

Integrating Machine Translation into Translator Training: Towards ‘Human Translator Competence’?

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This article proposes a re-thinking of translator competence in the face of the rapid and dramatic technologization of translation. Drawing on the concept of translator competence and the social constructive approach to translator training, the article aims to focus on a pathway to be followed in order to delineate a competence that exclusively pertains to the human translator who is supposed to compete/collaborate with the machine now and in the future. Such delineation would involve adding ‘human’ to ‘translator competence.’ With this aim, the article presents the results of a learning practice designed to integrate machine translation (MT) into translator training to help translation students raise their awareness of their ‘professional self-concept’ as human translators. On the basis of the results, the article suggests that it would be of help to integrate MT into translator training as early as possible with a focus on helping translation students raise their awareness of their existing and potential roles as human translators, whose roles will not be limited to post-editing and pre-editing and will include training MT systems, selecting and assessing training data and collaborating with MT developers as expert human translators. Moreover, the study argues that such awareness would also lead to a further awareness that students need to ‘learn to learn’ (i.e., to become lifelong learners) in order to continue to confront the unknown and unpredictable future challenges MT would pose and embrace the opportunities it would offer.

Keywords: machine translation; translator competence; human translator competence; human translation (meta-)competence; translator training; professional self-concept

1. Introduction

The human translator is increasingly challenged by technology in unprecedented ways, which has serious repercussions for translator training as well as the translation profession. It might not be wrong to say that the human translator does no longer assume the ‘leading role’ in translation settings increasingly shaped by technology. In particular, advancements in machine translation (MT) technology pose urgent-to-answer questions for students, researchers, trainers and practitioners of translation.

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One burning question is this: if the human translator is no longer the sole agent in the sphere of translation and shares agency with the machine, which turns the interaction between them into a “dance of agency” (Olohan 2011) and even a struggle for agency,¹ how shall we proceed, especially as translator trainers and researchers of translator training, in order to prepare translation students for the future?

A recent survey conducted by the author of the present article on the tension/interaction between the human and the machine and the innovative translator training approaches has found a perceived tension to be present and prevalent between the human and the machine. The results of the survey have further attested to the growing emphasis on the emerging need a) to re-define the activity of translation and who the translator is in the face of the technological transformation of the translation field and b) to integrate MT technologies into translator training (cf. Öner Bulut 2019).

The question of re-defining ‘who the (human) translator is’ is closely linked to the question of re-defining/thinking ‘what translator training covers/is assumed to cover’ in the age of machine translation. An innovative model of translator training reviewed in the above-cited survey and has inspired the present study is the one suggested by Stephen Doherty and Dorothy Kenny who have focused on designing and implementing a translator training model that empowers the human translator (Doherty and Kenny 2014; Kenny and Doherty 2014). The suggested model provides an example to seriously consider if, as translator trainers, we think that we have to work on training models that would keep the human translator’s agency² relevant by re-assessing translation competence (cf. Öner Bulut 2019).

Thus, considering the need to confront the challenges posed by the rapid and dramatic technologization of translation and the impact of machine translation on the activity of translation, the present article aims to propose a re-thinking of translator competence. Drawing on the concept of translator competence and the social constructive approach to translator education, it aims to focus on a pathway to be followed in order to delineate a competence that exclusively pertains to the human translator who is supposed to compete/collaborate with the machine now and in the future. To this end, the article presents

¹ For two recent studies focusing on agency and struggle for agency in the context of translation, see Ruokonen and Koskinen 2017 and Cadwell, O’Brien and Teixeira 2018.

² For a study on the discussion of a translator training approach to be employed in order to help translation students become aware of their subject position as translators and train them as “subjects,” see Öner Bulut 2018.

the results of a learning practice designed to integrate machine translation into translator training at an early stage in order to help students raise their awareness of their professional self-concept as human translators.

The study is structured as follows: Section 2 presents an overview of research on competence in the context of translation with a special emphasis on the distinction between translation competence and translator competence and offers a discussion on the innovative training models designed to integrate machine translation into translator training with a focus on the human aspect of translator competence. Section 3 is devoted to the design and implementation of the learning practice and the analysis of student commentaries written as part of the practice. Section 4 provides the discussion of the results of the learning practice. Conclusion and an assessment of future research directions concerning the integration of MT into translator training are covered in the last section.

2. Translation Competence vs. Translator Competence and the Human Aspect

Far from being uncontested, translation competence has been conceptualized in varying ways, indicating first and foremost that it is not a monolithic construct but one consisting of interrelated and interacting sub-competences (e.g. Akalın and Gündoğdu 2010; Balkul 2015; Bengi-Öner and İnce 1995; Birkan Baydan 2011, 2013; Ersoy and Balkul 2012; Esen-Eruz 2008; İnce and Bengi-Öner 2009; Kelly 2005, 2008; Kiraly 1995, 2000, 2004, 2013; Kurultay 1997; Neubert 2000; Öner 2013; PACTE 2003, 2005; Pym 2003; Schäffner and Adab 2000; Tosun, Akın and Şimşek 2015; Yazıcı 2007; Yücel 2007). Two multipartite models frequently referred to in the translator training literature is the translation competence model developed by PACTE, which comprises bilingual sub-competence, extra-linguistic sub-competence, instrumental sub-competence, knowledge about translation sub-competence and strategic sub-competence (2003; 2005, 610), and the categorization by Dorothy Kelly, who suggested a model of translation competence consisting of seven sub-competences: communicative and textual, cultural and intercultural, subject area, professional and instrumental, psycho-physiological or attitudinal, interpersonal and strategic (2005; 2008, 81).

What the present article is interested in with respect to literature on translation and competence is not translation competence per se but translator competence, which is a

relatively neglected construct compared to translation competence.³ A distinction between translation competence and translator competence has been made by Donald C. Kiraly (1995), suggesting that “[a] more appropriate objective of translation pedagogy might be translator competence rather than translation competence.” Kiraly explains the shift of emphasis involved as follows: “In choosing this term, emphasis is placed on the complex nature of the professional translator’s task and the nonlinguistic skills that are required” (16).

He states that “becoming a professional translator clearly entails more than learning specific skills that allow one to produce an acceptable target text in one language on the basis of a text written in another” and calls this “**translation** competence” (2000, 13; original emphasis). He also underlines that “such competence is not built up bit by bit through the accretion of knowledge, but creates itself through the translator’s embodied involvement (*habitus*) in actual translation experiences” (2013, 203). According to the author, “acquiring ‘**translator** competence’” additionally entails “joining a number of new communities such as the group of educated users of several languages, those conversant in specialized technical fields and proficient users of traditional tools and new technologies for professional interlingual communication purposes” (2000, 13; original emphasis).

The distinction Kiraly makes between translation competence and translator competence is closely linked with his delineation of a significant construct: “professional self-concept,”⁴ defined by the author as something needed by translators as “a profound awareness of their responsibility as active participants in a complex communicative process” (13) and as “the conceptualization of oneself as a professional translator” (15). Such emphasis on the ‘awareness’ aspect is further linked to Kiraly’s proposal of the highly influential social constructivist approach to translator education, which opposes the transmissionist, teacher-centered approach in favor of an approach that sees translator education “as a dynamic, interactive process based on learner empowerment” (17) and aims to help translation students

³ In a recent study titled “Studies on Translator and Interpreter Training: A Data-Driven Review of Journal Articles 2000–12,” Jackie Xiu Yan, Jun Pan and Honghua Wang (2015) have found out that “the majority (70%) of studies on ‘competence’ are about translation/interpretation competence, reflecting a general interest in the study of competence related to translation/interpreting skills development rather than translator/interpreter development” (271), which is worth considering.

⁴ It should be noted that the notion of ‘self-concept’ is also included in Dorothy Kelly’s definition of psychophysiological competence: “self-concept, self-confidence, attention/concentration, memory, initiative” (2008, 81).

“become competent, self-confident, autonomous professionals for today and **life-long learners for tomorrow**” (182; my emphasis).

Professional self-concept, translator competence and social constructivist translator education approach constitute the basis of the bipartite categorization adopted by Esra Birkan Baydan consisting of “translation meta-competence” and “translator competence,” defined respectively as “awareness of the nature of translation and responsibilities of the translator” and as “the translator’s positioning of his/her profession” (2011, 94; 2013, 104). Birkan Baydan’s categorization draws on the commonalities the author observed in her extensive critical review of the “research on both cognitive and socio-cultural aspects of translation and translator competencies.” “Translation meta-competence” is defined by Birkan Baydan as a meta-construct comprising subcategories of “problem solving and decision making, researching skills, textual knowledge and skills, area/subject knowledge and cultural/linguistic knowledge” (2013, 104).

The point of departure for Birkan Baydan’s (2011) conceptualization of “translator competence” is Kiraly’s notion of “professional self-concept,” which is interpreted by the author as “how one interprets, defines and positions his/her profession”⁵ (106) and regarded by her as crucial with respect to empowering translation trainees (107). “Translator competence” is further clarified by the author as “translator stance” (*çevirmen duruşu*), central to which is the respect for the profession as well as self-confidence and self-respect (102). Such theoretical positioning is applied by the author to the design of learning activities for the Introduction to Translation course with the aim of helping students raise their awareness of the translation profession and the responsibilities of the expert translator (Kiraly 2000 quoted in Birkan Baydan 2011, 113).

How the author highlights what “translation meta-competence” and “translator competence” entail as she concludes her research is significant for the present study:

Translation meta-competence is an awareness. . . . To translate is to produce a text that would provide the proper communication in a certain sociocultural context. No long list is needed prescribing the required skills and knowledge if a translator becomes aware of this. The concept meta-competence requires questioning statements such as “translator should have a good knowledge of both languages and cultures” and the skills and knowledge such as research, technology, subject matter knowledge prescribed in the lists of translation competence. **None of these can be complete as if**

⁵ All translations are mine unless otherwise stated.

in a closed loop. In this context, perhaps the very concept of competence is misleading as it implies an acquired and gained skill or knowledge. . . . In line with such an understanding, translator competence is about how the translator positions his/her profession in his/her mind. (Birkan Baydan 2011, 168–169; my emphasis)

Although the author does possibly not have in particular the consequences of ‘machine translation’ in her mind, her insightful claim that the skills and knowledge of a translator cannot be perceived to be complete “as if in a closed loop” is more than relevant in the face of the challenges arising from the dazzling advancements in MT technology. The same also holds true for the below proposal by Kiraly (2000), albeit formulated in another historical context:

With the changes in the translation profession in mind, it is time to reconsider the viability of conventional approaches for educating translators, which date back almost half a century, **when the translation profession was something altogether different from what it is today.** (14; my emphasis)

The question is this: is ‘now’ the time to ‘reconsider’ existing approaches to and definitions of translator competence in order to confront the transformation the translation profession has been undergoing and seems to continue to undergo as debates and research on the decentering (cf. Cadwell, O’Brien and Teixeira 2018) of the human subject continue?

If, nowadays, agency is shared between the human and the machine and the interaction between them is to be interpreted as a “dance of agency” (Olohan 2011) between the human translator and the machine as stated before (see Introduction; cf. Öner Bulut 2019), what repercussions does such a situation have for our conceptualization of translator competence and its application in translator training? Is competence also becoming a shared competence as the case in agency? These questions need to be considered if the human translator’s competence is interpreted to “evolve as to feature in a pool of technologically flavoured linguistic tasks” (Yuste 2005, 70) and if the future role of the human translator is anticipated to involve the tasks of pre-editing and post-editing and much more in the future.

A holistic training model that foregrounds the aim of empowering the human translator in the context of statistical machine translation (SMT) has been suggested by Dorothy Kenny and Stephen Doherty (2014), who focus on the identification of “the stages at which human translators might usefully intervene in the SMT process and the kinds of knowledge they need to possess in order to do so.” They developed an approach which “does not exclude **human translators** from any part of the process in which they could conceivably

participate” (285; my emphasis), which is “pro-active” and “holistic,” and “in which translators have ownership, critical understanding and a good deal of control” (290).

The authors explain that in their implementation of the learning practice within the designed syllabus, students were asked to train an SMT system, select training data, make “judgements about the quality of training data based on their own linguistic and translation expertise and on criteria such as authorship and homogeneity of data, file mark-up (condition of internal tags), etc.” (Doherty and Kenny 2014, 302), evaluate the MT output and provide “a typology of errors in translations produced by their engine, with a view to ascertaining whether there were any specific interventions they could make to eliminate some of these errors” (303). As a very significant dimension to their training model, the authors assessed “self-efficacy,” which is defined in the study as pertaining “to an individual’s—in this case the student translator’s—confidence in his or her ability to control his or her own thoughts, feelings and actions to produce a desired outcome in a given set of contexts” (Bandura 1986 quoted in Doherty and Kenny 2014, 304) and found out that the students’ self-efficacy levels increased (306).

Another holistic translator training approach that entails the incorporation of machine translation across the translation curriculum as a whole rather than into individual and isolated courses on translation technology has been proposed by Christopher D. Mellinger (2017). Interpreting the above-cited studies by Doherty and Kenny as “argu[ing] for translators to be empowered users of this technology, rather than serving solely as bastions of translation quality at the end of the translation process,” Mellinger states that his paper “extends this argument and proposes that post-editing and machine translation ought to be incorporated across the curriculum.” The author argues for the incorporation of terminology management, controlled authoring, post-editing and engine tuning into translation practice courses (281).

Mellinger’s proposal is significant in that it embraces machine translation and related activities as integral rather than marginal components of the translation curriculum. He suggests inclusion of machine translation in modules such as “translation practice, revision or writing courses,” which, in his view, would enable teachers of translation to “address both linguistic gaps and the previously-described **human aspects** that tend to be overlooked” (283; my emphasis).

The ‘human aspect’ is very obviously foregrounded in the approach of Kenny and Doherty (2014), who use the terms “human translator” and “professional human translator.” Their emphasis on this specific aspect is also reflected in the SMT syllabus they designed, in which a room is allocated to “[h]uman and professional issues in machine translation,” under the sub-heading “machine translation,” which are explained to be “ethics, payment, collaboration, **the role of the human translator**, translation workflows, etc.” (Doherty and Kenny 2014, 300; my emphasis).

Another recent study on the integration of MT into translator training to empower translation students and help them “familiarise themselves with and demystify NMT output and to become aware that, despite the hype about machine learning, that [*sic*] NMT output has many weaknesses as well as strengths” has been carried out by Joss Moorkens (2018, 376). Moorkens’ study is significant in terms of how the author positions MT-related skills within the frame of translation competence drawing on the claim by Federico Gaspari, Hala Almaghout and Stephen Doherty (2015), who “identified MT, TQA and post-editing as underrepresented skills in translator training programmes generally” (quoted in Moorkens 2018, 378). The author suggests that the exercise he describes in his study “incorporates each of these skills and is also intended to contribute towards the translator’s technological competence (EMT Network 2017) and instrumental competence (Hurtado Albir 2007)” (378).

Drawing on such an emphasis on the human aspect and the concern to empower the ‘human translator’—which might be interpreted to be necessitated by the forceful emergence of the machine as the ‘other’ agent of translation—together with the above-discussed, open-ended nature of translation skills and knowledge (translation meta-competence) and translator competence and the notion of professional self-concept, defined, in the context of translation, as “the conceptualization of oneself as a professional translator” (Király 2000, 15) and as “how the translator positions his/her profession in his/her mind” and further as “translator stance,” which centers around “respect for the profession, self-confidence and self-respect” (Birkan Baydan 2011, 102), the present study suggests that a reworking of translator training models and approaches might be required in order to preserve and/or re-position the human translator’s agency. Questioning whether it would be of help to add ‘human’—albeit ironically, because such an addition implies the decentering of the human agent in this specific context—to ‘translator competence’ might be a point to start. And it is this starting

point that underpins the design and implementation of the learning practice which is reported on in the present article and to the discussion of which the rest of the paper is devoted.

3. Integrating Machine Translation into Translator Training: Design and Implementation of the Learning Practice and Analysis of Student Commentaries

The learning practice designed to integrate machine translation into translator training was conducted in the course titled Translation-Oriented Textual Analysis II during the spring semester of the academic year 2018–2019 at the Translation and Interpreting Degree Program at Istanbul Arel University, Turkey. The course was attended by the students in the spring term of the first year of their four-year education and was the continuation of Translation-Oriented Textual Analysis I,⁶ which was attended by the students in the fall term and in which the students were, through practice, introduced to “skopos, translation brief, commissioner, target audience, text type, text function and translation equivalence” within a functional approach to translation (cf. Öner Bulut 2018, 25). The in-class and out of class exercises conducted in the fall term (2018–2019) included analyzing and translating various types and varieties of texts and writing commentaries, regarded as effective tools to be utilized to help translation students raise their awareness of the active role they play in translation processes (cf. Birkan Baydan 2011; Presas 2012; Öner Bulut 2018). No machine translation related activity was carried out in the fall term.

⁶ The students attending the courses titled Translation-Oriented Textual Analysis I and Translation-Oriented Textual Analysis II are expected to obtain learning outcomes consisting of knowledge, skills and competence. Upon completion of the two courses, the students are expected to be able to define the basic terms and concepts of Translation Studies; determine text types; define the basic principles of translation-oriented text analysis; recognize the significance of the relationship between text type and translation (knowledge); deploy translation strategies appropriate for the type of the source text and the target text; use the techniques of translation-oriented text analysis; use the basic terms and concepts of Translation Studies while conducting translation-oriented text analysis; conduct translation-oriented term and parallel text research (skill); recognize the linguistic, cultural and social factors and constraints that inform translation process; start to develop skills appropriate for the global translation services sector considering the contemporary status of translation in Turkey and abroad (field-based competence) for Translation-Oriented Textual Analysis I and identify the features of texts in different fields of expertise; define the various types of translation equivalence; define the basic principles of descriptive translation assessment (knowledge); analyze texts in different fields of expertise for the purpose of translation; establish the relationship between translation-oriented text analysis and translation equivalence; perform descriptive translation assessment at a basic level (knowledge); recognize the linguistic, cultural and social factors and constraints that inform translation process; start to develop skills appropriate for the global translation services sector considering the contemporary status of translation in Turkey and abroad (field-based competence) for Translation-Oriented Textual Analysis II.

Machine translation was integrated into the course in the spring term (2018–2019). In a six-week period, the students first translated three texts, from English into Turkish, by themselves and then ran them through MT engines⁷ and wrote commentaries⁸ on the raw MT output, which allowed them to compare their human translation output with the MT output. Two weeks were allocated for each source text. In the first week, the students were asked to come to the class having translated the source text and having written a commentary on their translation-oriented text-analysis and research processes, in which they explained how they analyzed the source text, and an in-class discussion was held focusing on their analysis and translation of the text. For the following week, the students were asked to come to the class having run the source text through an MT engine they preferred and having written a commentary, this time on their observations of the raw MT output. The three texts selected for the practice were an online quiz titled “How Self-Compassionate Are You?” (Parker-Pope 2019) (ST 1), a wikiHow text titled “How to Be Classy” (wikiHow 2019) (ST 2) and the essay titled “The Name is Mine” (Quindlen 1987) (ST 3).⁹

The students were not asked to pre-edit the source text or post-edit the raw MT output for two specific reasons: First, the primary focus of the course Translation-Oriented Textual Analysis II was on helping students develop not the translation skills and knowledge per se but translation-oriented text analysis skills and knowledge (i.e., “textual competence”), regarded as “developing awareness and skills in source text comprehension and analysis, which leads to meaningful text production in the target language” (Birkan Baydan 2019, 53–54). Second, the aims underlying the design and the implementation of the learning practice were introducing the students to MT, helping them “demystify” MT (cf. Moorkens 2018) and raising their awareness of their professional self-concept as ‘human’ translators by encouraging them to simultaneously reflect on machine translation as well as their ‘human’ translations in critical and self-reflexive ways.

⁷ Freely available online MT engines were used by the students. The engines used include Google Translate, Bing Translator and Yandex Translate. The students were not asked to make a comparison of the performances of these three engines, which is beyond the limits of the present study.

⁸ The students were not guided by specific questions with the aim of encouraging them to feel free to express their opinions in the commentaries they wrote.

⁹ Non-technical texts were intentionally selected for the learning practice on the grounds of the pre-assumption that MT engines yield better outcomes in technical texts compared to non-technical texts (cf. Calude 2003). For a recent research on the suitability of NMT for different text types, see Gröhn 2019.

The results of the learning practice are discussed in what follows through the analysis of the selected¹⁰ three sets of commentaries¹¹ written by the students for the machine translation of each source text, following the chronological order of the exercises in a way to identify the link, if there is any, between the specific source text and how students comment on its translation made by the machine.

3.1 Analysis of Student Commentaries on the Machine Translation of ST 1

In his commentary, Student 1 expressed his surprise that Google Translate had translated the large part of the text almost flawlessly, yet he also observed that the engine was “incompetent” regarding the choice of words which, according to him, stemmed from the inability of the machine to recognize context. The student further expressed how frightened he was at first when he noticed that the machine translated the text so well and then how he realized that the machine “would not be so lucky in literary translation” since it “would make mistakes¹² and could not fully reflect the emotion” when it comes to the translation of “complicated and artistic language.” Interestingly, the student added that his inferences were “valid just for now” and underlined the future possibility of the replacement of the human translator by the machine. How the student expressed his experience of the specific task he completed in the concluding paragraph of the commentary reveals his perception of the impact of machine translation on the translation profession:

Finally, this was an interesting experience for me to realize what we are going to tackle with. Although it looks like our profession is getting easier with the help of machines, **we are going to try harder to be more competent than machines**, and this is not an easy deal. Machine translation is both **a collaborator and rival**, so a translator needs to be **more proficient and skilled**.¹³ (Commentary by Student 1; my emphasis)

¹⁰ For analysis, the commentaries identified to be most representative by the author of the study have been selected. In total, 15 commentaries from 10 students (who are numbered from 1 to 10) are analyzed in this part of the study. Three commentaries belong to Student 1 and Student 2, two commentaries to Student 3 and the rest of the commentaries to Students 4 to 10.

¹¹ The translations of the students and the machine translations are not discussed in the analysis part of the study as the study focuses on ‘how the students perceive/comment on machine translation’ rather than ‘how the students and the machines translate.’

¹² The students used “mistakes” and “errors” interchangeably in the commentaries.

¹³ The students wrote commentaries in English. The statements were not altered or revised except the correction of minor grammar and spelling mistakes.

In the commentary written by Student 2, a more negative attitude towards the machine is observed. Giving examples from the MT output of the source text which illustrate the errors concerning specifically accuracy, the student emphasized how “unnatural” the language of the MT output would sound for the Turkish-speaking target audience and expressed her opinion that “machine translation needs professional and well-educated human translators” who should have “a full command of the source and target languages,” and the machine “cannot be successful on texts relating to emotions” and “cannot be completely true without human intervention.”

The commentary written by Student 3 provides a comparison of the mistakes made by the student in her own translation with the ones she identified in the translation of the machine (Google Translate) related to word choice, grammar and idiomatic use of language. In the concluding paragraph, the student stated that “machine translation could be successful” with one reservation concerning “semantic shift” and thus argued that “the best thing that can provide the link between the source text and the target text in translation is the human.”

In her commentary, Student 4 compared three MT engines (Google Translate, Yandex Translate and Bing Translator). According to the student, the output from Google Translate was “appropriate” except some errors related to word choice, consistent use of tense, punctuation and capitalization. As for the output from Yandex Translate, the student mentioned instances of mistranslation, improper use of tense and word choices which illustrated that the machine had chosen the “first dictionary meaning of the word,” which resulted in meaningless sentences, according to the student. The output from Bing Translate was also criticized by the student for including mistranslations, inconsistent use of terms and words and errors concerning syntax, capitalization and additions. At the end of her commentary, the student mentioned the similarities between the “mistakes” she had made in her translation and the ones in the translations of the engines in terms of word choices, expressing that she realized why the instructor of the course does “not understand” her translations at times.

In his commentary, Student 5 focused on both the pros and cons of machine translation. According to the student, although “the way . . . Google Translate follows is so similar to a human translation,” it “does not care about the connotations and the words’ intended meaning,” which can lead to confusion. How the student viewed existing

deficiencies of machine translation on one hand and the potential future improvements on the other is significant:

As you can see, words have more than one meaning. For instance, the word “balanced” has numerous meanings. A machine never doubts whether it is translated suitably or not. Therefore, you need a human to analyze it. Humans always think **creatively** and **effectively**. In other words, they are **independent**. Actually, while humans are translating something, they use their ability to distinguish. Machine’s these kinds of abilities are more **finite** than humans. For this reason, human translation is always ahead of machine translation. . . . All in all, if the machine’s linguistic skills are improved, **they can get ahead** of humans. Thus, **human translation may be functionless in the future**. (Commentary by Student 5; my emphasis)

In her commentary, Student 6 focused on the “mistakes” of the machine translation and argued that human’s correction is needed because the machines translate “words as they are.” In the student’s view, “translation is not this,” and “translation needs a process, research and translating meaningfully.” According to her, “biggest failure” of the machine translation programs is that “they translate words with their first meaning,” which does not work in all cases since a word has a lot of meanings.

In his commentary, Student 7 displayed a highly positive attitude toward machine translation stating that he was “quite impressed with the accuracy of the translation.” After explaining what exactly impressed him, it is noteworthy that the student also made a reservation concerning the use of raw MT output:

One of the things I was most **impressed** about was the way it [the machine] managed to obey the rules of the Turkish language (most of the time) and the way it created sentences that made sense. After translating the text by hand last week, I **can definitely see how this could speed the translation process up considerably**. This research has shown me how post-editing saves a lot of time in this line of work. Still, left without **human intervention**, this translated quiz has the potential to confuse the user which could lead to compromised results. (Commentary by Student 7; my emphasis)

3.2 Analysis of Student Commentaries on the Machine Translation of ST 2

Student 1 divided his commentary into four sub-headings: “translation of the word ‘classy,’” “translation of idioms,” “sentence length” and “word choices.” The student was very critical of the machine translation concerning the translation of idioms and word choices, telling that the machine “comes up with weird translations” of idioms and “uses the most common words and does not try to choose the most appropriate one.” The student also

underlined his observation that the machine “does not take the whole text as a unit, focusing on sentences.” As for sentence length, the student observed that in short and simple sentences the machine “has a high success rate,” and this rate falls as the sentences get “complex and longer.” The student concluded his commentary by telling that he will try not to repeat the same mistakes as the machine.

In the commentary written by Student 2, who was highly critical of the machine translation, inconsistency emerged as a problem observed in the translation of the machine. The student told that the machine translated the English pronoun ‘you’ as ‘*sen*’ (informal) and ‘*siz*’ (formal) into Turkish inconsistently throughout the translation, which, according to the student, resulted in a translation that lacked “integrity of style.”

The commentary by Student 8 also focused on the “mistakes” she found in the machine translation specifically related to “word choice.” However, the commentary revealed that the student predicts a future in which the human translator should be prepared to work with the machine. She expressed what she thinks the translation trainees should do as follows: “Nowadays, as automation is very common and it increases day by day, we need to know where machines have difficulty translating.” Yet, the student concludes by arguing that “no machine brain can be like a human brain” and identifies the following requirements for the production of “appropriate translation” by the machine: “[I]t is necessary to know a lot of things like **text analysis**, the relationship of words with each other, the relationship of sentences with each other and the structure of words” (Commentary by Student 8; my emphasis).

Student 9 was critical of the “mistakes” in the machine translation related to “word choice,” inconsistency and the translation of idioms, which, according to him, “most likely” stems from the fact that “the machine has no consciousness to correctly translate idioms.” Interestingly, the student observed that one of the problems the machine “often” encounters is repetitions, which, according to him, “can be caused by badly written source texts.” Moreover, the student concluded his commentary by suggesting a solution for the improvement of machine translation: “Overall MT is making the same type of mistakes over and over again, to prevent this there must be more input from the language users to the MT.”

3.3 Analysis of Student Commentaries on the Machine Translation of ST 3

In his commentary, Student 1 explained his views of the achievements and failures of the machine translation. Although he told that “there are some perfectly translated sentences” in the machine translation, he added that he had identified these sentences to be “simple and regular” ones after his analysis. How the student assessed the overall performance of the machine translation is interesting. He argued that the errors he discussed in the commentary make the machine translation “unsuccessful,” adding also that he could not have expected “an outcome better than this” “due to the machine’s lack of knowledge about brief, skopos and context.”

In her commentary, Student 2 offered a highly negative attitude towards the machine translation due to the high number of “meaningless” sentences in the translation. The following analysis of the student concerning the stylistic features of the source text and the translation reveals how a student’s expectations from the machine might vary depending on the text type: “Another point I want to mention is that the text lost its **tone** and the **chat atmosphere** between the author and the reader and also its **fluency**” (Commentary by Student 2; my emphasis).

Student 10 explained how the machine produces grammatically wrong and “meaningless” translations when it comes to translating long and complex sentences in her commentary. Yet, what is especially significant in her account is the emphasis she puts on the intended effect of the source text and that of the machine translation. She tells that the machine translation does not “evoke the same message and emotions” in the target audience, which illustrates, in a way similar to the commentary by Student 2, how the focus of a student is affected by the text type.

The commentary written by Student 3 is the third example showing the relationship between the focus of a student’s assessment of machine translation and the type of the text. Referring to the concept of ‘equivalence,’ the student evaluated the machine translation in terms of the intended effect and target audience:

To sum up, there are structural errors and semantic errors in machine translation. For this reason, the reader of the translated text cannot understand what the main message is. In our last lesson, we defined what **equivalence** is. As we know, equivalence is creating on the reader of the target text the same effect as that of the source text created on the reader of the source text. In this context, machine translation cannot

provide the same effect on the **target audience**. (Commentary by Student 3; my emphasis)

4. Discussion: Towards ‘Human Translator Competence’?

First and foremost, the analysis conducted above reveals that positive as well as negative perceptions of machine translation can be observed in the student commentaries. Consciously or unconsciously, majority of the students engaged in a comparison between human translation and machine translation and the human translator and the machine, personifying the machine and assigning it agency as they mention the machine’s “incompetence,” “finite abilities,” “inability” to recognize context, “skills” to be improved and lack of “consciousness.” Somewhat of a tension (cf. Öner Bulut 2019) can be observed in most of the commentaries along with a struggle to preserve or restore hope about the human translator’s survival in the future. The co-presence of fear and hope becomes explicit as the students talk about the future possibility of “the replacement of the human translator by the machine” but at the same time about the significance of the human translator’s “creativity,” the remaining necessity of “human intervention” and “professional and well-educated human translators,” and as they define the machine as both “collaborator and rival.” This further attests to the emotional dimension (cf. Ruokonen and Koskinen 2017) of the interaction between the human and the machine.

One other, not unrelated, observation concerns the way some of the students articulated their inferences about their future as human translators, as exemplified in the commentary of the student who tells that they, as human translators, “are going to try harder to be more competent than machines,” which shows that the learning practice inspired a kind of self-reflection. Evidence of self-reflection and even some degree of self-criticism is also manifest in the commentary of the student who compared her own “mistakes” and the “mistakes” of the machine and explained that she “realized why the instructor of the course does ‘not understand’ her translations at times,” which can be interpreted as a strengthening of the student’s self-awareness concerning her own translation “mistakes.” On the other hand, the statement of the student who believes that “the human translator should be prepared to work with the machine” in the future and thus the human translators “need to know where machines have difficulty translating” shows an awareness of the future co-existence of the human and the machine.

The analysis also indicates that most of the students are aware of the pros of machine translation as well as its cons and that machine translation is not tried to be ignored and/or pushed aside by most of them despite the frequency of negative comments on the “mistakes/errors” they identified in the raw MT outputs concerning accuracy, word choice, idiomatic language use, grammar, spelling, punctuation and additions, especially in the commentaries written for ST 1 and ST 2.

Another finding, which is specifically related to the relationship between text type and the content of the students’ commentaries, is that what the students found “problematic” in the machine translation changed depending on the text type and the unique features of the text translated by the machine. Accordingly, “intended effect,” “tone” and “stylistic features” became points of focus in the commentaries on the machine translation of ST 3, a text with peculiar stylistic features, while the commentaries on the machine translations of ST 1 and ST 2, which can be broadly categorized as texts without peculiar stylistic features, frequently focused on mistakes/errors. It is also noteworthy that the commentaries written for the third and final text (ST 3) display increased degrees of clarity of argumentation, even of self-confidence and of an awareness about “where to look/focus” while assessing machine translation, which may be associated with an increased level of familiarization with and demystification (cf. Moorkens 2018) of machine translation, which is observed in the commentaries that identify the relationship between MT’s success rate and sentence length and especially in the commentaries written by Student 1 as the “fright” in his first commentary was replaced by a calmer assessment of the “achievements and failures” of the machine in the third commentary he wrote.

The variation in the content of the commentaries also displays that the students were able to deploy their translation-oriented text analysis skills while commenting on machine translation and put their theoretical knowledge on the relationship between text type and translation strategies into practice in a challenging environment (i.e., while commenting on and assessing texts produced by the machines), which is also observed in the commentaries written by the students who refer to/utilize terms and concepts such as “brief,” “skopos” and “context.” Such an application of theoretical knowledge might be suggested to be significant especially in relation to “declarative knowledge” (Ulyrich 1996 quoted in Birkan Baydan

2011) besides showing the internalization of theoretical knowledge and transfer of skills on the part of the students.

It might be argued that the learning practice served the achievement of a twofold aim: a) introducing/familiarizing students to/with MT and in so doing, b) helping students conceptualize and position themselves not as translators but as ‘human’ translators. It might be further argued that the students started to develop a self-awareness, a professional self-concept as ‘human’ translators.

Consequently, in the face of the rapid and dramatic technologization of translation and drawing on the above observations and considerations, the present article proposes a re-thinking of (translator) competence with a focus on the human aspect and suggests the critical consideration of the emergence of ‘human translator competence’ as a novel construct of translator training (research), which also suggests that the interaction between the human translator and the machine/technology might not be limited to the sub-competences such as “instrumental competence” (Hurtado Albir 2007 quoted in Moorkens 2018; PACTE 2005), “professional and instrumental competence” (Kelly 2005) or “technological competence” (EMT Network 2017 quoted in Moorkens 2018) and might, with a whole new outlook, further lead to the emergence of ‘human translation (meta-)competence.’

The terms ‘human translator competence’ and ‘human translation (meta-) competence’ suggested in the present study, however, clearly shall not imply the annulment of what has been done and achieved in translation pedagogy so far. Yet, it implies re-thinking, expanding and re-positioning the ‘traditional’ invaluable knowledge, skills¹⁴ and hence competence of the human agents of translation through a kind of SWOT analysis and the investigation of innovative methods and approaches of training.

5. Conclusion: Future Directions

It is no secret that the prevalence and quality of machine translation and machine agency will continue to increase (and what is more, possibly in unexpected ways and

¹⁴ In a recent study, Anthony Pym (2019) draws attention to “automation-resistant skills” of human translators and how they “might obtain appropriate social rewards” (14) for these skills following a discussion on “what is new in neural machine translation and thus what kind of skills it might replace” (2). Drawing on Justa Holz-Mänttari’s definition of “the expertise of the translator, their prime knowledge base and field of mastery” as “interlingual communication,” Pym suggests that “[i]f we do not know the languages, and know them extremely well, and know the many ways they can be mapped onto each other and used to effect in specific situations, then we have no basis for everything else we can offer” (14).

directions). This puts us, as translator trainers and translator training researchers, in somewhat of a position/situation where we try to find a way to ‘train’ the students for the future and help them develop professional self-concept as human translators; however, “nobody knows **exactly** what needs to be learned” (Engeström and Sannino 2010 quoted in Doherty and Kenny 2014, 296; my emphasis). What we do know, however, is that a paradigm shift is more than likely, as voiced in 2012 by Sharon O’Brien who perceives “the increasing technologisation of the profession” not as “a threat, but an opportunity to expand skill sets and take on new roles” (22).

Under such circumstances, the present study suggests that it would be of help to integrate machine translation into translator training as early as possible with a focus on helping translation students raise their awareness of their existing and potential roles as the human agents, as ‘human’ translators, whose roles will not be limited to post-editing and pre-editing and will include training MT systems, selecting and assessing training data and collaborating with MT developers as expert human translators. Such awareness would also lead to a further awareness that students need to ‘learn to learn’ (i.e., to become lifelong learners) in order to continue to confront the challenges MT would pose and embrace the opportunities it would offer. Thus, designing and implementing training practices that focus on encouraging students to ‘learn to learn’ and on helping them become life-long learners to face the unknown and unpredictable future challenges gain critical significance.

In the specific context of exploring learning activities with the aim of integrating MT into translator training, social constructivist approach and collaborative learning advocated by Kiraly gain unprecedented relevance. As has never been, the teacher will certainly not be “a fountain of truth” (Haro-Soler and Kiraly 2019, 266) as he/she attempts to integrate MT into translator training. And collaborative learning would effectively help the design and implementation of MT-related learning activities, especially the ones that target helping students develop professional self-concept as human translators. Through collaborative learning (Birkan Baydan and Karadağ 2014; Haro-Soler and Kiraly 2019; Kiraly 2000), it would be possible also for the teacher ‘to learn’ and ‘facilitate’ knowledge construction together with the students, which happened to be the case also in the teaching practice reported on in the present article.

How Maria del Mar Haro-Soler and Don Kiraly (2019) evaluate the potential use of the social constructivist approach in the future in a recent study they conducted “to investigate constructs [self-confidence, self-esteem, self-efficacy (beliefs) and self-concept] related to the translator’s psychological ‘self’” through the collaboration of “teacher-researchers, student-researchers and student-subjects” (255) is insightful:

But today, as **machine translation** and other technological advances play an ever-increasing role in the translation professions, **some may question the future function (and even the very necessity) of translator education, and hence of translator educators**. Perhaps mere ‘training’ in the use of machine translation and other translator’s tools (*techne* in Aristotelian terms) is all that will be required in future. However, in line with our social constructivist view of learning, we defend the assumption that education in a broad sense—including the acquisition of knowledge of translation theory (*episteme*) and the development of practical wisdom (*phronesis*)—remains an essential task of Translation Studies departments—in addition to providing ‘training.’ We will attempt to show how the research project reported on here may help shed some light on how the social constructivist approach we have adopted thus far can be enhanced to **reposition multi-faceted human translators—and translator educators**—in the 21st century translator education. (257; my emphasis)

The emphasis laid on the potential impact of MT on the future of ‘translator education’¹⁵ and the relevance of social constructivist approach in repositioning ‘translator educators’ as well as ‘multi-faceted human translators’ are worth serious consideration as a future research direction which would focus on translator educators’ beliefs¹⁶ about the integration of MT into translator training and about ‘human translator competence’ and which would employ “the interwoven process of learning, teaching and doing research” “as a strategy for (self-)educating the educators themselves” (Massey, Kiraly and Ehrensberger-Dow 2019, 213).

Further research and contemplation are definitely needed to develop innovative learning approaches and practices with the aim of ascertaining/expanding the skills, knowledge and hence competence of human translators and preparing them for the future roles they would take on, as the human experts, including but not limited to pre-editing, post-

¹⁵ The apt distinction made between the terms ‘trainer’ and ‘training’ and ‘translator educators’ and ‘translator education’ on the grounds that the “complex set of educational roles” that “teachers of translation should fulfill” are not “adequately captured” by the terms ‘trainer’ and ‘training’ (Massey, Kiraly and Ehrensberger-Dow 2019, 213) is worth serious consideration. In the present study, however, the terms ‘trainer’ and ‘training’ have been used only because they are common terminology.

¹⁶ For a recent research on translator trainers’ beliefs about translator competence and training practices and educator competences, see Wu, Zhang and Wei 2019.

editing and training of MT systems. This is even so if we seriously consider the potential outcomes of computer scientists’ ongoing research activities that target enhancing the “translation performance and **competence**” (Schütz 2008, 448; my emphasis) of MT systems, which implies the very possibility that competence will become a construct shared between the human and the machine in the context of translation.

References

- Akalın, Rahman, and Mehmet Gündoğdu. 2010. “Akademik Çeviri Eğitiminin Temel İlkeleri Üzerine Düşünceler: Uygulanan Ders İzlemleri Bağlamında Hedefler ve Beklentiler.” [Views on the basic principles of academic translation education: Goals and expectations from the point of applied curricula.] *Mersin University Journal of the Faculty of Education* 6 (1): 79–93. <https://dergipark.org.tr/tr/download/article-file/160763>.
- Balkul, Halil İbrahim. 2015. “Türkiye’de Akademik Çeviri Eğitiminde Çeviri Teknolojilerinin Yerinin Sorgulanması: Müfredat Analizi ve Öğretim Elemanlarının Konuya İlişkin Görüşleri Üzerinden Bir İnceleme.” [Questioning the place of translation technologies in Turkish academic translation education: An inquiry based on curriculum analysis and opinions of academics related to the topic.] PhD diss., Sakarya University.
- Bengi-Öner, Işın, and Ülker İnce. 1995. “Çeviri Eğitiminde Kaynak Metni Yorumlamaya ve Çeviri Metni Oluşturmaya Yönelik Yöntem Arayışları: Geniş Bir Bakış Açısı.” [A search for methods to interpret source texts and produce target texts in translation training: A broader perspective.] *Çeviribilim*, no. 1, 125–142.
- Birkan Baydan, Esra. 2011. “Yapısalcılık-Sonrası Kuramsal Görüşler Doğrultusunda Çeviri Eğitimine Giriş: Toplumsal Oluşumcu Yaklaşım Işığında Uygulama Örnekleri.” [Introduction to translation through poststructuralist thinking in translator training: Social constructivist approach classroom activities.] PhD diss., Yıldız Technical University.
- . 2013. “Çeviri Eğitiminde Çeviri/Çevirmenlik Edinci: Problem Çözme ve Karar Verme Konusunda Bir Farkındalık Uygulaması.” [Translation/Translator Competence in Translator Training.] *Istanbul University Journal of Translation Studies* 4 (7): 103–125. <https://dergipark.org.tr/tr/download/article-file/157322>.
- . 2019. “Developing Textual Competence in Translation Pedagogy.” In *Çeviri Üzerine Gözlemler* [Observations on translation], edited by Seda Taş, 39–56. Istanbul: Hiperyayın.
- Birkan Baydan, Esra, and Ayşe Banu Karadağ. 2014. “Literary Translation Workshop: Social Constructivist Approach Classroom Activities.” *Procedia* 152:984–988. doi:10.1016/j.sbspro.2014.09.354.
- Cadwell, Patrick, Sharon O’Brien, and Carlos S. C. Teixeira. 2018. “Resistance and Accommodation: Factors for the (Non-) Adoption of Machine Translation among Professional Translators.” *Perspectives* 26 (3): 301–321. doi:10.1080/0907676X.2017.1337210.

- Calude, Andreea S. 2003. “Machine Translation of Various Text Genres.” *Te Reo* 46:67–94. <http://140.234.252.185/c/articles/15642464/machine-translation-various-text-genres>.
- Doherty, Stephen, and Dorothy Kenny. 2014. “The Design and Evaluation of a Statistical Machine Translation Syllabus for Translation Students.” *The Interpreter and Translator Trainer* 8 (2): 295–315. doi:10.1080/1750399X.2014.937571.
- Ersoy, Hüseyin, and Halil İbrahim Balkul. 2012. “Teknolojik Gelişmelerin Çevirmen ve Çeviri Mesleği Açısından Olumlu ve Olumsuz Etkileri: Çeviri Alanında Yeni Yaklaşımlar.” [The positive and negative effects of technological developments from the perspective of translator and translation profession: New approaches in translation field.] *Journal of Academic Inquiries* 7 (2): 295–307. <https://dergipark.org.tr/tr/download/article-file/17758>.
- Esen-Eruz, Sâkine. 2008. *Akademik Çeviri Eğitimi: Çeviri Amaçlı Metin Çözümlemesi* [Academic translator training: Translation-oriented text analysis]. Istanbul: Multilingual.
- Gröhn, Ari. 2019. “Suitability of Neural Machine Translation for Different Types of Texts: A Study on Potential Predictors.” MA thesis, University of Helsinki.
- Haro-Soler, Maria del Mar, and Don Kiraly. 2019. “Exploring Self-Efficacy Beliefs in Symbiotic Collaboration with Students: An Action Research Project.” *The Interpreter and Translator Trainer* 13 (3): 255–270. doi:10.1080/1750399X.2019.1656405.
- İnce, Ülker, and Işın Bengi-Öner. 2009. *Kızılıçık Karpuz Olur mu Hiç? İlahi Çevirmen!* [How come the cornelian cherry turns into a watermelon? Ah translator!]. Istanbul: Diye.
- Kelly, Dorothy. 2005. *A Handbook for Translator Trainers: A Guide to Reflective Practice*. Manchester: St. Jerome.
- . 2008. “Mobility Programmes as a Learning Experience for Translation Students: Development and Assessment of Specific Translations and Transferable Generic Competences in Study Abroad Contexts.” In *Translator and Interpreter Training: Issues, Methods and Debates*, edited by John Kearns, 66–87. London: Continuum.
- Kenny, Dorothy, and Stephen Doherty. 2014. “Statistical Machine Translation in the Translation Curriculum: Overcoming Obstacles and Empowering Translators.” *The Interpreter and Translator Trainer* 8 (2): 276–294. doi:10.1080/1750399X.2014.936112.
- Kiraly, Donald C. 1995. *Pathways to Translation: Pedagogy and Process*. Kent: The Kent State University Press.
- . 2000. *A Social Constructivist Approach to Translator Education: Empowerment from Theory to Practice*. Manchester: St. Jerome.

- . 2004. “Preparing Students Today to Meet Market Demands Tomorrow.” In *Internationales CIUTI-Forum: Marktorientierte Translationsausbildung* [International CIUTI-forum: Market-oriented translation training], edited by Martin Forstner and Hannelore Lee-Jahnke, 101–118. Bern: Peter Lang.
- . 2013. “Towards a View of Translator Competence as an Emergent Phenomenon: Thinking Outside the Box(es) in Translator Education.” In *New Prospects and Perspectives for Educating Language Mediators*, edited by Don Kiraly, Silvia Hansen-Schirra, and Karin Maksymski, 197–224. Tübingen: Narr.
- Kurultay, Turgay. 1997. “Neler Olmazsa Çeviri Eğitimi Olmaz? Çeviri Eğitiminde Temel İlkeler Belirlemeye Yönelik Bir Deneme.” [What are the prerequisites of translator training? An attempt to determine the basic principles of translator training.] In *Forum: Türkiye’de Çeviri Eğitimi; Nereden Nereye?* [Forum: Translator training in Turkey; From where to where?], edited by Turgay Kurultay and İlknur Birkandan, 23–30. Istanbul: Sel.
- Massey, Gary, Don Kiraly, and Maureen Ehrensberger-Dow. 2019. “Training the Translator Trainers: An Introduction.” *The Interpreter and Translator Trainer* 13 (3): 211–215. doi:10.1080/1750399X.2019.1647821.
- Mellinger, Christopher D. 2017. “Translators and Machine Translation: Knowledge and Skills Gaps in Translator Pedagogy.” *The Interpreter and Translator Trainer* 11 (4): 280–293. doi:10.1080/1750399X.2017.1359760.
- Moorkens, Joss. 2018. “What to Expect from Neural Machine Translation: A Practical In-Class Translation Evaluation Exercise.” *The Interpreter and Translator Trainer* 12 (4): 375–387. doi:10.1080/1750399X.2018.1501639.
- Neubert, Albrecht. 2000. “Competence in Language, in Languages, and in Translation.” In *Developing Translation Competence*, edited by Christina Schäffner and Beverly Adab, 3–18. Amsterdam: John Benjamins.
- O’Brien, Sharon. 2012. “Translation as Human-Computer Interaction.” *Translation Spaces* 1 (1): 101–122. doi:10.1075/ts.1.05obr.
- Olohan, Maeve. 2011. “Translators and Translation Technology: The Dance of Agency.” *Translation Studies* 4 (3): 342–357. doi:10.1080/14781700.2011.589656.
- Öner, Senem. 2013. “Translator as Researcher: Perspectives on Training and Life-Long Professional Improvement of Translators.” *Procedia* 106:3159–3166. doi:10.1016/j.sbspro.2013.12.365.
- Öner Bulut, Senem. 2018. “Training Translators as Subjects.” In *Çeviribilimde Güncel Tartışmalardan Kavramsal Sorgulamalara* [From recent discussions to conceptual reflections in Translation Studies], edited by Seda Taş, 13–39. Istanbul: Hiperyayın.

- . 2019. “Future Professional Profile and Agency of the Human Translator: A Survey on Human-Machine Tension in the Context of the Technologization of Translation.” In *Çeviribilimde Araştırmalar* [Research in Translation Studies], edited by Seda Taş, 93–122. Istanbul: Hiperyayın.
- PACTE. 2003. “Building a Translation Competence Model.” In *Triangulating Translation: Perspectives in Process Oriented Research*, edited by Fabio Alves, 43–66. Amsterdam: John Benjamins.
- . 2005. “Investigating Translation Competence: Conceptual and Methodological Issues.” *Meta* 50 (2): 609–619. doi:10.7202/011004ar.
- Parker-Pope, Tara. 2019. “How Self-Compassionate Are You?” *New York Times*, February 14. Accessed September 10, 2019. <https://www.nytimes.com/interactive/2019/02/14/well/mind/14compassion-quiz.html>.
- Presas, Marisa. 2012. “Training Translators in the European Higher Education Area: A Model for Evaluating Learning Outcomes.” *The Interpreter and Translator Trainer* 6 (2): 139–169. doi:10.1080/13556509.2012.10798834.
- Pym, Anthony. 2003. “Redefining Translation Competence in an Electronic Age. In Defence of a Minimalist Approach.” *Meta* 48 (4): 481–497. doi:10.7202/008533ar.
- . 2019. “How Automation through Neural Machine Translation Might Change the Skill Sets of Translators.” Unpublished manuscript, last modified August 29. PDF file. https://www.academia.edu/40200406/How_automation_through_neural_machine_translation_might_change_the_skill_sets_of_translators.
- Quindlen, Anna. 1987. “The Name is Mine,” *Life in the 30’s*, *New York Times*, March 4. Accessed September 10, 2019. <https://www.nytimes.com/1987/03/04/garden/life-in-the-30-s.html>.
- Ruokonen, Minna, and Kaisa Koskinen. 2017. “Dancing with Technology: Translators’ Narratives on the Dance of Human and Machinic Agency in Translation Work.” *The Translator* 23 (3): 310–323. doi:10.1080/13556509.2017.1301846.
- Schäffner Christina, and Beverly Adab. 2000. “Developing Translation Competence: Introduction.” In *Developing Translation Competence*, edited by Christina Schäffner and Beverly Adab, vii–xvi. Amsterdam: John Benjamins.
- Schütz, Jörg. 2008. “Artificial Cognitive MT Post-Editing Intelligence.” In *Proceedings of the 8th AMTA Conference*, 448–453. <http://www.mt-archive.info/05/AMTA-2008-Schutz.pdf>.
- Tosun, Muharrem, Ayla Akın, and Fatih Şimşek. 2015. “Courses on Specialized Field in Undergraduate Programs of Translation & Interpretation Departments in Turkey: The Importance of Courses on Specialized Field in the Specialization Process of Translator

Candidates.” *Akademik Bakış*, no. 49, 189–198.
<https://dergipark.org.tr/tr/download/article-file/383015>.

wikiHow. 2019. “How to Be Classy.” August 7. Accessed September 10, 2019.
<https://www.wikihow.com/Be-Classy>.

Wu, Di, Lawrence Jun Zhang, and Lan Wei. 2019. “Developing Translator Competence: Understanding Trainers’ Beliefs and Training Practices.” *The Interpreter and Translator Trainer* 13 (3): 233–254. doi:10.1080/1750399X.2019.1656406.

Yan, Jackie Xiu, Jun Pan, and Honghua Wang. 2015. “Studies on Translator and Interpreter Training: A Data-Driven Review of Journal Articles 2000–12.” *The Interpreter and Translator Trainer* 9 (3): 263–286. doi:10.1080/1750399X.2015.1100397.

Yazıcı, Mine. 2007. *Yazılı Çeviri Edinci* [Translation competence]. Multilingual: Istanbul.

Yuste, Elia. 2005. “Computer-Aided Technical Translation Workflows - Man-Machine in the Construction and Transfer of Corporate Knowledge.” *Linguistik Online* 23 (2): 67–75. doi:10.13092/lo.23.647.

Yücel, Faruk. 2007. “Etkili Bir Çeviri Eğitimi.” [An effective translator training.] *Pamukkale University Journal of the Faculty of Education*, no. 22, 144–155.
http://pauegitimdergi.pau.edu.tr/Makaleler/680591722_Faruk%20Y%c3%bccl.pdf.