulation rate. Results showed that interpreters outperformed non-interpreters on the reading span and nonword repetition tasks but not on cued recall or articulation rates. These findings suggest that interpreters are able to more efficiently manipulate information in their working memory and process sub-lexical (i.e., sound) representations compared with non-interpreters, although according to Signorelli et al. (2012), they appear no different in terms of the temporary retention of words and their meanings.

In a study by Nour et al. (2020), the researchers compared working memory capacity among interpreting students (mean age, 22 years), translation students (mean age, 23 years), and professional interpreters (mean age, 52 years) using reading span and digit span tasks. Considering that working memory has a time limitation and interpreting involves immediacy, the study aimed to determine whether interpreting training and years of experience in interpreting would affect working memory differently than training in translation. The participants were first tested at the beginning of their one-year training program in either translation or interpreting and were again tested at the conclusion of the program. Nour et al. (2020) found an improvement in terms of training for working memory, but there were no significant differences between student translators and student interpreters. Critically, professional interpreters outperformed translation students on working memory but were no different than interpreting students. The authors explained that professional experience is necessary to see any effects of interpreting on memory and that the accumulation of interpreting experience helps to maintain working memory capacity at its optimal level rather than declining due to natural aging effects. Other studies have also shown that years of experience with interpreting can have a positive impact on memory components across the life span (Henrard and Van Daele 2017; Chmiel 2018).

### 1.4.3 Bilingualism

A construct of interest in research in bilingualism and L2 acquisition is **language dominance**, which is the relative command individuals have over their two languages. Language dominance has also been of interest in translation studies, for instance, to investigate translation **directionality**. Directionality refers to the analysis of direct and inverse translation. Ferreira et al. (2021) studied the effects of language dominance on translation performance. In the study, 12 English native-speaking professional translators and 20 Spanish native-speaking professional translators completed a language background questionnaire, which collected in-depth information about their place of birth, self-ratings of dominance in both languages, education background, age of immigration, age of initial exposure to the L2, and so on. Following the questionnaire, the participants then translated a text from English into Spanish and a similar text from Spanish into English. After both translations, the participants were given a retrospective protocol interview about their translation decisions that specifically asked about their perception of the tasks, such as information about the level of difficulty, anxiety, and satisfaction with the product. While the participants were translating the texts, Ferreira et al. (2021) measured eye movements and keystrokes as ways of gathering information about the cognitive effort involved in each translation direction. The eye-tracking device recorded pupil dilation and saccades (i.e., extremely quick movement of both eyes to a point of fixation in the same direction), and **Translog** software, a program that records and studies human reading and writing processes on a computer, measured mouse events and keystrokes.

Ferreira et al. (2021) conducted statistical models on each of the dependent variables (mouse, keypress, fixation index, saccade index, gaze duration, and gaze index). A backwards model selection process with an initial model was used to allow the critical predictor (direction of translation) to interact with the variables age, gender, and dominance. The findings pointed to several individual differences related to their unique language experiences and showed that dominance levels interact differently with translation direction and performance. First, translators a spent longer time in inverse translation than direct translation, but this difference was not statistically significant. There was a correlation between translation direction and the number of eye fixations, particularly in the inverse translation direction. Translators' age and gender were also correlated with fixations such that older translators and female translators had fewer fixations than younger translators, and female translators had fewer fixations than male translators. Individual differences within and across groups modulate the effects of cognitive effort and appear to be sensitive to translation direction. Although these statistical analyses using multifactorial mixed-effects modeling are common in psychology, they are only now gaining popularity in TIS.

## 1.5 Research Methods

Allport et al. (1972) conducted a study among translators to see whether they could attend to and repeat back continuous speech at the same time as taking in complex, unrelated visual scenes or while sight reading piano music. Results showed that divided attention was very good, and there was little or no effect of the dual task on the accuracy of speech **shadowing**. Shadowing refers to a paced, word-for-word repetition task in which the immediate vocalization of what is heard through a set of headphones is repeated aloud in the same language. In this sense, "evidence of simultaneous processing of stimuli varying along different attributes or 'dimensions' within the same sense mode" (p. 233). It has been said that if two similar, simple tasks are often practiced, they can be performed well together. If the two similar, complex tasks are new, they cannot be performed at the same time. Following this assumption, if a translator must verbalize every step of the process while producing the target text, overall, they might face an overload and not be able to perform either task as to the same degree as they would performing them separately. Hansen (2005) states that "bilingual translators can find that they cannot keep the two languages apart, especially not under stress" (p. 513), suggesting that a bilingual individual's two languages can never feel completely "turned off."

**Reflection Question**

If you speak a second language, do you sometimes feel that the two languages are competing in your mind? If you don't speak a second language, ask someone who does.

### 1.5.1 Think-Aloud Protocols

One of the most commonly used tools since the 1980s is the **think-aloud protocol, or concomitant protocols**, used as a qualitative research method in which a participant reflectively talks about their mental processes or decisions used during translation. A concurrent TAP is collected while the participant is carrying out the task, and the consecutive TAP (also called retrospection) is collected after the participant finishes completed the task. Ferreira's (2013) study analyzed consecutive protocols from a cohort of eight professional translators who translated two texts on related topics from their L2 English into L1 Portuguese and from L1 Portuguese into L2 English. Following this, they translated two other texts that were on different topics, again in both translation directions. Results showed that when translating non-related texts, the access to the concepts and the lexical production were more limited in the L1-to-L2 translation (i.e., inverse translation) compared with L2-to-L1 translation (i.e., direct translation).

Ferreira's (2013) study was influenced by Jakobsen's (2003) study, in which he looked at the effects of TAPs on **translation time** (i.e., the total time spent to complete a translation task), revision, and **segmentation**. Segmentation refers to the process of breaking a source text into smaller translation units. Translation students and professional translators performed two translations from Danish into English and two from English into Danish. For each direction, one translation was performed while thinking aloud was recorded and the other without. The results showed that when participants think aloud while translating, there is about a 25% decrease in their speed. However, no significant effects on their revisions were found. In terms of segmentation, thinking aloud led to processing the source texts in smaller segments. Therefore, although TAPs have been used to obtain insight into translation processes, the fact that they increase the amount of cognitive load has been a topic of criticism. For more information, Hansen (2005) provides an overview of TAPs and retrospective protocols and participants' ability to conduct two tasks at the same time.

As per interpreting, **retrospective protocols** have been used to analyze skill variation and expertise. For instance, Tiselius and Jenset (2011) asked participants with no, little, or a lot of interpreting experience to interpret a speech and perform retrospection immediately after completing the task. The researchers then analyzed the reported processing problems, instances of monitoring, and strategies used. The findings showed that the degree of experience influenced the strategies used by interpreters. Their retrospection also suggested that their experience also led to different types of problems identified during the interpretation. In a second experiment, Tiselius and Jensen compared ratings of the interpreting products produced by the same participants as in the first study and found a difference in the rated quality of interpretations performed by participants with no interpreting experience and the other two groups with some degree of experience. These differences consisted of distinct preferences of strategies and perceived problems. The authors argued that monitoring, strategies, and processing problems appear to correlate with experience in interpreting. Another study by Bartłomiejczyk (2006) focused only on advanced interpreting students and identified 21 different strategies during SI that are dependent on whether the interpretation is direct or inverse. It is clear that there are a number of factors, including both experience and interpreting direction, that interact with the strategies used by interpreters.

**Reflection Question**

What do you think are some of the pros and cons of using TAPs?

### 1.5.2 Corpora

The translation product (i.e., the end translation that is produced) has also been analyzed by those interested in using corpus linguistics. In linguistics, a **corpora** refers to a large collection or database of language data consisting of organized sets of texts and structures. For instance, Alves et al. (2010) used annotated corpora, in addition to key logging, eye tracking, and retrospective verbalizations, to identify **translation units** that may lead to increased levels of **cognitive effort** during translation. Two participants translated a text from L1 German into L2 English. Keystrokes were logged using Translog, and eye movements were recorded using an eye tracker. Grammatical shifts and the process of (de)metaphorization in translation were analyzed. The authors explained that (de)metaphorization is the process of (un)packing linguistic information based on the grammatical metaphor concept “whereby a set of agnate (related) forms is present in the language having different mappings between the semantic and the grammatical categories” (Halliday and Matthiessen 1999, p. 7). The higher the metaphorical strength, the more implicit are the relations between participants and processes within a context.

From their analyses, Alves et al. (2010) explained three metaphorization strategies in translation: metaphorization (when the target language expression is more metaphorical than the source language expression), de-metaphorization (when the source language expression is more metaphorical than the target language expression), and re-metaphorization (when the same degree of grammatical metaphoricity is expressed in both source language and target language). They analyzed the number of nouns and verbs in the source and target texts and found a higher percentage of both in English texts than in German, which are assumed to be a genuine contrastive difference between the two languages, resulting in shifts between verbs and nouns. Results showed that English translations are less nominal than their German counterparts. The exploratory study offered an important examination of elicitation techniques used to analyze source text comprehension, target text production, and how they can be analyzed together.

In an elaboration on the challenges and benefits of using corpus-based methodology in interpreting research, Shlesinger (1998) explained that interpreters’ output is not often available in machine readable form. And if it is, a labor-intensive process may be needed to transcribe and then ensure that the elements of spoken language are accurate and subjective. Although this process has improved somewhat over the years, it still is far from automatic. Another aspect of corpus-based research that is challenging is the usage of decontextualized materials – for instance, a speech that has been removed from its natural setting (e.g., a multilingual conference). Shlesinger offered two alternatives: using artificial, yet realistic, material that is designed for experimental purposes and using authentic materials from existing corpora but that is relevant to the particular study. Beyond existing corpora, the researcher advocated for the creation of bilingual and parallel corpora that could provide stronger inferences about the interpreted text in relation to other forms of discourse and translations.

A decade after Shlesinger’s (1998) review on corpus-based research in interpreting studies, similar benefits and shortcomings continued to linger according to a review by Bendazzoli (2018). In this latter review, the researcher began by contextualizing the fact that while translation studies found fertile ground to grow at the beginning of the 1990s, interpreting studies was not able to follow the same steps due to the intrinsic difficulties in gathering and transcribing data and making them available in electronic format. Bendazzoli explained that corpora in interpreting studies was first linked to empirical research based on authentic data. Furthermore, because establishing electronic corpora is a very complicated task, some datasets continue to be analyzed manually. A couple of decades ago, sound files were tape recorded and only then transcribed and analyzed manually. More recently, different programs have been developed to automatize (at least to some extent) the process. As per professional practice, corpora are still largely unknown by both translators and interpreters. Bendazzoli suggested that if interpreters are familiar with translation memories, terminological databases, and glossaries and often use things like word processing documents and lecture slides, they can build corpora, which can be helpful in preparing assignments. However, it might be the case that interpreters, especially the newer generation, would prefer to use internet-related services and products without the need to create their own glossaries.

**Reflection Question**

Think about a corpus of information that you often use. How could you use it to conduct an experiment?

## 1.6 Research on Translation Processes: Comparing Professionals and Trainees

In research in translation and interpreting, comparisons between groups of professionals to "ordinary" bilingual individuals and/or to individuals training to become a professional translator or interpreters are common, and we have looked at a few of these studies so far in this chapter. In this body of work, scholars such as Göpferich (2009), Daems et al. (2017), and Carl and Kay (2011) have designed finely tuned research methods to examine translation processes and product. Similarly, interpreting scholars have developed sensitive comparisons between students and professionals (e.g., Jakobsen 2002, 2003; Christoffels et al. 2006).

One of the first studies to compare translation processes between professional translators and students was by Jakobsen (2002). In the study, professional translators and translation students conducted two translations from Danish into English and two from English into Danish. Their translations were recorded using Translog to track keystrokes. Jakobsen found that professional translators and students spent different amounts of time translating depending on three marked stages of their translation process. The first stage, *orientation*, is related to the time between the presentation of the source text in the screen and the time when the translator types the first letter. In this stage, professionals spent more time than students. The second stage, the *drafting* phase, begins right after the orientation stage and lasts until the last character of the target text is typed. In this stage, the professionals spent less time than the students. Finally, a *revision* stage begins after drafting and continues until the target text is finalized and the file is saved. In this stage, professionals spent more time than students. Professionals also demonstrated that once a solution to a translation challenge is found, this knowledge will persist until the translation is complete. Students, on the other hand, produced more temporary solutions.

In a later study by Carl and Buch-Kromann (2010), professional translators and translator students translated two texts from Danish into English while using Translog. The two translations were considered easy or challenging based on three quantitative indicators: readability indices, word frequency calculations, and the number of occurrences of non-literal expressions (e.g., idioms, metaphors, and metonyms). Eye movements and keystrokes were analyzed to investigate the translation process and the quality of the target texts focused on fluency and accuracy and was determined based on BLEU scores and human evaluation scores. The BLEU (bilingual evaluation understudy) score is a metric used to evaluate MT quality. It compares a test translation with several reference translations. Carl and Buch-Kromann (2010) analyzed how BLEU scores correlated with human scores and compared the quality of the target texts produced by the participants with a MT produced by Google Translate. Similar to Jakobsen's (2002) stages of the translation process, Carl and Buch-Kromann identified three stages but called them skimming, drafting, and post-editing. The results demonstrated that students used more time skimming than professionals, but professionals spent longer in post-editing. BLEU scores correlated negatively with the total translation time for the difficult text, but they correlated positively with translation fluency for the easy text. Finally, although students and professionals produced equally accurate translations, professionals produced texts more quickly and fluently than students. In all, the findings point to a need for different tools such as skimming support tools and fluency-building tools to assist translators with various degrees of expertise and training.

**Reflection Question**

Have you been a participant in a translation or interpretation experiment? What was your experience? If not, try to find someone who has and talk to them about their experience.

## 1.7 Pedagogy and Assessment in Translation and Interpreting Studies

The term **pedagogy** refers to a method or approach to teaching. Translation pedagogies have been investigated in several studies, both descriptive work of the tasks and tools commonly used in the translation classroom, and empirical studies testing their effectiveness. Galán-Mañas and Hurtado Albir (2010) presented a review of blended learning pedagogies in translation. Blended learning is a teaching method that brings together technology and/or digital resources with instructor-led classroom activities. According to Galán-Mañas and Hurtado Albir, blended learning in the translation classroom offers students more flexibility in customizing their learning experiences, encourages group work, allows for more freedom to better organize workload, and promotes learner autonomy.

Hurtado Albir (2007) elaborated the concept of translation competence along with how it develops alongside competence-based approaches to teaching and learning. According to Hurtado Albir, the six categories of competences which should be assessed in translator education are

1) **Methodological and strategic competences:** applying the methodological principles and strategies necessary to work through the translation process appropriately
2) **Linguistic-contrastive competences:** differentiating between the two languages and monitoring interferences when solving translation problems
3) **Extra-linguistic competences:** mobilizing encyclopedic, bicultural, and thematic knowledge to solve translation problems
4) **Occupational competences:** operating appropriately in the translation job market
5) **Instrumental competences:** managing documentary sources and an array of tools to solve translation problems
6) **Competence integration:** solving translation problems in different genres using the appropriate strategies

   (as cited in Galán-Mañas and Hurtado Albir 2015, p. 68)

A later article by Galán-Mañas and Hurtado Albir (2015) discussed the most appropriate instruments for assessing the translation competences identified by Hurtado Albir (2007). Galán-Mañas and Hurtado Albir's review looked at the assessment procedures, instruments, and tasks typically used in translation classrooms. The authors drew attention to the importance of not only appraising the translation product but also the process by which the translation has been created. A few examples of these assessments and the competences they measure are illustrated in Table 1.1.

Another important contribution was made by Colina (2015), in which the author connected theory and practice through a pedagogical framework. The author presents practical guidance and didactic implications, which many times may be more appropriate for academic programs. Colina advocates for a shift in the way translation pedagogies are approached that is contextualized through a

**Table 1.1** Translation competencies and examples of tasks assessing them (Galán-Mañas and Hurtado Albir 2015, pp. 73–79).

| Competency | Assessment Tasks | Components Assessed |
|---|---|---|
| Methodological and strategic | Linguistic, textual, and extra-textual analysis of an original text (without translating it) | Adequacy of the analysis performed |
| | Gist translation | Comprehension of the source text (key ideas identified) and expression in the target language |
| Linguistic-contrastive | Common calque (i.e., loan translation) identification | Identification and classification of calques and the adequacy of the solutions proposed |
| | Analysis of coherence and cohesion errors in a translation | Use of mechanisms that guarantee the text's coherence and cohesion and the adequacy of the explanations given |
| Extra-linguistic | Catalogue of cultural references | Quantity and diversity of the cultural references listed, plus the adequacy of the solutions proposed and of the explanations regarding the techniques used to reach them |
| | Identification and resolution of problems corresponding to a subject area in a text | Number of problems corresponding to the text's subject area identified, the diversity of the sources used, and the adequacy of the proposed solutions |
| Occupational | Discussion on aspects of professional practice | Content of input, its relevance to other students' contributions, and the rigor of the arguments put forward; grammatical, structural, and stylistic errors are penalized |
| | Simulations of real translation briefs | Adequacy of the target text and delivery within the established deadline are also taken into account |
| Instrumental | Creation of a diagram explaining a document storage system | Creation of a logical, ordered structure for storing documents and the rigor of the explanations provided |
| | Translation revision using a change-tracking tool | Configuration and the use made of the tool |
| Integration | Translation projects | Translation quality and the thoroughness of the reports written |
| | Translations with process recording analysis | Translation quality and the thoroughness of the analysis performed |

Based on Galán-Mañas and Hurtado Albir 2015.

communicative, student-centered, teacher-guided learning environment. Another important contribution to translation pedagogy was made by Pöchhacker (2016), whose up-to-date review of teaching practices is accessible to readers from students to researchers and practitioners.

**Reflection Question**

How do you envision the future of translation and interpreting teaching methods and learning environments?

## 1.8 Literary Translation, Culture, and Society

As explained by Valdeón (2018), literary translation is central in the emergence and consolidation of translation studies as an academic discipline because it was “at the base of the first theory specifically conceived for translation studies” (p. 459) in the late 1970s. Prior to this point, the focus of translation studies was above linguistic aspects. Hermans (1985) provided descriptive and systematic approaches to literary translation and argued for a need to develop a rigorous scientific approach to the phenomena of translation types and their relationship with the field of comparative literature. In another important contribution to literary translation, Lefevere (1992) talked about the concepts of rewriting and manipulation and discussed problems of ideology, change and power, and literature and society. Many relevant questions about culture and ideology were entertained by Lefevere, who viewed literary translation as a “channel opened, often not without a certain reluctance, through which foreign influences can penetrate the native culture, challenge it, and even contribute to subverting it” (p. 2).

Culture and translation have been referred to as two entities that revolve around *difference* (Katan 2012). According to Katan, “We notice culture as difference, and we require translation when difference significantly affects communication” (p. 74). Among the many tasks of a translator is to evaluate the distance between the source and target cultures and then negotiate a level of tolerance (i.e., through the translation produced) that accounts for such differences. This ability requires bicultural competence, along with the need to dissociate oneself and be able to take a non-biased perspective from an outside position.

Toury (2012) had an important impact on descriptive translation studies, bringing methodological discussions and case studies from different perspectives while emphasizing the importance of context. Further to his previous work (Toury 1987), he discussed the important role of culture in translation and the role of the translator as a cultural mediator. Later, in an attempt to move someway away from these theoretical discussions, Angelelli (2014) presented a collection of different case studies to examine translation and interpreting from a socio-logical perspective. The sociology of translation, as described by Sapiro (2014), has been an area of interest within translation studies since the 1990s. The sociology of translation is interested in several agents, such as writers, editors, critics, literary agents, and institutions, such as translation schools, journals, publishers, and scholarly societies. The field of sociology brings a new perspective to translation studies: it raises questions on “processes of professionalization and the legitimization or hierarchization of cultural practices and cultural products (including canon-building), about the sociology of publishing and the chain of production of literary works, about intercultural exchanges and the social conditions of circulation of symbolic goods and ideas, and about the epistemology of the human and social sciences” (Sapiro 2014, p. 91). It is an area of inquiry within translation studies that continues to grow today.