Effects of online translation on morphosyntactic and lexical-pragmatic accuracy in essay writing in Spanish as a foreign language

Kent Fredholm[1]

Abstract. The use of online translation (OT) is increasing as more pupils receive laptops from their schools. This study investigates OT use in two groups of Swedish pupils (ages 17-18) studying Spanish as an L3: one group (A) having free Internet access and the spelling and grammar checker of Microsoft Word, the other group (B) using printed dictionaries without Internet access. 112 Spanish essays were collected from the groups. Screencasts of 60 essay writings were recorded, and accompanied by a questionnaire and interviews to 13 pupils. The essays were analysed for morphological, syntactical and lexical accuracy. Significant differences between groups A and B were found for only a few error categories. Group B made a higher percentage of errors all-in-all, committed more mistakes regarding noun/adjective and noun/article agreement, whereas group A made more mistakes concerning verb mood, personal pronouns, and conjunctions. Many errors in group B can be explained by the fact that the pupils had no access to automatic corrective suggestions or automatic translation, as did group A. Flaws in OT can account for pronoun and syntactic errors in group A essays. The differences in correct use of verb mood and conjunctions are more difficult to explain and deserve further investigation.

Keywords: CALL, ICT, foreign language writing, grammar, accuracy, online translation.

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1. Department of Language Education, Stockholm University; Kent.Fredholm@isd.su.se.

1.   Introduction

As pupils' access to computers is increasing at schools investing in 1-1 projects in Sweden as well as other countries, their access to online resources is also increasing. This is evident in foreign language classes when it comes to writing in the studied language. Teachers are often heard complaining about pupils using online translation (OT) services, such as Google translate; however, the number of studies on pupils' use of OT in foreign language writing, especially concerning younger pupils, is still scarce, with exceptions from recent years such as Niño (2008, 2009), Steding (2009), Garcia and Pena (2011), and O'Neill (2012). Teachers' and pupils' ideas of OT are often based more on personal beliefs and prejudices, rather than on detailed data. The present study, part of a Ph.D. project on pupils' use and perception of ICT in foreign language learning, examines the effects of OT on grammatical, syntactic, lexical and pragmatic features of Spanish essays written by pupils at the Swedish upper secondary school.

2.   Methods and participants

2.1.   Participants and data collection

Two groups studying Spanish as a foreign language were investigated during the autumn semester of 2013 as they wrote four essays on text genres present in the Swedish national curriculum for foreign languages (Skolverket, 2013). The pupils, ages 17-18, had studied Spanish for five years prior to the study. Both groups used their laptops to write and both had access to printed dictionaries. One group (henceforth "A") had free access to the Internet and to the spelling and grammar checkers of Microsoft Word, whereas the other group ("B") was not allowed to use any online resources. Group A mainly chose to use Google translate and the similar site Lexikon24; a few Google searches for background information on different topics were also made. In all, 57 pupils handed in 112 essays, 84 from group A and 28 from group B. The fact that several group B pupils had not followed instructions during the writing sessions, using Internet resources despite being told not to, disqualified many of their essays from the analysis.

Each of the four writing tasks were distributed via the school's learning management system, where the pupils also handed in their essays. They were given thirty minutes to write, with an additional five minutes to read instructions and to save their work. They were also asked to record their screens as they were writing, using screencast-o-matic.com. Thirty-three pupils managed to do so, handing in screencasts of 60 essay writings.

After the final essay writing session, the pupils were also asked to fill out a questionnaire, and thirteen pupils were interviewed. The questions asked focussed on the pupils' choice of writing strategies and technology use and will not be further commented on here.

2.2. Measures of morphosyntactic accuracy

Morphological or grammatical accuracy was measured as the mean number of morphological errors per essay, regarding verbs, noun/adjective and noun/article agreement, pronouns, and prepositions. Errors of word order, clause and sentence structuring, the use of adjectives instead of adverbs or vice-versa, and the use of conjunctions were counted to measure syntactic accuracy.

2.3. Measures of lexical-pragmatic accuracy

The lexical accuracy was measured as the ratio of context inadequate words to the total amount of words, and the amount of misspelled words (following the definitions of Rimrott & Heift, 2005, p. 21).

Pragmatic accuracy regarded the choice of context appropriate words, idiomatic expressions, and the inconsistent use of personal pronouns and corresponding verb endings, with an incoherent alternation of 2nd and 3rd person as form of address, present in many of the group A essays.

The data received were entered in SPSS and submitted to a t-test. The significant (and in a few cases near-significant) differences between the groups thus revealed will be commented on in the following section.

3. Results

The most striking result of the present study is the low number of significant differences between the groups, as far as morphology and syntax are concerned. Bigger differences, mainly regarding complexity, could be found on clause and sentence levels, where group B produced fewer sentences, fewer independent clauses and a smaller amount of correct sentences; the differences are, however, also quite small in these fields, albeit significant.

On the whole, group B made more errors (p=.012), but many of these are smaller mistakes such as noun/adjective or noun/article agreement, and misspellings. Taking into account the pupils' Spanish grades from the previous year, the

differences both within and between the groups are clearly correlated to grade level, high-achievers from both groups performing better, producing fewer errors, longer texts and more complex sentence structures.

3.1. Morphosyntactic accuracy

As for morphology, significant differences were found concerning the use of verb mood, where group A performed more errors ($p=.007$), as well as noun/adjective agreement (near significant, $p=.052$) and noun/article agreement ($p=.001$), both showing more errors in group B.

Group A produced more syntactic inaccuracies than group B. These inaccuracies regard minor errors as the appropriate choice of conjunctions (a near significant difference, $p=.057$), and more important syntactic errors affecting entire clauses or sentences, often rendering them difficult or impossible to understand ($p=.036$).

Significant differences were also found in the ratio of correct sentences to the total number of sentences, group A rating higher ($p=.013$). The accuracy on sentence level refers to both morphological and syntactic accuracy as well as the absence of misspellings. In numbers, the differences are quite small, group A on average producing 11.90 sentences per essay out of which 3 correct, and group B 10.57 sentences, out of which 2 correct. The differences are more clearly referable to grade levels than to technology use.

3.2. Lexical and pragmatic accuracy

Group B made many more spelling errors than group A, which is natural as they did not have any help other than dictionaries, and, furthermore, often chose not to consult these as it was considered too time-consuming or too difficult to find the words or to understand the dictionary entries.

Pupils of group A commented that they felt that the Spanish spelling and grammar checker of Microsoft Word (that was not used in group B) had helped them to correct many mistakes. This seems plausible as far as misspellings are concerned, but less so for grammatical errors, which were still numerous. Many of the spelling errors were automatically corrected by Word (especially missing accents and erroneous use of capital letters), and these corrections do not seem to have attracted pupils' attention; therefore, their belief that the spelling checker helped them to learn Spanish orthography better must be taken with a pinch of salt.

In the first essay, written as a reply to a fictitious 19-year-old boy asking for advice on his friends' overconsumption of alcohol, group A switched frequently between formal and informal forms of address (using the Spanish *tú* and *usted* and their corresponding 2nd and 3rd person verb endings). This was seen to a much lesser extent in group B. The majority of these inconsistencies were clearly due to the use of OT, as Google translate often –but not always– translated the Swedish *du* (2nd person) to Spanish *usted* (3rd person).

4. Discussion and conclusions

Apart from the few areas where significant differences could be seen, the use of OT does not seem to have affected writing performance in any decisive way, neither improving it nor giving worse results than had it not been used. Group A essays were slightly longer and contained a few more complex sentences and fewer errors, but almost none of the 112 essays can be considered well-written. Only one of the 57 pupils managed to use the technology effectively, producing texts in a Spanish appropriate for the level of instruction.

If the purpose of intermediate level foreign language writing is considered strictly as text production and nothing more, the present study can neither recommend nor discourage the use of OT, as its effects seem hardly discernable. The role of writing in the foreign language classroom needs, however, to be taken into greater consideration; most teachers would hopefully say that its purpose is to practice and improve pupils' abilities to use the language, and in that case, OT should probably be used sparingly, as suggested by researchers stating that it does not improve language learning (Garcia & Pena, 2011; Niño, 2008, 2009; O'Neill, 2012; Steding, 2009). This is, nevertheless, an area that needs further research rather than a priori sentiments of rejection. Considering the difficulties among the pupils' of the present study to produce grammatically and pragmatically coherent texts or, indeed, sentences, the Swedish school needs to reconsider first and foremost the place foreign language writing should have in foreign language teaching, and only secondly what role OT and other technologies should play in this.

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