

Special Issue

Machine Translation & Language Education: Implications for Theory, Research, & Practice

Do You Speak Translate?: Reflections on the Nature and Role of Translation

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The world of language education is intimately and undeniably implicated in the presence, use, and development of machine translation software. On a classroom level, students are increasingly using machine translation in the classroom and in the “real world,” through travel, study abroad, and work internships. On a professional level, this increased use raises concerns about the relevance of language education: what role does or should language education serve? On a theoretical level, the very prospect of using technology to manipulate language brings into question the nature of language itself. As machine translation technologies advance, language researchers and educators find themselves implicated in these broader conversations that touch on its influence on meaning making, communication, and the very meaning of being human in a digital era. In other words, machine translation is not simply a matter of using software like Google Translate to translate words from one language to another. Rather, it is a matter of so much more. Machine translation brings to the fore (re)considerations of the role of context, culture, and pragmatics in language use and meaning making, all of which impact the continued development of methodologies and classroom pedagogical practices. To enter this conversation requires learning to speak translate—that is, to understand the history of translation as it relates to language education and to examine the implications of machine translation for language education. In this special issue, we ask what is at stake in the use of machine translation for our classrooms, our students, ourselves as educators and researchers, for the world languages teaching profession, and for society at large.

INTRODUCTION

In 2016, Google Translate released a commercial entitled “[#WeSpeakTranslate, do you?](#)” to promote its app and highlight its new features. It begins with a thought: “Imagine if you could understand and communicate with people across 100 languages.”

In the first exchange, a female cartoon figure with a panama hat uses the voice feature to ask a male cartoon figure who speaks Spanish if there is a pharmacy nearby. In the second exchange, after seeing the voice language selection set to English - Hindi, a female cartoon figure in a motorcycle taxi informs the male driver, who features a mustache and dark skin, that she is late, and he replies that he knows a shortcut. The advertisement also demonstrates how to use the camera feature: a bodiless hand holds the phone over a menu written in Chinese, effortlessly transforming characters into roman letters to reveal the dish options to those unfamiliar with the *hanzi*. The viewer is reminded of the benefit of such a translation: one can be assured that they have not ordered a dish that is too spicy. Finally, the viewer is informed that these features also exist offline, which means that you have access to it “without data in a jungle” (two female figures bird watching in a jungle), “on an airplane” (a male and a female head in bubbles above an airplane), or “in deep space” (two astronauts high-five each other).

The characters that interact are not real: they are cartoons, sometimes lacking bodies or heads. In the first exchange, the figures interact against a white background, completely independent of any contextual realities of time and space. In the second, the language (Hindi) in conjunction with presence of a motorcycle taxi, the physical features of the driver, and the vague outline of a cityscape index a possible physical location. Those that need to translate are mobile—moving in motorcycle taxis, in planes, through outer space—, and they are constructed as tourists: they do not speak the other language, they have objects such as panama hats, and they engage in activities such as birdwatching. They are assumed to have prior knowledge of the culture, for example, the names of Chinese dishes, and which ones are hot. They are only lacking linguistic knowledge. English is the primary language being translated, and the exchanges centrally concern needing something: a pharmacy, a quick route to a destination, and non-spicy food from a menu. The interlocutors, when they speak, only reply to assure the speakers that their needs will be met. Despite the absence of place, the viewer is reminded that the app “works everywhere:” Google Translate will always be with you, it will take you everywhere and nowhere, and it will allow you to fulfill your basic needs and desires; all you need to do is “select your language and their language and start talking. Your speech will be translated loud and clear.” At the end, the viewers are reminded that “we speak translate” and are asked “do you?”

Machine translation—the use of technology to automatically translate from one language to another—took root in the human imaginary in the late 1800s (Poibeau, 2017). Fast forward several decades through numerous technological innovations and machine translation software is increasingly present in our daily lives, as evidenced in this commercial. While the most well-known application of machine translation may be Google Translate, there are numerous additional services including DeepL, Amazon Translate, and Gengo. Machine translation tools have facilitated the speed of and access to communication on a global scale: the Google Translate app has approximately 500 million users and translates around 143 billion words a day (Smith, 2018).

The world of language education is intimately and undeniably implicated in the presence, use, and development of machine translation software. On a classroom level, students are increasingly using machine translation in the classroom and in the “real world,” through travel, study abroad, and work internships. On a professional level, this increased use

raises concerns about the relevance of language education: what role does or should language education serve? On a theoretical level, the very prospect of using technology to manipulate language brings into question the nature of language itself. As machine translation technologies advance, language researchers and educators find themselves implicated in these broader conversations that touch on its influence on meaning making, communication, and the very meaning of being human in a digital era. In other words, machine translation is not simply a matter of using software like Google Translate to translate words from one language to another. Rather, it is a matter of so much more. Machine translation brings to the fore (re)considerations of the role of context, culture, and pragmatics in language use and meaning making, all of which impact the continued development of methodologies and classroom pedagogical practices. To enter this conversation requires learning to speak translate—that is, to understand the history of translation as it relates to language education and to examine the implications of machine translation for language education.

In this special issue, we ask what is at stake in the use of machine translation for our classrooms, our students, ourselves as educators and researchers, for the world languages teaching profession, and for society at large. We pose the following broad questions:

1. What are the implications of machine translation for language/culture learning and teaching?
2. How can applied and educational linguists engage with machine translation in learning contexts?
3. How can applied and educational linguistics contribute to broader discussions around the impacts of machine translation in society?

We situate our own responses to these questions first in a broader framework that takes up the role of translation in language education through various historical tides, including the grammar translation method, the direct method, and what we refer to as the translational turn. We then consider the impact of machine translation on these understandings of translation and its role in the language classroom. Finally, we use this framework to consider the unique contributions of the nine articles contained in this special issue, including a detailed synthesis of seven pedagogical models that enumerate how to integrate MT into language teaching and learning.

THE ROLE / PURPOSE OF TRANSLATION IN LANGUAGE EDUCATION

The Grammar Translation Method: “How long more?”

“*The philosopher pulled the lower jaw of the hen*” (Sweet, [1899] 1964, p. 73)¹

The grammar translation method came to dominate language teaching at the end of the 19th century, continuing well into the 20th. Influenced originally by the teaching of ancient Greek and Latin in the context of literary studies, this is a text-based approach to language where

¹ Wilhelm Viëtor’s work *Der Sprachunterricht muss umkehren! Ein Beitrag zur Überbürdungsfrage* (1882) was published under the pseudonym ‘Quousque Tandem’, translates as ‘How long more?’, referring to how much longer the Grammar-Translation (GT) method of language teaching had to be endured. (Kelly & Bruen, 2014)

meaning resides in texts and the goal of language study is the ability to gain access to these meanings by reading literary classics in their original languages. Translation itself is a search for equivalence, a more or less literal transfer of form and meaning (Phipps, 2004) or “the transference of meaning from one set of patterned symbols into another” (Dostert, 1955 as cited in Cook, 2010, p. 56). At lower instructional levels, the focus is on grammatical equivalence; at the upper levels, stylistic and pragmatic considerations become more salient.

In the classroom, language teachers provide explicit explanations of discrete grammar rules in the students’ primary language, which learners memorize and then apply to translate single, invented, and generally decontextualized sentences from the primary language to the target language and vice-versa. Through this process, learners simultaneously acquire a metalanguage which they apply in order to be able to talk about grammar because knowledge of language is fundamentally about knowledge of these rules. Vocabulary presentation is haphazard: words are selected and presented in lists to be memorized such that knowing the word means knowing its translation equivalent. In a grammar translation classroom, the textbook is the authority, activities are teacher-centered, and whole-class activities predominate.

Critiques of the grammar translation method focused on the unnaturalness of its approach and application vis-à-vis real language use and spoken communication. This critique originated in the Reform Movement led by Wilhelm Viëtor, which argued that it ignored spoken language. This rejection was elevated by Henry Sweet’s 1899 critique of the use of invented sentences that he was subjected to in his own experiences studying Greek. Sweet considered these invented sentences to be “insipid” and “colourless combinations,” (as cited in Cook, 2010, p. 15) as he illustrated in the quote that began this section, in contrast to what he refers to as “real language,” which is “really natural and idiomatic.” Whereas there have been additional critiques of grammar translation that emphasize its authoritarian, instructor-centered participatory structures, it is this critique of invented sentences that continues to be used as a primary argument to dismiss not only the grammar translation method, but all translation activities in language learning (Cook, 2010). It is also worth noting that this same technique, providing examples of ridiculous sentences, is utilized to deter students from using machine translation by demonstrating its limitations.

There were, however, broader factors that influenced the dismissal of the grammar translation method. In fact, Cook has argued that the method itself could very easily have been adapted in response to these critiques by “focusing on the aspects of language use which it ignores: connected texts, authentic examples of use, spoken discourse, fluency, student-centred activity, and so on” (Cook, 2010, p. 14). So, why was grammar translation, and translation more broadly, dismissed? Again, we look to Cook for answers:

The practical reason for its demise included the following: translation cannot easily be used in classes composed of students from different language backgrounds, nor by native-speaker teachers who do not speak their students’ language. There was also a commercial and political self-interest behind the advocacy of the Direct Method. It allowed publishing houses and private language schools to produce courses which could be taught to all comers by any teacher and therefore marketed worldwide. For those nations whose languages were to be taught by the Direct Method, there was both a political and commercial advantage in the export of native-speakers as teachers and experts, in the trend for students to learn in the country where the language was

spoken, ... Direct method was in tune with mass production, nation building, and imperialism. The chilling slogan:

‘One Nation, One People, One Language’

can easily be rewritten for English Language Teaching:

‘One Class, One Learner, One Language.’ (p. 18-19)

The grammar translation method assumes that all learners share the same primary language; its focus is cross-lingual as it involves translation between this shared, bounded language and the target language; and its end goal is not communication per se but the aesthetic pleasure of access to literature. As a method, it effectively negates a multilingual reality, although admittedly, that negation might have been in reality more reflective of the population of students who had the time and luxury to study second languages with the goal of reading the classics. The turn of the 20th century was a historical moment that saw a diversification of reasons for language study, increased access to language study, and, given the changing realities, a recentering of its goals to that of spoken communication (Kramersch, 2005). So arose the direct method, which, in all of its myriad forms, emphasized at its core the exclusion of the students’ own language in any form, for translation, explanation, or commentary (Cook, 2010, p.7).

The Direct Method: “One class, one learner, one language”

The Berlitz Schools were established in the U.S. in 1882. Their rapid expansion in both the U.S. and in Europe had much to do with the new market of adult language learners who were not directly linked to the educational system, namely immigrants, traders, and tourists. This population needed to learn the second or third language quickly, and they needed to do so for functional, transactional reasons: to survive in their new homes, to conduct business, and to negotiate their travel experiences. The grammar translation method was simply not designed to allow learners to achieve these goals. Moreover, translation in general would not have been possible without a shared primary language. To be marketable and easily reproducible across contexts, the Berlitz method disavowed translation in favor of only target language use. The emphasis shifted to speaking and not writing, all teachers were to be native speakers, and teachers were to absolutely follow the textbook guidelines such that any student could start studying in one private school and later switch to another with no perceived difference. Whereas the Berlitz method was not utilized in public schools and universities, the direct method that emerged from it still dominates language study today.

The direct method developed into numerous approaches that can be roughly divided into two foci: form-focused and meaning-focused. Both share what Cook refers to as four pillars (2010, pp. 8-9). The first is monolingualism, that language “is predominantly monolingual” and that the goal is to prepare students to engage in situations that are themselves monolingual. The second is naturalism, that language learning is to proceed naturally by the same process whereby an infant learns but one language. The third is native-speakerism: the goal of language learning is to approximate the use and abilities of native speakers and, therefore, language examples must be authentic. And, the fourth is absolutism, that the direct method is the one true way to learn language. Given their focus on language in

context, at least in theory, both foci represent a shift in understandings of language as discourse.

Initial manifestations of the direct method conceive of language as a set of grammar rules to be learned and were, as a result, largely form-focused. Not unlike the grammar translation method, rules are presented in discrete points, and the examples used to illustrate them are mostly arbitrary and not derived from examples of language naturally occurring in use. A deductive process is utilized: rules are formulated first and then put into action through sentence transformations, filling in gaps, and substitution tables. As translation is outlawed, a main source of difficulty is how to teach the grammar in the target language, particularly at lower levels of instruction. A related concern involves how to do so in situations in which the students lack the metalanguage to talk about grammar, particularly when that metalanguage is also missing in their primary language.

Direct methods that are meaning-focused are most widely exemplified in communicative language teaching and the natural approach. Communicative language teaching advocates for the primacy of communication over accuracy, as that is considered the ultimate goal of language learning, and the natural approach is based on the belief that language can be acquired with no emphasis on form at all. Largely focusing on meaning, communicative language teaching misses considerations of meaning-making processes themselves as if the meaning exists outside of the learner in authentic texts and the study of the language provides access to these meanings. Both responded to what was perceived as the authoritarian and oppressive teacher-centeredness of earlier manifestations of the direct method by decentering this authority through student-centered activities. However, as Cook points out, “ironically this student-centeredness did not include any recognition of one of the main components of student identities – their own languages” (2010, p. 29).

Both foci, form-focused and meaning-focused, share common features. Both offer a discourse-based view of language that highlights the role of context. Both presuppose a problematic belief in the easy separation of the binaries of meaning-form and real-artificial; they simply switch the emphasis. Both manage linguistic diversity by maintaining strict boundaries around languages, native language vs. target language, such that it is presumed that speakers always communicate in monolingual environments and that translation doesn't happen in the real world. Both offered widespread access to language study that arose in the context of globalization, as people and goods move so do languages hence the need to develop communicative competence. Both focus on instrumental aspects of language use for those who need to survive in a new culture and language (migrants) and those who desire to and can travel (tourists).

Finally, both deny any role for translation in the language classroom. However, translation didn't disappear; it just went underground. In a 2012 study of 878 language teachers, for instance, Pym, Malmkjaer, and Gutiérrez (2013) found that most teachers surveyed reported not liking translation, yet they still used it frequently in the classroom, suggesting that its use has continued in secret and produces shame. It is striking that student use of machine translation to complete assignments similarly produces shame and, in many cases particularly given punitive policies around its use, is also done in secret (Hellmich & Vinall, forthcoming).

The Translational Turn

Translation as Mediation (Transfer of Meaning)

The 1980's saw a slow re-emergence of discussions of the use of translation in language classes—not in opposition to the direct method but in ways that recognized that it does not have to be antithetical to communicative language teaching and, in fact, could even be used as a communicative technique or activity (Randaccio, 2012). As Carreres and Noriega-Sánchez (2011) have argued, “the focus of reflection and research is now not so much on whether translation has a place in language teaching, but on how best to use it in the classroom” (Carreres & Noriega-Sánchez, 2011; see also Incalcaterra McLoughlin & Lertola, 2014). The multilingual turn explains some of the impetus for this translational turn—the recognition that most of the inhabitants of the world are not monolingual and do not operate in monolingual contexts and that classrooms themselves are not monolingual spaces. As Colina and Lafford have argued, with respect to the teaching of Spanish, translation offers “an improved ability to prepare students and to address a much more complex language learning situation created by issues such as globalization, and increased immigration” (2017, p. 110). In what follows we provide a brief summary of the primary arguments for this re-emergence.

Proponents of the use of translation argue that it is a naturally occurring activity in the real world (Grellet, 1991; Kiraly, 1995), it is “a communicative act that all speakers perform routinely within their own language” (Carreras & Noriega-Sánchez, 2011, pp. 292-293), and, due to increased mobility, “we are all constantly in contact with other languages; we are engaged in forms of mental translation, at least, and often in many modes of mediation” (Pym, 2017, p. 14). Given that translation is both a communicative and real-world activity, Carreras and Noriega-Sánchez go on to argue that “learners certainly benefit from contextualized, real-life translation tasks” (2011, p. 282). Stibbard (1998) argued that translation should be considered a “fifth skill,” one that, unlike Friedrich’s (1967) argument that as such it be separated from the teaching of the other skills, actually has the potential to integrate all four skills (see also Colina & Lafford, 2017). In fact, Danchev (1983) argued that even when they are explicitly told not to, language learners routinely translate from the target language into the first language anyway, suggesting that perhaps it is a natural and universal feature of language study. Finally, Malmkjaer (1998) argues that selecting equivalencies in translating requires the ability to relate two language systems to one another appropriately such that “the ability to move between languages should be therefore considered a natural language skill in its own right and not detrimental to competence in a foreign language” (Randaccio, 2012, p. 84).

In integrating translation into the CLT classroom, there is a corresponding shift between translation as an end product for readers who can't read a text in its original (grammar translation method) to translation as a means (both a linguistic and communicative activity) by which one can learn language(s). It is for this reason that Klaudy (2003) distinguishes between two types of translation. The first is ‘pedagogical translation’, which is instrumentally-focused because, “the translated text serves as a tool of improving the language learner’s foreign language proficiency” (Vermes, 2010, p. 83). The second is ‘real translation’ where the translated text is the goal of the process; the object is about access to information contained in the text (Vermes, 2010). There are numerous perceived benefits to using translation as a means: Danchev (1983) argues that it has the potential to help learners to monitor their code-switching; Machida (2011) argues that the act of translating “encourages their awareness of form and meaning in context and improves their reading and writings skills in SL/FL” (p. 740); and Beaven and Alvarez (2004) argue that since translation tasks require also negotiating between two cultures, students encounter other values, ideas, and concepts that require them

to reflect back on and revise their own, supporting the development of their intercultural competence (see also Elorza, 2008).

The grammar translation method fosters cross-lingual teaching because it involves crossing from one linguistic system to another in the search of equivalencies. The direct method fosters intra-lingual teaching, prohibiting the crossing of language boundaries because all that matters is communication in the target language. Both maintain fixed language boundaries, presuming that all operate in monolingual capsules. The re-emergence of the use of translation in communicative language classrooms marks a shift in understandings of the nature and role of translation in a globalized, multilingual world that is reflected in cross-lingual teaching that approaches translation as language mediation: “understood as various types of cross-linguistic activities that involve transfer of meaning from one language to another” (Colina & Lafford, 2017, p. 111). This understanding of translation was codified in the Common European Framework of References for Languages (Council of Europe, 2001):

The learner does not simply acquire two distinct, unrelated ways of acting and communicating. The language learner becomes plurilingual and develops interculturality. The linguistic and cultural competences in respect of each language are modified by knowledge of the other and contribute to intercultural awareness, skills and know-how. They enable the individual to develop an enriched, more complex personality and an enhanced capacity for further language learning and greater openness to new cultural experiences. Learners are also enabled to mediate, through interpretation and translation, between speakers of the two languages concerned who cannot communicate directly. (Council of Europe, 2001)

Unique to this resurgence of translation is the shift from focus on form (grammar translation method) to meaning. However, this shift still falls within what Pym (2017) has argued is a problematic paradigm of binarisms in which translation studies lost itself: the idea that there are only two ways to translate, sense-for-sense or word-for-word, what Nida (1978/1997) had identified as formal correspondence vs. dynamic equivalence. In other words, from this perspective, translation happens at the level of language or at the level of ideas.

Translation as Meaning Making: The “spacy emptiness” (Spivak)

Language is not everything. It is only a vital clue to where the self loses its boundaries. The ways in which rhetoric or figuration disrupt logic themselves point at the possibility of random contingency, beside language, around language. Such a dissemination cannot be under our control. Yet in translation, where meaning hops into the spacy emptiness between two named historical languages, we get perilously close to it (Spivak, 2004, p. 398).

To escape such binarisms and go beyond them, according to Pym (2017), is to explore and encourage “the full range of things that can be done in translation” (p. 13) and that starts with interrogating understandings of translation itself because ultimately translation is communication. This shift reflects Steiner’s argument, proposed much earlier, that the terms ‘communication,’ ‘understanding,’ and ‘translation’ are interchangeable because all understanding is an act of translation across times, spaces, and borders (Steiner, 1975). Pennycook (2008) adds: “it is possible to view all language use as a process of translation, thus

questioning the assumption that translation is a mapping of items from one code to another” (p. 40). Thus begins a radical shift in understandings of translation: from translation as transfer of meaning (mediation) to translation as the nature of language itself, its meaning making potential.

This shift coincides with the multicultural and multilingual turn in SLA that challenges the monolingual bias (May, 2012) and the emergence of the notion of translangual/transcultural competence, understood as the “ability to operate between languages” (MLA, 2007). The publication of the 2007 MLA report focused on the potentialities of translation, recentring it in this new landscape of language study: “translation is an ideal context for developing translangual and transcultural abilities as an organizing principle of the language curriculum” (2007). Kramsch and Huffmaster (2008) take up this call in the implementation of translation activities designed for a fourth semester German class. A primary learning objective is to explore one of the additional “things that can be done in translation” (Pym, 2017), that is, to negotiate the symbolic gap, understood as the gap between signifier and signified, “the arbitrary resources of the language and their non-arbitrary use in the translation process” (Kramsch & Huffmaster, 2008, p. 290). By incorporating this explicit reflection on the nature of language, “translation ceases to be one pedagogic activity among many, but comes to be seen as the very essence of meaning making and a privileged clue to the relation between language and power” (Kramsch & Huffmaster, 2008, p. 295).

The implications of understanding translation from this perspective go beyond the classroom and go beyond understanding translation as a means: “translation from this point of view is not so much a method of language teaching or an aspect of comparative literature but rather is a fundamental player on the global stage” (Pennycook, 2008, p. 40). In addition to positioning translation as a key to understanding communication and therefore central to the work of applied linguists, this understanding means that translation also happens when we speak the same language (Pennycook, 2008) as it also calls into question the boundaries between languages themselves (see Makoni & Pennycook, 2007). Translation is “a central aspect of social and global life that challenges the notion of languages and their discrete operations” (Pennycook, 2008, p. 41). Thus, Pennycook concludes, “if students are to enter the global traffic of meaning, translation needs to become central to what we do” (2008, p.33).

To understand this history of translation as it relates to language education—to speak translate—has required considering the role and purpose of language education situated against the changing backdrop of ideologies of monolingualism and multilingualism. The translational turn, where translation is understood as communication and meaning making, has the potential to challenge the monolingual bias as well as understandings of multilingualism as representing strict boundaries that delineate languages, their speakers, and the nation-states where they are spoken. To enter the global traffic in meaning through translation is to be able to communicate not in, across, or through another language, but between languages.

Machine Translation and the Global Traffic in Meaning

“When you translate you are part of the traffic” (Dasgupta, 2005)

In his introduction Poibeau (2017) situates machine translation squarely as a response to solving the problem of language diversity:

A significant number of thinkers, philosophers, and linguists- and, more recently, computer scientists, mathematicians, and engineers- have tackled the question of language diversity. Moreover, they have imagined theories and devices intended to solve the problems caused by this diversity. Since the advent of computers (after the Second World War), this research has materialized through the use of machine translation tools (Poibeau, 2017, p. 2)

From this perspective, language diversity is understood as a “question” that must be “tackled,” or managed, in order to solve the “problems” that it has caused. It is perhaps no surprise that explorations of the possibility of machine translation developed alongside the first computer programs in the aftermath of the Second World War. But, how has MT solved the problem of “diversity” and what is at stake in this solution?

Over time, machine translation has taken many forms. The oldest iteration, rule-based MT (e.g., Babelfish), required language rules (grammatical, syntactic, etc.) to be manually programmed into the software (Jiménez-Crespo, 2017; Qun & Xiaojun, 2015). The next iteration, statistical machine translation, relied on probabilistic statistical models that use algorithms to draw out correspondences between parallel texts (Le & Schuster, 2016; Qun & Xiaojun, 2015; Wu et al., 2016). The latest in MT approaches, deep learning, uses advances in machine learning to draw out patterns in raw data sets: rather than relying on pre-coded input or pre-written rules, deep learning software constructs (or *learns*) rules from the linguistic input itself (Lewis-Kraus, 2016; Poibeau, 2017).

This growing field of machine translation understands translation itself in a particular way:

Translation requires in-depth understanding of the text to be translated. Moreover, transposition into another language is a delicate and difficult process, even with news or technical texts. The aim of machine translation is not, of course, to address literature or poetry; rather, the idea is to give the most accurate translation of everyday texts (Poibeau, 2017, p. 4).

Translation from this perspective is not communication, and it is not meaning making; instead, it involves first understanding the texts’ meaning, which is wholly contained in the text itself, and transposing that meaning “accurately” into another language. MT eliminates the binarism that Pym criticized because it reduces it to one: language is a code, and the algorithm translates code to code. In contrast to the grammar translation method, where translation was used to gain access to the meaning contained in literary texts, the goal of machine translation is not to gain access to these texts, whose meaning is presumably too difficult for machines to translate accurately, but to decode everyday texts, which includes those that are spoken.

This perspective is reflected in the Google Translate App that was featured in the introduction. Machine translation is represented as a transparent process of transposing one word into another, independently of any considerations of context, identities, or power structures. Communication is one-way, and its goal is the fulfillment of a need or a desire by those who have the privilege of mobility, like the female cartoon character in the motorcycle taxi who needs to find a shortcut. These tourists have the additional privilege of having the power squarely “in their hands,” through their phones and the App, and at their immediate disposal. To enter this global traffic is to assume that the other person’s language will be

identifiable based on place and appearance, reifying one code—one state ideologies. The meaning that is being trafficked is that machine translation is itself the shortcut, a quick, easy, and efficient service that “lets you connect with the world around you no matter where in the world you are.” That connection is not based on communication across or through codes, but by letting computers do the work for you, thereby managing diversity without ever engaging with it.

In their article featured in this special issue, Urlaub and Dessen explain the possible implications of machine translation for language education: “[t]he service that this technology promises- and in the eyes of the users often fulfills- is the ability to communicate across languages without the efforts and resources necessary to invest years in language study” (p. 50). At a broad level, applied linguistics and language educators have a renewed imperative to interrogate the role and purpose of language study in this era of machine translation. This is particularly significant in light of some trends in communicative language teaching that have increasingly instrumentalized languages and that themselves manage diversity through textbook representations of service exchanges, such as tourist encounters (Kramsch & Vinall, 2015; see also MLA, 2007). From this perspective, for those students who decide not to take advanced courses, has language study itself been reduced to a service, to prepare students to request that a taxi driver find a shortcut or to order a meal that is not too spicy?

What then is role and purpose of machine translation in language study— will MT simply replace the service offered by language courses or is it possible to teach students to critically interact with MT? To respond to these questions requires that, instead of viewing MT as a threat to the profession, we must engage with it:

Online machine translation should be taught and used in class, as a valuable learning resource. If you do not do that, students will use it, but badly: they will continue to believe that it produces valid translations all the time, in a sad parody of the perennial pedagogical illusion that translation is really just one thing (Pym, 2017, p. 14).

To enter the global traffic in meaning, to learn to critically speak translate, is to focus on translation not as a service, on language not simply as a code, and on translation not as a search for equivalencies. Instead, it implies using MT to explore the “full range of things that can be done in translation” (Pym, 2017, p. 13).

Part of what might be done in translation is to explore the possibility of engaging with cultural and linguistic otherness and learning how to engage in meaning making processes. This requires us as language educators to ask how we can intervene to facilitate MT use that engages with diversity. On one level, this might involve using MT, as Huffmaster and Kramsch (2008) do with translation, to explore the symbolic gap by comparing a poem, students’ translations of a poem, and those produced by MT. At another, it might involve instructors bringing into the classroom their own multilingual and multicultural identities to help students to inhabit the “pause,” as one instructor, Amelia describes it (Vinall & Hellmich, 2021), to see “how the word tastes in your mouth” and “how does that sentence feel” (p. 108), and to explore the affective dimensions of language. Recognizing and exploring these gaps and pauses interrupts the efficiency and speed of technology, they reveal that translation is not a transparent process, and they allow for considerations of contexts, identities, and power structures.

All of the articles in this special issue take up this call to further explore how to reenvision language education in an era of machine translation and to explore the range of things that can be “done in translation.”

SCOPE AND SEQUENCE OF THIS SPECIAL ISSUE

The nine manuscripts in this special issue consider machine translation and language education from a range of different angles, including a sweeping literature review, a theoretical article, empirical articles, and practice-oriented articles. The manuscripts also consider a variety of contexts, from high school language education to university language education, and a range of languages, from French to Korean to Japanese to Spanish. They also offer significant interventions, or models, that facilitate the process of learning to speak translate, and we highlight the significant features of these models.

The first two manuscripts in this special issue provide a much-needed framework within which to situate research and practice involving language education and MT. Jolley and Maimone’s extensive literature review covers 30 years of previous investigations into the implications of MT for language learning and teaching. In addition to this chronological axis, they thematically organize their review through a framework of four common concerns, namely: How do language learners use MT?; What do instructors and learners think about MT tools?; How might MT affect language learning?; How should instructors respond to MT use by students? Gaps in the research that such a framework reveals include the need to further document the potential benefits of MT for language learning: while early insights suggest benefits of MT (e.g., metalinguistic knowledge, translation skills, and L2 writing), the authors point out that these benefits need to be further documented, most notably with respect to the development of analytical skills and to cognitive processes involved in language acquisition. Additionally, more work is needed to explore how MT use transforms the meaning of communicative competence.

This literature review reinforces current trends favoring the “integrate-educate” model over the “detect-react-prevent” approach, yet, as the authors argue, more work is needed to explore the implications of MT training both for instructors and for students. This special issue provides numerous innovative models that follow this “integrate-educate” approach and that help to respond to some of the gaps that are carved out by this literature review, specifically with regards to these implications (see next section for an overview).

While Jolley and Maimone are concerned with documenting the most frequently asked questions to date, Urlaub and Dussein prompt us as researchers and teachers to ask other, broader questions related to the impact of MT on the field, particularly looking towards the future. Using the concept of disruption and the parallel example of mathematics education, they highlight how the introduction of the pocket calculator prompted a rethinking of educational objectives from the development of basic arithmetic skills to problem solving through the development of mathematical thinking and human-machine collaboration. While the introduction of MT can similarly be considered a disruption in language education, it has not prompted this rethinking at any systemic level, which would be the precondition for strategic implementation of MT in the language classroom. More specifically, at one level, this rethinking would include training teachers and students to engage with MT in meaningful ways so that they develop “informed and nuanced perceptions” of it. At another level, this rethinking would also have to happen in the context of broader policy frameworks, as it did

in the case of the calculator, and they call on organizations such as ACTFL to heed this call. MT is transforming communication across languages, and the time is now for a “robust and open debate on the future of the field” because the danger is that “the technology will lead to reductionist perceptions of language among both students and teachers,” as showcased in the Google Translate advertisement that opened this introduction. They conclude with four scenarios designed to explore the implications of “real world” use of GT and make visible the potential implications of MT on human communication while simultaneously bringing to the fore the broader question of what is at stake? – this is about awareness, the next steps involve the development of “pragmatic approaches and materials”

The next two manuscripts in the special issue are empirical in nature, offering new research-based findings to our understanding of how machine translation intersects and interacts with language education. Merschel and Munné address a significant gap in past machine translation research: the voices of secondary-level world language educators. They distributed a survey to 6th-12th grade instructors in order to document their perceptions of MT and how they engage students on the topic of MT; their disciplinary policies regarding MT use; and their observations of how students are using MT and any modifications of assignments or assessments implemented in response to these perceptions. Of note are the differences in perception on the future of language teaching between this group and previous studies of postsecondary educators (Clifford et al., 2013) because a higher number of secondary WL language instructors indicated that MT is a threat to the profession (26.3%). Despite this, they also conclude that many of these instructors are engaging with student use of MT in creative and inclusive ways that mirror trends in higher education, including rethinking the writing tasks, lowering assignment stakes, shifting emphasis to communicative ability and not accuracy, and increasing emphasis on reading and listening skills. Merschel and Munné propose additional strategies, survey and reflections, that will be highlighted in the next section “The Models.” One significant concern they raise that is not widely addressed are the restrictions in instructor autonomy to set policies and make disciplinary decisions in their own classrooms around student use of MT.

Xu explores what students do when they edit self-written texts at different proficiency levels in order to document possible differences in the types and scope of revisions as well as students’ perceptions of MT use. Their findings suggest important differences that may further support the design of interventions to support student use of MT across levels. Most notably, the 2 advanced-level learners used MT most frequently at the word level: they substitute words in one case to create a more formal writing style and in the other to target the accuracy of the use of particles. In both cases, their first drafts were largely error free as they both had sufficient mastery to choose appropriate vocabulary and to use correct language structures. While the other two students, one at an intermediate level and the other a novice level, used MT more at the sentence level, in the first case by comparing her own sentences with GT generated sentences and in the second with rephrasing and substituting larger chunks. However, the intermediate-level student had the linguistic knowledge to recompose and adapt the sentence structure provided by GT to reorganize her sentence while the novice-level student did not have this knowledge, resulting in increased errors. Thus, an important finding of this study is the importance of teaching students at lower levels how to create MT-friendly sentences so that they do not “get lost in translation.”

The Models

This special issue introduces multiple examples of “integrate-educate” models of how to incorporate MT into language education to support the development of student writing. Descriptions of each of the models are provided in Table 1. It is important to note that although the models were developed and implemented in a specific instructional context, all are adaptable to other languages and levels.

Table 1
Summary of Models

AUTHOR	CONTEXT	MODEL	MODEL HIGHLIGHTS
Merschel & Munné	All levels	Survey and reflection	The pedagogical implications of this study suggest ways to explore possible uses of MT in collaboration with students by talking about the writing process through: <ol style="list-style-type: none"> 1. Student surveys either online or for in-class discussion on how students use MT. 2. Student Reflections: After each assignment students respond to reflection questions in which they describe their online tool use in relationship to the writing challenges they faced.
Xu	4 th year Japanese class with four participants at different proficiency levels: 2 advanced-level; 1 intermediate-high; 1 novice-high	Editing of self-written texts through a 4-draft process	This study is an examination of the types and scopes of revisions at different proficiency levels across 4 drafts: <ol style="list-style-type: none"> 1. Draft 1: A self-written text in Japanese without the use of MT 2. Draft 2: Use MT to translate draft 1 into L1 3. Draft 3: Edit draft 2 and translate it back to Japanese using MT 4. Draft 4: Revise after individual meetings with the instructor Students submit a final draft.
Klekovkina & Denié-Higney	Intermediate level French 1. Advanced composition	Includes two models: 1) the use of back translation and other editing tools, and 2) the	1) A single class activity set demonstrates the limits of MT translation through backtranslation-from French to English back to French- and features additional electronic editorial tools, which together support the development

	2. Introduction to literature	use of reasoning maps	of creativity, writing styles, and voice. 2) As students read and debate a play, they use reasoning maps, including mind, concept, and argument maps, and role-playing in order to facilitate brainstorming, vocabulary building, creativity, and play while reducing irresponsible MT use.
Ryu, Kim, Park, Eum, Chun & Yang	Upper elementary Korean language course	GUMT: Guided Use of Machine Translation	GUMT features three phases: <i>Phase 1:</i> Train students to use GUMT, including a) pragmatic and grammar evaluation exercises, and b) the use of Google Image and News searches as corpus data to facilitate sociopragmatic decision-making. <i>Phase 2:</i> Students apply GUMT to writing activities and reflect on the process. <i>Phase 3:</i> Students receive feedback from the instructor on written work and in review sessions.
Pellet & Myers	Intermediate low (3 rd semester) French language course	Meta-translation feedback circuit using MT inserts	Guided translation activities, or MT inserts, are integrated into tasks. The activities are designed to facilitate students' interaction with MT by: 1) situating the outputs in their sociopragmatic context and in relationship to prior knowledge (situate); 2) helping students to analyze their referents (investigate); and 3) ensuring that students verify the appropriate fit between form and situated meaning (integrate).
Knowles	Beginning and intermediate online Spanish	ADAPT A: amend assignments D: discuss MT A: assess with MT in mind P: practice integrity T: train students to use MT	To limit the possibilities for MT use, assignments require students to integrate and identify specific grammar concepts and/or vocabulary from the unit with additional verb tense restrictions (with options for revisions). MT training is provided to support pronunciation and vocabulary choices. Discussion forums invite reflections and questions. The grading rubric includes criteria to assess identification and translation.

Tourmen & Hoffmann	Second semester French	An iterative and hands-on single class lesson plan	To develop a critical awareness of MT tools (benefits and limits) and provoke a change in representation a single class lesson was designed that included: <ol style="list-style-type: none"> 1. A discussion component so that students became aware of their uses of MT. 2. Two post-editing translation activities with strategically selected words and sentences.
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What are Some of the Key Features of the Models?

While Table 1 provides a descriptive summary of each of the individual models included in this special issue, here we highlight additional design features that stand out across models.

Proficiency Level Focus

Most of the models were designed for beginning and intermediate level language learners. This is perhaps no surprise given that, as Ryu and colleagues highlight, previous research on beliefs has documented that both students and instructors have doubts regarding the potential benefits of MT use at these lower proficiency levels given students' limited knowledge of the L2 grammar. These models make a significant contribution to finding ways to support these students as they learn how to use MT effectively while deepening their knowledge of the language. Unique features of the various models include using MT to support considerations of pragmalinguistic choices, in the context of the Korean honorifics system (Ryu et al) and sociopragmatic judgements (Ryu et al; Pellet & Myers; Knowles). In the case of the ADAPT model, requiring documentation of specific grammar aspects used in written assignments also potentially supports the development of students' metalinguistic knowledge, which, as Knowles suggests, can offer additional benefits for heritage language students. Tourmen and Hoffmann's post-editing translation activities purposely targeted polysemic French words and idiomatic expressions in order to highlight both the limitations of MT but also to facilitate students' awareness of the ambiguities of translation itself. Klekovkina and Denié-Higney's interventions involve students at a slightly higher level, intermediate courses, where knowledge of the language opens the possibility to highlight creativity and support deeper explorations of style and voice. To that end, they shift the emphasis from grammatical accuracy to comprehensibility, aiming to lessen over-use of MT while also deepening awareness of language learning processes themselves.

Student Voices

Throughout the articles, students' perspectives inform the interventions and their implementation as well as impact evaluations. Considerations of how and why students use MT (Knowles) as well as their beliefs regarding its reliability and efficacy vis-à-vis learning (Ryu et al) influence design features. The impact evaluation process documents student reactions to the models as well as changes in their beliefs around MT use through both pre- and post- survey instruments (Knowles) in addition to student reflections (Ryu et al.).

Examples of student production (Pellet & Myers) provide additional documentation of the applications of the models.

Documenting these student voices leads to important findings, which can be used to support further modifications in the models, inform their application to other instructional contexts, and guide future research. In the case of Ryu et al, one highlight from the surveys and reflections is that the GUMT model boosted students' confidence and their perception of improvements in their writing because they were able to compensate for their lack of L2 knowledge through the multiple sources and opportunities for feedback on MT use. As an important caveat, students continued to highlight concerns about MT's limitations with regards to speech styles and honorifics. Tourmen and Hoffman redesigned their lesson plan after implementing their pilot when they realized that students already had quite complex representations and uses of MT. In the case of Pellet and Myers, end-of-course surveys documented students' interest in speaking with their own voice, but also their keen awareness of the impact of linguistic accuracy on grades, leaving them in the bind of trying it on their own and getting the structure "wrong" and using MT and getting the structure "right" but potentially not knowing why.

Long-term Integration

The majority of the models extend beyond a single training session on MT strategies, and this integration into the curriculum, together with ample opportunities for reflection and discussion, provides continued support in the application of the strategies to improve MT use and to support learning. Pellet and Myers integrate the guided translation activities into the tasks as pop up boxes; Ryu et al incorporate the GUMT model into 5 writing assignments over the course of the semester; Klekovkina's students revise their reasoning maps as they move from their written work into a class debate to ensure that student continue to not rely on MT; Knowles uses the ADAPT model for formative writing and oral assignments, suggesting a less prescriptive adaptation for summative assignments; and Xu's participants spent an entire year working on their various drafts.

Instructor Roles

In the varied interventions, instructors' roles involve providing training and feedback on both students' language production as well as student use of MT. The majority of these models include activities that are scaffolded, and students receive instructor feedback and support, albeit in differing moments in their integration. In some cases, instructors' work is forefronted, for example, in the creation of the MT inserts (Pellet & Myers), which rely on identifying common problems, such as false cognates, that emerged in previous evaluations of the same tasks. This is also the case for Tourmen and Hoffman, who have strategically selected their examples for the post-editing exercises. In one particularly notable moment, the students were surprised to find out from the instructor how to translate one of the idiomatic expressions. In other cases, this work is more intensive towards the end, as in Ryu et al, where instructors provide their feedback after students have completed the process of using MT in addition to the Google News and Image searches and made their final lexical choices. In this case, students who completed the post-surveys indicated the importance of this feedback as it helped them build confidence in their use of these MT tools. Throughout the process of using these models, students have opportunities for discussions on their experiences with MT and they receive feedback on their written work (Knowles). An important additional feature is the

incorporation of student revision so that students can incorporate and learn from this feedback (Knowles). This process approach can also function to lower the stakes as students can learn from their errors while also improving their grades.

Assessments

With the new teaching practices introduced by these models in addition to accompanying shifts in curriculum and learning objectives, authors also highlight the need to create new and/or modify existing assessment strategies. Additionally, these new assessment strategies are postulated as a means of responding to students' concerns with grades, specifically accuracy, as a motivating factor to blindly use MT by recognizing and validating other aspects of language use. Modifications include recentering comprehensibility (Klekovkina & Denié-Higney) and adding or revising rubric criteria (Tourmen & Hoffmann; Pellet & Meyers; Knowles; Xu). Regarding the latter, Pellet and Myers advocate for the rubric criteria "student authorship and personal expression" in order to encourage students to "operate within their means and speak with their own voice." Modified grading rubrics are also a way to further encourage the use of strategies. For example, Knowles includes criteria for the identification of the required grammar and vocabulary from the unit as well as for translation, which includes penalties for the use of restricted verb forms (i.e, the use of the past tense when the instructions stipulate only present tense). Part of these changing approaches to assessment include a reorientation on process instead of product (Tourmen & Hoffman); in the case of Xu, this emphasis altered the grading policy as the interim drafts were not evaluated.

How Do these Models Support Student Engagement with MT?

Whereas all of the models demonstrate variations in terms of the mechanics of how students engage with MT, they all share a focus on altering students' perceived relationship to MT as a means of supporting its use and their learning. At the core of this shift is to move students away from blind MT use and/or overreliance on MT, so that they are not "mere consumers of online tools" (Pellet & Myers). The key features of the models highlighted in the above descriptions facilitate this shift, most notably in relationship to long term implementation, instructor roles, and assessment considerations. Here we highlight some additional considerations specifically related to this engagement and its implications.

Instructor Mediation

By integrating MT use into the classroom, instructors mediate students' relationships to MT in a way that is reflexive and dialogic. The need for this dialogue is further highlighted in the case of both Knowles' and Klekovkina's interventions as students expressed confusion and mistrust of this mediation given past experiences where instructors prohibited MT use; Ryu et al additionally document the mistrust students express regarding MT itself. In addition to assuage student mistrust, Klekovkina and Denié-Higney highlight an additional benefit, "the power of this interaction- the learner-machine-instructor triumvirate- is to understand and negotiate the terms under which learning will take place" (p. 118).

The emphasis on dialogue between the instructor, the students, and MT includes guided reflections on MT output to support learning and to support student engagement with language itself (Knowles). For Pellet and Myers, this negotiation happens through dialogue

and a feedback loop, one that they argue leads to “productive” student-teacher relationships, as opposed to ones that are based on mistrust. While Ryu et al document students’ continued ambivalent relationships to MT use, they also note that providing space for instructor feedback not only supports student confidence, but also provides new opportunities for learning, particularly in relationship to MT limitations. As they explain: “students seemed to value the instructors’ feedback, as they regarded it as enriching the explanations of cultural contexts in relation to students’ own writings” (p. 148). Merschel and Munné propose two strategies that are both designed to facilitate this dialogue between students and instructors: the use of surveys and reflections. Tourmen and Hoffman discovered that students had already built complex representations and epistemic beliefs on MT that they had developed before the hands-on class intervention, leading them to maneuver on their own competing goals: “achieving a certain task, like writing an assignment, while also working quickly, being efficient, achieving a good grade, and learning the language” (p. 245)

Student Agency

Through structured engagement with MT that is mediated by instructors, students gain confidence, as documented in Ryu et al; they have new opportunities for learning (Knowles), yet they also gain something else, as Kelovkina and Denié-Higney highlight:

if we want our students to learn the mystery of a new language and reclaim their agency without depending on a machine, we must establish an open communication and honest collaboration between the agents who give language its soul: students and instructors, aka human beings. (p. 119)

Students reclaim their agency as they learn strategies for MT use and gain critical awareness (Tourmen & Hoffman) as well as by developing awareness of language learning processes (Kelovkina & Denié-Higney). Pellet and Myers approach student interaction with MT as another point of meaning negotiation: as opposed to blindly accepting what MT produces, the MT outputs instead become another form of language input with which students interact as they learn to notice linguistic features, make hypotheses, and incorporate their choices in an informed way. In addition to supporting learning and a productive student-teacher relationship, the ultimate goal of this circuit is to promote student agency and voice. Merschel and Munné add to this discussion another important dimension, that of inviting students to participate in discussions of larger issues related to the ethics of technology use in education in order to “empower students to be more active agents in their learning” (p. 72).

Altered Representations of MT

In their findings, Ryu et al highlight their students’ continued concerns about MT’s limits with regards to speech styles and honorifics. As the authors point out, this may be due to students’ tendency to consider MT as an “answer key,” a quick and easy way to verify correct structures, which is complicated with regards to speech styles that indeed require additional pragmatic and contextual considerations and evaluation. They draw on Lee (2020) to suggest that instructors should help students to see MT as a “peer who can provide input to help with their language learning.” In a similar vein, Klekovkina and Denié-Higney hope that students come to see MT as a “virtual assistant” and Knowles hopes that students come to see MT as an “aid.” Tourmen and Hoffman’s approach aims to reframe MT as an object of critical reflection by building more complex mental representations, not MT has all of the answers

but how can it help me to learn. All of these representations, peer, assistant, or aid, affirm student agency as they engage in reflexive practices and interactions with MT outputs with the support of their instructors.

Areas of Additional Consideration

While the “integrate – educate” models presented in this special issue go a long way towards responding to Jolley and Maimone’s call to further explore and document the implications of MT training for students, they also point towards additional areas of consideration. Already highlighted are the need for impact evaluations with more participants as well as longitudinal work across semesters/years. It would also be worthwhile to document the implementation of these models with additional language pairings. The models are intended to support student engagement with MT that goes beyond its blind use or overuse, yet, the belief that students use it blindly or overuse it is largely based on past survey data and anecdotal experience (Hellmich & Vinall, 2021). There has been some initial work to document how students actually use MT using computer tracking (Hellmich, 2021; Hellmich & Vinall, forthcoming), yet more studies are needed to understand the strategies that students are already using so that models can potentially build on these. Additionally, an important consideration of student use of MT is agency, yet, the studies do not address questions of instructor agency. Past work (Vinall & Hellmich, 2021) has explored instructors’ MT metaphors to explore their identities and agency, and such explorations could be replicated with instructors as they integrate their own models. Finally, examining student beliefs vis-à-vis their learning needs to be supported by robust studies that are able to document this learning, not only at the level of language, but at the levels of the development of metalinguistic knowledge and translanguaging practices, which contribute to what Urlaub and Dessein describe as “language thinking.”

CONCLUSION

All of the articles in this special issue explore means to facilitate students’ critical interaction with MT that go beyond accepting it as an easy and efficient service that allows its users to “understand and communicate with people across 100 languages.” The various models invite students to engage with the complexities of language, communication, and translation by inhabiting the pauses, the unknown of the “spacy emptiness” between languages; in these moments, instructors also have the space to share their own cultural perspectives and lived experiences as multilingual and multicultural subjects. Some, particularly Urlaub and Dessein’s manuscript, also invite students to critically reflect on the limits of MT conceived of as a service as they consider four scenarios involving the use of online translators in the “real world.” In the first, reminiscent of the Google Translate commercial, Mr. Miller uses GT during his trip to Portugal, including to find a vegan dish on a menu. In another, a judge decides to use GT to conduct the hearing for Mr. Ibrahim, a Syrian man who is seeking asylum in Germany, when the certified translator does not arrive. While we are not privy to the outcome of this decision, it is clear that what is at stake in both instances occupies different scales and indexes very different power structures that put into question the limits and implications of MT.

Broader questions for the fields of applied and educational linguistics in this era of machine translation remain to be asked and answered at the level of language learning and in broader discussions of the impact of MT in society. To learn to critically speak translate

requires thinking about communication differently and imagining the possibilities of new meanings that could emerge about our own positionalities; our own understandings of the world and the labels we use to describe it; and our own relationships to each other and to larger power structures. With regards to facilitating this critical interaction with MT, we must (re)center our work on the following question: how can we facilitate explorations of the meaning making potential of translation and of MT that engage with cultural and linguistic otherness? Not doing so might mean that we, like MT, also run the risk of managing diversity without ever engaging with it.

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