

Erik Vige

A literary review on attitudes regarding the use of machine translation in the classroom

Bachelor's project in English for teacher training students

Supervisor: Anja Katrine Angelsen

Co-supervisor: Annjo Klungervik Greenall

June 2021

Erik Vige

A literary review on attitudes regarding the use of machine translation in the classroom

Bachelor's project in English for teacher training students
Supervisor: Anja Katrine Angelsen
Co-supervisor: Annjo Klungervik Greenall
June 2021

Norwegian University of Science and Technology
Faculty of Humanities
Department of Language and Literature



Norwegian University of
Science and Technology

Terms and acronyms

Since this paper consists of many acronyms, I have chosen to present these here:

MT	Machine translation
TM	Translation memories
CALL	Computer-assisted language learning
GT	Google Translate
GTM	Grammar-translation method
DM	Direct method
L1	The learner's first language or mother tongue
L2	The learner's second language
FL	Foreign language
SL	Source language
TL	Target language

In addition to the acronyms, I would like to clarify some important terms. These terms are often defined in various ways by different authors. In this paper I have chosen to use these definitions:

Translation	The act of “converting the target language’s expression into the native language (at various levels, from words and phrases all the way up to whole texts); or converting the native language into the target language” (Oxford, 1990, p. 46).
Machine translation	Computerized systems responsible for the production of translations with or without human assistance (Hutchins, 1994, cited from Aksnes, 2018, p. 6)

1.0 Introduction

Machine Translation (MT) has been around for about 70 years. As MT-technology has had an impressive development the last decades, it is now available for anyone with a computer or a smartphone. In the translation-business, MT is regarded as a must-have tool, making translation more efficient than ever. However, the use of this technology in language classrooms has been a subject of controversy. MT's impact on language learning has not yet been thoroughly studied and some teachers have remained skeptical of its use.

1.1 Research focus

In this literary review I will examine some of the research that has been done on the topic of using MT in the classroom. Since there is a lack of experimental studies measuring the long-term learning-effect of MT use in the classroom compared to other learning strategies, my focus will be on attitudinal studies. The question that I will answer is: Does attitudes towards the use of MT in the classroom differ among language researchers, language teachers and language learners, and if so, how?

1.2 Background

I chose this research question because I, who is currently studying to become a foreign language English teacher at upper-secondary school, have noticed that several language teachers during my internship-period have expressed a skeptical view on the use of Google Translate (GT) in the classroom. I wanted to figure out the reasons behind the skepticism and if there is consensus among language teachers that one ideally should avoid this MT-system. In my personal experience, I have used GT actively during all my years of studying English and have found it very useful, especially when checking up single words. However, despite my positive experience with GT, I have tried, with the best of my abilities, to stay unbiased during the making of this paper.

1.3 Method

In the next section (2) I will first cover some general background theory regarding the use of translation in general as a tool for improving language proficiency. This will involve the historical use of the grammar-translation method (GTM) before it was replaced with other language-teaching strategies, including the direct method (DM) that excluded all use of translation. After this, I will briefly cover the development of MT and its moral implications on language education. Then I will cover some practical uses of MT in educational contexts identified by Niño (2009). In section 3, I will cover several studies that investigates both

language learners' and language teachers' perceptions on the use of MT in the classroom. In section 4 I will briefly discuss my findings and put the all the research I have covered in context. The last section (5) consists of a conclusion on the research question.

2.0 Theory

2.1 Historical background of translation for pedagogical purposes

The use of translation in general was, according to Cook (2010), the very first method used in language teaching. Until the 19th century, one of the most influential methods of learning foreign languages, especially Greek and Latin, was the grammar-translation method (GTM) (Cook, 2010, cited from Ulvestad, 2020, p. 11). This method involved translating individual sentences into and out of the FL in order to exemplify certain grammatical features (Malmkjær, 1998, p. 3, cited from Ulvestad, 2020, p. 15). However, during the 19th century, GTM underwent large amount of criticism in favor of new methods emphasizing communication as a main tool for foreign language (FL) learning (Cook, 2010, cited from Ulvestad, 2020, p. 11). One of these new methods was the direct method (DM). This method involves any teaching which excludes use of the students' own language from the classroom (Cook, 2010, p. 8, cited from Ulvestad, 2020, p. 17), making the practice of translation unfavorable.

According to Cook (2010), DM is based on several assumptions about language learning that lacks support from empirical research. One of these assumptions is the idea of monolingualism; that language teaching should only be in the target language (TL) (Ulvestad, 2020, p. 17) because of concerns that the learners first language (L1) can have a negative influence on how student's form meaning to the TL (Ulvestad, 2020, p. 20). However, Malmkjær argues that although translation produces interference, an important effect of translating is that it encourages awareness and control of this interference (Malmkjær, 1998, p. 8, cited from Ulvestad, p. 22). Another assumption that DM is based on is the idea of naturalism; that one learns best if it "proceeds naturally" (Cook, 2010, p. 8, cited from Ulvestad, p. 8). On the other side, Priya & Jayasridevi argues that students translate in their minds sub-consciously and that translation therefore is a natural occurrence (Priya & Jayasridevi, 2018, p. 123).

2.2 Machine translation

While ideas regarding the use of mechanical dictionaries were first presented in the 17th century (Aksnes, 2018, p. 6), the first software applications to translate automatically were made in the 1950s (Frederking & Taylor, 2004, p. v). Today, free online MT-systems such as GT are widely available. During the first years after GT's debut in 2006, it was known for its many inaccuracies (Ducar & Schocket, 2018, p. 780). However, Ducar & Schocket (2018) has summarized the development of GT since its release and argues that several issues that have been raised in earlier research has been largely corrected. This includes difficulties with less common idioms, problems with multiple-meaning words and errors that humans themselves do not commit (Ducar & Schocket, 2018, p. 784). However, GT is still far from being able to give a fully automatic high-quality translation. Problems that continue to be a nuisance for GT is its grammatical inaccuracies, issues regarding formal vs. informal varieties, context and cultural expectations (Ducar & Schocket, 2018, p. 784).

These inaccuracies have caused concern regarding GT's potential for pedagogical purposes. However, there are issues beyond its inaccuracies that give grounds for skepticism. As GT has continued to develop, moral implications have risen due to its availability and potential to be used for "academic dishonesty" (Ducar & Schocket, 2018, p. 781). Correa (2011) argues that "any unauthorized help that the student can get in order to put their thoughts into words can become an act of academic dishonesty" (Correa, 2011, p. 67, cited from Ducar & Schocket, 2018, p. 788) Ducar & Schocket (2018) further refer to an extensive study in which 88% of second language (L2) students at Duke University admitted to using MT, while 77% of the instructors disapproved of its use (Ducar & Schocket, 2018, p. 781). This indicates that students will use MT whether it is allowed or not, but also implies that not all instructors consider every use of MT as cheating. Ducar argues that since many students use MT in a casual way, and in some instances in ways that suggest an unhealthy dependency, it is important that teachers from early on educate learners on how to use MT in a respectable way that promotes their progress in developing language proficiency (Ducar & Schocket, 2018, p. 787).

2.3 MT for educational purposes

Niño (2009) has identified four dimensions of MT usage for educational settings. The first dimension involves using MT output as a bad model where errors are to be corrected by the students. The idea is that the students will become more aware of subtle aspects of language differences regarding grammar and style. However, translating L1 texts into L2 through MT is controversial since it will expose students to errors that potentially may cause them to adopt erroneous usage of the language (Niño 2009, p. 242).

Another dimension is using MT as a good model, involving the use of translation memories (TM) (Niño, 2009, p. 242). TM is a database that stores sentences, paragraphs or sentence-like units that have previously been translated. It is used to quickly check for phraseological and grammatical correctness when translating into the target language. The idea is that by using translation memories in combination with other tools, like online dictionaries and parallel texts, students can sharpen their writing and translation skills. This method is especially recommended when working with specialized language, where checking for appropriate terminology is paramount (Niño, 2009, p. 242). Several computer-assisted translation (CAT) tools, like memoQ Translator Pro have TM integrated into its software (Balashov, 2020, p. 352). However, GT is neither considered a CAT-tool, nor does it have a TM function.

A third dimension identified by Niño (2009) is using MT for vocational use. The idea is that students will need to know the intricacies of the translation art and be updated on the use of CAT-tools and MT-tools used by professional translators. One way of teaching students this is by letting them do translation quality assessments of MT output. This can be a project where they evaluate terminology and dictionary tools in two different MT systems (Niño, 2009, p. 242-243). For instance, GT can be compared to the Norwegian-made digital dictionary Ordnett which is tailored for educational purposes and often recommended by Norwegian language teachers (Aksnes, 2018, p.37).

The last dimension identified by Niño (2009) is using MT as a computer assisted language learning (CALL) tool (Niño, 2009, p. 244). In contrast to the other dimensions, the focus of CALL is learning, and not teaching. It is a student-centered learning material, which promotes self-paced learning (Okonkwo, 2011, p. 77). Although GT alone is rarely used this way, Lee (2019) did a study in which GT was used as a CALL-tool in a FL classroom (Lee, 2019, p. 161). This study will be described in more detail in section 3.3.

3.0 Studies

3.1 Surveys on the perceptions of learners and tutors on the use of MT for FL teaching and learning purposes.

Ana Niño (2009) performed two surveys on the use of MT for FL teaching and learning. In the first survey, a group of sixteen advanced students of Spanish responded to a questionnaire after undergoing a ten-week introductory course in MT and MT post-editing. In general, the students reflected a positive view of MT's usefulness, both as a comprehension tool and a tool for improving their Spanish. For instance, 81% of students reported that MT had contributed to their FL improvement (Niño, 2009, p. 259). The reasons they gave included that MT promoted their error detection and correction skills, made them reflect on their errors, fostered their comprehension skills and made them focus on language use and accuracy (Niño, 2009, p. 259).

In the second survey, thirty language tutors of foreign language at university level were asked questions regarding their perceptions on the use of MT for FL learning. The results revealed that while most of the respondents used free online MT several times a year (60%); mostly out of curiosity (33%), only 23% had used MT in their lessons (Niño, 2009). However, of the 77% who had not used MT in their lessons, 33% said they would use it in the future with different purposes in mind, including translation practice and to raise consciousness about complexity of translation and limitations of MT (Niño, 2009, p. 251).

3.2 Qualitative interviews of teachers and pupils at Norwegian upper secondary school on uses and attitudes of Google Translate.

Vilde Evensen Aksnes (2018) performed a qualitative interview of four teachers and four pupils at two different upper secondary schools in Norway. The interviews revealed that all informants agreed that Google Translate was OK to use like a dictionary. However, most of them still preferred Ordnett (Aksnes, 2018, p.37). In the case of longer texts, most informants agreed that translating from L2 to L1 could be useful to get a grasp of its essence. On the other hand, translating longer texts the other way around, from L1 to L2, was rarely considered useful in a learning context (Aksnes, 2018, p.38). In addition, this way of translating was, among teachers, considered a problem. They referred to personal experiences

in which pupils handed in “texts that they could not possibly know the meaning of or that did not make any reasonable sense” (Aksnes, 2018, p.39).

In regards of working with translation in the classroom, none of the participants claimed to have spent considerable amounts of time doing this. In the instances where they did, it was mainly with focus on how to use Ordnett (Aksnes, 2018, p. 40). One of the teachers stated that the main reason for not focusing on translation was that it was not part of the subject curriculum (Aksnes, 2018, p. 40). Aksnes speculates whether the old negative attitudes toward translation in general as a pedagogical tool still mark to some extent the L2 curriculum in Norway (Aksnes, 2018, p. 40). However, she also refers to the curriculum of The Norwegian Directorate for Education and Training from 2013 which states that pupils should be able to: “evaluate different digital resources and other aids critically and independently, and use them in own language learning [and to] evaluate different sources and use contents from sources in an independent, critical and verifiable manner” (Utdanningsdirektoratet, 2013, cited in Aksnes, 2018, p.41). She further argues that these formulations provide reason enough for working with different forms of translation (Aksnes, 2018, p. 40).

The interviews also considered the use of GT among high-proficiency pupils compared to low-proficiency pupils. However, all four pupils participating in the study was considered having high level of proficiency, something Aksnes explained was due to her not accounting for this during the selection process (Aksnes, 2018, p.20). This is considered a weakness in the study’s validity on the topic. Nevertheless, she states an interesting assumption. Aksnes suspects that “one of the main reasons why the teacher-informants express skepticism to GT in the classroom is that; if they provide an opening to the use of GT, then some high proficiency pupils will be able to use it constructively, while many less proficient pupils will fall into the many traps of it” (Aksnes, 2018, p.40). However, this assumption was not directly stated by any of her interview objects. In addition, the assumption that high-proficiency pupils will have more use of GT than less proficient pupils have little or no empirical research to support it. The following study by Lee (2019) rather indicates the opposite.

3.3 Mixed method study on using MT as a CALL tool in FL classroom.

Sagmin-Michelle Lee (2019) investigated the impact and perceptions of using MT as a CALL tool in English FL classroom. During a period of six weeks, she collected data from writing-tasks, interviews, and reflection papers of 34 students from a language course at a university

in South-Korea. The students were given a task that consisted of several stages. After watching a TED-video, the students were to write a paper about the topic in their L1. This paper became the source text for the next stage, where they had to translate their writing to English, without the use of MT. Afterwards, they translated their source text solely by using an optional MT tool. Most students used GT. At the last stage, the students were to edit their non-MT-version by comparing it with the MT-version (Lee, 2019, p. 161).

Lee underwent a quantitative text analysis of all the versions of the students' writing as well as a qualitative analysis of interviews and reflection papers of the students. The text analysis indicated that the use of MT-comparison improved their vocabulary, grammar, and expressions, which ultimately resulted in writing quality improvement (Lee, 2019, p. 169). Analysis of interviews and reflection papers revealed that students who initially had scored lower on writing-proficiency mentioned the positive sides of MT more frequently compared to students of initially higher proficiency, who were more focused on the downsides of MT (Lee, 2019, p. 166-167). Indicating that low proficiency students found MT more useful than high proficiency students.

4.0 Discussion

Although recent studies indicate that MT has potential as a learning tool in educational contexts, both teachers and pupils view the use of MT with different levels of skepticism. While everyone agrees that MT can be inaccurate when translating longer phrases or texts, some see these flaws as problematic, others see potential in these flaws (Niño, 2009, p. 251). Like Niño (2009) pointed out, when using MT as a bad model, the errors made by an MT can potentially raise awareness surrounding subtle differences among languages (Niño 2009, p. 242).

Several teachers also see the value in raising the students' awareness on MT limitations and on how to use MT in a reasonable way, but most Norwegian teachers seem to avoid GT in favor of other digital dictionaries like Ordnett (Aksnes, 2018, p. 40). The main differences between GT and Ordnett is that GT has a simpler and more immediate design in addition to being able to translate long texts. In contrast, Ordnett translates single words only, but provides a higher degree of details in its description of possible translations. Since all teachers agreed that MT is useful for translating single words, but not necessarily longer texts, (Aksnes, 2018, p. 37-38) it is natural that they would prefer a system like Ordnett, which

specializes on single word translation. But in its lack of translating several words at once, it is too laborious to be used in any of the pedagogical dimensions of MT that Niño identified (Niño 2009, p. 242).

I suspect some of the skepticism regarding GT comes from the fact that it initially received a lot of critical attention regarding its inaccuracy (Ducar & Schocket, 2018, p. 780) due to being the most influential MT, in contrast to Ordnett, which has received little or no attention in academic research on its use as a pedagogical tool. As Ducar & Schocket (2018) points out, GT has had several improvements since its release (Ducar & Schocket, 2018, p. 784). It is possible that teachers are unaware of these improvements and thus stick with Ordnett.

However, the issue of academic dishonesty is still a potential threat to the use of GT in the classroom since it is tempting for a student to hand in a text automatically translated from a source text initially written in L1 (Ducar & Schocket, 2018, p. 781). In general, translating in this direction is considered by most teachers rarely useful when the aim is language learning (Aksnes, 2018, p.38). Since GT rarely commit errors that humans themselves make, it is difficult for teachers to be certain if whether the texts that are handed in are written by a student of medium proficiency in L2 or by someone who just knows how to copy and paste a text into GT. In terms of grading, GT might be a source of unfair evaluation. In terms of learning, GT might be disruptive for the development of proficiency when used wrong.

5.0 Conclusion

In general, researchers that recently have explored the use of MT in the classroom are more optimistic of MT than teachers are. This can be due to teachers being less informed on the new developments on MT the last decade. However, more studies on the use of MT are needed to conclude whether it is a good idea to implement more use of MT in the classroom. Although some studies indicate that the use of MT can promote learning, implementing too many MT-activities will go at the expense of other language learning-activities. We need more experiments that compare the learning-effect of MT-activities with the language teaching methods that are most used in the language classroom today.

We also need more empirical studies on the use of MT by high vs. low proficiency learners. Although Lee's (2019) study indicated more positive attitudes towards MT among low-proficiency students compared to high-proficiency students, we need more studies that

measures and compares the effect of learning among these groups. In addition, I suspect that if teachers were to give learners a proper course on the limitations and possibilities of several MT systems, both CAT-tools, GT and Ordnett, it can have a positive effect in which language learners find it useful in a way that promotes learning.

Bibliography

- Aksnes, V. E. (2018). *Google Translate: Friend or Foe? An exploration of the use and attitudes to the use of Google Translate among teachers and pupils in two Norwegian upper secondary schools* [Master's thesis]. Norwegian University of Science and Technology. <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2568637>
- Balashov, Y. (2020). The Translator's Extended Mind. *Minds and Machines*, 30(3), 349–383. <https://doi.org/10.1007/s11023-020-09536-5>
- Ducar, C. & Schocket, D. H. (2018). Machine translation and the L2 classroom: Pedagogical solutions for making peace with Google translate. *Foreign Language Annals*, 51(4), 779–795. <https://doi.org/10.1111/flan.12366>
- Frederking, R. E. & Taylor, K. B. (2004, September 28 – October 2). *Machine Translation: From Real Users to Research* [conference presentation]. 6th Conference of the Association for Machine Translation in the Americas, Washington DC, <https://link.springer.com/content/pdf/10.1007%2Fb100780.pdf>
- Lee, S. (2020) The impact of using machine translation on EFL students' writing, *Computer Assisted Language Learning*, 33(3), 157-175. <https://doi.org/10.1080/09588221.2018.1553186>
- Niño, A. (2009). Machine translation in foreign language learning: language learners' and tutors' perceptions of its advantages and disadvantages. *Cambridge University Press*, 21(2), 241-258. <https://doi.org/10.1017/S0958344009000172>
- Okonkwo, U. C. (2011). Computer Assisted Language Learning (CALL) Software: Evaluation of its Influence in a Language Learning Process. *Unizik Journal of Arts and Humanities*, 12(1), 76-89. <http://dx.doi.org/10.4314/ujah.v12i1.4>

Oxford, R. L. (1990). Language Learning Strategies: What Every Teacher Should Know. *TESOL Quarterly*, 27(1), 121-122. <https://doi.org/10.2307/3586958>

Priya, T. A. & Jayasridevi, B. (2018). Integrating Translation in Classroom: Facilitating Language Skills. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 10(1), 118-127. <https://doi.org/10.21659/rupkatha.v10n1.13>

Ulvestad, A. S. (2020). *Views on Translation in Language Teaching and Learning* [Master's thesis]. Norwegian University of Science and Technology.

