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Online Translator Usage in Foreign Language Writing

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Abstract

With the increasing availability of technology, one issue that has arisen in foreign language education is the use of online translation (OT) sites that claim to convert text from one language to another but are generally prohibited for classwork due to ethical and pedagogical concerns. In a study to explore the effects of OT usage, teacher raters were able to determine, to a statistically significant level, on which compositions OT was used; there were, however, a number of cases for which OT use went undetected and some instances it was incorrectly suspected. This article discusses the results of the study and implications for language instruction. Since compositions written with the help of OT cannot always be distinguished from those written with such aid, instructors and institutions may wish to review their approach to dealing with the issue of online translators in the classroom as well as policies concerning academic sanctions.

Information technology has transformed the way people interact, communicate, and learn. These changes have been making their way into the field of foreign language education, from the use of electronic tools such as eBooks and collaborative wiki projects during instructional time, to the expansion of distance learning and the existence of other online resources available to students outside the walls of the traditional classroom.

One such tool that is freely available to the general public is online translation (OT). Websites such as *Babel Fish*, the first online translator once hosted by *Alta Vista* and *Yahoo*, which has now been replaced by Microsoft's *Bing Translator* <http://www.microsofttranslator.com>, *Google Translate* <http://translate.google.com>, and *Free Translation* <http://freetranslation.com>, purportedly translate text that has been entered into the online translator from one language to another with the click of a button. OT sites pose particular challenges for teachers of foreign languages since they offer to convert text, ranging from single words to paragraph-length writing and beyond, into the target language for anyone who visits the site, including students.

OT sites differ from dictionaries in that the latter generally suggest several possible translations for a word or expression, often with examples and usage notes to guide the learner in the use and acquisition of the language and leaving to the writer the task of successfully integrating the items consulted into the composition. The former, online translators, typically provide one ready-made translation that the

writer can simply copy and paste. Additionally, unlike OT sites, dictionaries have been considered to be beneficial to students writing in a foreign language. Hurman and Tall (2002) found, for example, that students received 9% higher scores when they used a dictionary during composition writing than when they did not use one. In light of the unproven nature of online translators and concerns about what they mean for academic honesty and language acquisition, policies for dealing with online translators vary. Such policies include prohibiting their use and imposing academic sanctions on students suspected of using them, assigning students a lower grade for compositions on which the instructor believes OT was used, and grading such essays on their own merits, with the assumption that students would receive a lower grade than they would have had they not used an online translator (McCarthy, 2004). Many of these approaches presuppose that instructors can readily identify OT use in compositions they receive, but no comprehensive study examining online translation use among students has been found.

This article first discusses a selection of the literature related to the general issue of online translators for foreign language learning and instruction, which helped inform the current investigation. Next, there will be a description of a study conducted in which some student compositions were written with the help of OT while others were composed without such aid. As part of this study, foreign language instructors were asked to judge if each composition was, in their view, written with the help of an online translator. The results of their judgments will be presented, along with a small sampling of rater comments describing the reasons for their decision as well as illustrative excerpts from the compositions they rated. Finally, the limitations of the current study, as well as implications of the results in regards to foreign language instruction and policy, will be discussed.

Literature Review

Overall, the literature has viewed OT as harmful and ill-advised for foreign language learners. This perception can largely be attributed to the notion that online translators are known to make some lexical (Cribb, 2000), grammatical (Aiken & Wong, 2006), and syntactic (Watters & Patel, 2000) errors. In addition, considerations of academic honesty can affect how OT is perceived (Stapleton, 2005), since students using an online translator are seen as not doing their own work. There are concerns that OT may adversely affect acquisition or production of the target language and represent a waste of time for teacher and student alike (McCarthy, 2004). Niño (2009) mentions several potentially adverse aspects of OT use recognized by teachers and students alike, including inappropriate literal translation of lexical items, errors with grammatical items such as prepositions and agreement, problems with word order and sentence structure, difficulties with translating discursive and cultural references, and encouraging students to write first in the native language instead of the target language. SYSTRAN, the corporation that produced the Internet's first online translator, *Babel Fish* (1997), admitted that their online translator had limitations and that they were aware that foreign language students were using their service, while pointing out that *Babel Fish* "was never meant to teach language" (Yang & Lange, 1998, p. 282) but instead intended to provide a free trial of machine translation software or a gist translation to the general public of text entered into the OT.

Nonetheless, there have been some in the field who have suggested possible uses and benefits of OT in the classroom. For example, Williams (2006) suggests that having students use online translators as part of a lesson can serve to help students understand concepts such as polysemy and structural ambiguity, both of which can pose problems for online translators that are unable to parse real-world referents in context. Burton (2003) mentions the possibility of students using online translators as a type of multilingual dictionary that could be used to explore the language or test hypotheses about vocabulary words. Niño (2009) lists several potential strengths of OT for foreign language students, including the immediacy of results for students wanting instant help for their language needs, as well as success with some shorter lexical units and simpler sentence structures. Additionally, she proposes allowing novice students to use OT for more difficult texts from the second language to the student's native language for gisting purposes. Another suggestion by Niño (2009) is that parallel corpora could be used by instructors to highlight difficulties in translation, with the original text written in one language by a human and the other text being a translation into another language obtained from an OT site. Lastly, she suggests that instructor-led comparison of closely-related languages, e.g., Spanish and Italian, could allow for similarities and differences being highlighted both by successful and failed translations.

One recent study suggests that OT use may not have a negative impact on composition scores. In a study conducted at the University of Illinois at Urbana-Champaign, it was found that compositions written by third- and fourth-semester French students with access to an online translator, *Free Translation* <http://freetranslation.com>, did not receive lower global scores than those written without using OT (O'Neill, 2012). On global scores for the second of two experimental writing tasks, the experimental group that had received prior training in possible strengths and pitfalls of OT significantly outperformed ($p < .05$) the control group without such access or training. Additionally, it was reported that the translator group that had been trained in OT use received higher scores than the control group on four component scores (content, grammar, comprehensibility, and spelling/accents) on one or both experimental tasks. Furthermore, the experimental group that had access to an online translator but no prior training also outperformed the control group for these same components on at least one of the tasks. A description of these tasks, which are also those used for the current investigation, is discussed shortly.

Even if there may arguably be some beneficial instructional uses for online translators to help promote the understanding or exploration of foreign languages in the classroom, and while one study found no immediate negative effects on composition scores among students who used an online translator, questions over academic honesty and potential negative long-term effects of OT on foreign language writing still remain. Many instructors and institutions do not allow their students to use an online translator. Although the researcher has heard anecdotal reports of a number of teachers moving composition writing to the classroom to discourage students from accessing online translators, other instructors still allow students to write or rewrite compositions at home, leaving open the possibility that some are using a prohibited resource.

Luton (2003) advances three *red flags* (p. 768) that may indicate OT use. The

first of these includes mistranslated idioms, such as translating *I get upset* into French with *J'obtiens le renversement*, a phrase literally meaning *I obtain the turning-over* and whose intended meaning would be incomprehensible to a native speaker of French. Second are interspersed English words that the online translator has not converted to the target language due in particular to misspellings, such as *thier* instead of *their*. And third, Luton cites proper nouns incorrectly translated as common nouns, such as translating the name *Summer* to the French word *été*, indicating the season. Luton recognizes that this list is not exhaustive and that it may be difficult to tell at times if a given composition was written with the use of an online translator.

These observations are compounded by the fact that research has suggested that online translators can sometimes correctly convert text into the target language, although results have varied widely. Aiken and Wong (2006) conducted a study involving 20 Spanish-to-English translations of sentences that were selected randomly from a Spanish textbook. Sentences were entered into three online translators, *Babel Fish*, *SDL*, and *WorldLingo*. *Babel Fish* and *WorldLingo* were both outperformed (each with 55% grammatical and lexical accuracy) by another free OT system, SDL (75%), as judged by a formula including occurrence of missing or extraneous words, lexical choices, and total number of words versus number of correct words. Yates (2006) conducted a study that involved translating legal documents from German and Spanish into English. Five sentences were taken each from the German and Mexican civil codes and translated in *Babel Fish*, with an additional five sentences excerpted from each country's foreign ministry. A three-point scale was used to rank errors, from minor to severe. Yates found that 15 out of the 20 translation attempts were failed, with failed sentences containing anywhere from one to seven severe errors.

Ablanedo, Aiken, and Vanjani (2007) conducted a study comparing the success of *Babel Fish* to that of two human translators. Ten sentences were run through *Babel Fish* and separately given to a professional human translator and an intermediate-level speaker of Spanish. The authors found that *Babel Fish* correctly translated seven out of 10 English-language sentences into Spanish. This result compared unfavorably both to a professional human translator, who correctly translated all 10 sentences, and an intermediate Spanish speaker, from whom eight out of 10 translations were accurate. In what is described as the most extensive study of its kind, Aiken and Balan (2011) tested translations for six sentences among 2,550 language pairs in *Google Translate*. The six sentences included a selection from United Nations Declaration of Human Rights as well as the sentence *My hovercraft is full of eels.* The output was evaluated using the Bilingual Evaluation Understudy scale. The results for some language pairs yielded rankings as high as the maximum score of 100, or accurate enough for a human to understand, and as low as 0, or incomprehensible.

No known prior study specifically examines the accuracy of online translators when used for student writing. Given that online translators can in fact accurately translate some texts, while the writing of second-language learners can, like OT-produced text, also contain errors, it may not always be possible for instructors to determine whether or not a student has used an online translator while writing a composition. This research is guided by the following research question: Can instructors detect with statistical significance the difference between a text written with the aid of an online translator and one written without such aid?

Methods

A five-week study was conducted that involved 32 English-native learners of French at the third- and fourth-semester level at the University of Illinois at Urbana-Champaign corresponding roughly to Novice High or Intermediate Low on the ACTFL written proficiency guidelines (ACTFL, 2001). Participants were asked to complete a background questionnaire, take a reading pretest, write four compositions: one written pretest, two experimental tasks, and one posttest, and fill out an exit questionnaire. In an attempt to minimize any potential negative effects that OT use might have on future acquisition or grades, participants included only students currently enrolled in their final semester of coursework in French. Additionally, the study was conducted near the end of the semester after all graded composition assignments had been completed.

Participants were divided into three treatment groups. Group A, the control group, had 10 participants who were not allowed to access an online translator, and received no training in OT. Group B ($n = 11$) was allowed to access *Free Translation* to assist in writing two experimental compositions (Tasks One and Two), but received no prior training in OT use. Group C ($n = 11$) was allowed to use *Free Translation* and received prior training about online translators before the two experimental tasks. None of the three groups was allowed access to other resources, including paper or electronic dictionaries, for any of the compositions. The tasks involved participants writing three-paragraph compositions based on provided prompts, which differed only in instructions on whether OT was prohibited (for participants in Group A, see Appendix A) or allowed (participants in Groups B and C, see Appendix B). The prompts provided to participants were developed for the study based on those used by Scott (1996). For tasks in which Groups B and C were instructed to use an online translator, they were free to use it as little or as much as they chose. Training for Group C involved a one-hour, instructor-led session with information and exercises related to how to use online translators, as well as a sheet on potential strengths and pitfalls of OT (Appendix C), while Groups A and B instead attended an instructor-led cultural lesson. All writing sessions, the cultural lesson, and translator training took place during regular class time or in the evening and were led and proctored by graduate teaching assistants (GTAs).

To ensure the groups were similar prior to the experimental tasks, all participants completed two pretests, as mentioned above: the reading pretest consisted of an excerpt from the practice version of the College-Level Examination Program (a.k.a. CLEP) test for French, while the written pretest consisted of a three-paragraph composition similar in format to Tasks One and Two, but all groups wrote without using an online translator. A one-way analysis of variance (ANOVA) showed no significant differences among the groups on either measure ($p < 0.05$), indicating they were statistically similar at the start of the study. To gauge any effect that OT may have had on participant writing after the experimental tasks, all participants also completed a posttest, which like the written pretest involved a three-paragraph composition written without the use of OT. In all, there were 128 compositions (written pretest, Tasks One and Two, and posttest) submitted by participants.

Six English-native GTAs, each with at least 11 years of experience speaking

French and two years of teaching experience, were asked to serve as raters. Raters were asked to read compositions to determine whether, in their opinion, participants used an online translator to aid in writing. One GTA had taught a class in which some of the participants were enrolled, while the other GTAs had not. In order to protect participants' anonymity, each was assigned a participant number, and personally-identifying information (e.g., names of the participants, friends and family members mentioned in the compositions) was changed to non-identifiable equivalents that did not affect grammaticality. An example of this would be replacing a female name beginning with a vowel by another female name that also started with a vowel so as not to affect adjective agreement or elision. Raters attended a one-hour informational and training session prior to receiving compositions to rate. During this session, they were informed of the design of the study, given a brief history of and an introduction to OT, shown a copy of the strengths and pitfalls of OT that had been provided to study participants (see Appendix C), made aware of additional typographical features, including sudden changes in font or punctuation style, that might indicate OT content was pasted into a composition, and presented with the rubric used for scoring the compositions. In order to increase interrater reliability and ensure that the evaluators were familiar with OT, they then rated four example compositions, judging whether or not they thought a translator had been used for each, and discussed their scores and rationale with the researcher and other raters.

Given the large number of compositions, the ideal of having all raters assess each composition was logistically impossible. Instead, each composition written for the pretest, posttest, and Tasks One and Two was read by two raters. Raters were also asked to indicate, through brief explanations and/or marks (e.g., underlining or circling words), what specifically had led them to conclude that an online translator had or had not been used. Chi-square tests and Likelihood ratios were used to verify interrater reliability. One-way ANOVAs were performed to find statistical differences between the groups and tasks.

Results

Rater Judgments

A highly significant association ($p < .001$) was found between raters' judgment of OT use and actual usage, $\chi2$ (1) = 28.81 and Likelihood ratio of 28.13. Likelihood ratios provide a way to compare the actual and expected counts of a measure, in this case estimating the probability that a rater's judgment on a given composition will match up with actual OT use. Across all compositions, there were 181 correct judgments out of 256, representing a 70.70% accuracy rate. For a majority of cases, instructors were able to identify which compositions were written by participants who were allowed access to an online translator, and which were composed by participants who were not permitted to use OT. Of the times raters were incorrect in their assessment of OT use, there were 33 cases of false positives, that is, where a rater suspected an online translator was used when in fact none was. Additionally, there were 42 cases of false negatives, that is, where a rater did not judge a composition to have been aided by OT when it had been. False negatives represented 16.4% of all judgments, while false positives accounted for 12.9% of cases.

While instructors overwhelmingly were able to recognize which compositions were written with the aid of OT, there were still a notable number of errors. Additional analyses were conducted to pinpoint on which tasks the false positives and negatives occurred. For the written pretest, there was a 73.44% success rate in correctly identifying compositions as not having been written with an online translator. There were 17 false positives out of 64 possible ratings, or a 26.56% error rate. Since no participants were authorized to use a translator for the pretest, there were no false negatives. On the posttest, for which OT was also not allowed, there were 11 false positives out of the 64 ratings, leading to an 82.83% success rate. Only percentages are given for these measures since actual usage was a constant in that all compositions were written without OT. For this reason, it is not possible to obtain chi-squares or Likelihood ratios for the written pretest and posttest because it would involve division by zero.

On Tasks One and Two, the control group (Group A) was not allowed to use OT, while members of Groups B (with no prior training in OT use) and C (with prior training) were instructed in each prompt to use the online translator found at <http://freetranslation.com> to assist them in writing their composition. A highly significant difference ($p < .001$) was found for Task One between rater judgments and actual OT use: $\chi2 (1) = 14.20$ and Likelihood ratio of 20.09. Raters correctly judged 41 out of 66 compositions overall, representing 64.06% of cases. There were no false positives. Importantly, however, there were 23 false negatives, which means that out of the 44 ratings for compositions written with OT, those submitted by Groups B and C, there was only a 47.73% success rate. Despite the fact that instructors were able to judge OT use or non-use overall to a statistically significant level, the raw data show that there were still many cases in which raters did not detect the use of an online translator when one had actually been used.

For Task Two, a significant association ($p < 0.05$) was again found between judged and actual OT use, with $\chi2 (1) = 6.398$ and Likelihood ratio of 6.63. Instructors correctly identified 42 out of 64 compositions, for a 65.63% overall success rate. This time, however, there were five false positives and 19 false negatives, indicating once again that raters did not suspect OT use in a number of cases when it had actually been used, 19 out of 44 ratings, or 43.18% of the time. There were a small number of cases for Task Two where translator use was incorrectly suspected by raters, representing five out of 20 ratings, or 25%.

These findings demonstrated that instructors were able to correctly identify whether or not an online translator was used, both overall and on three of the four compositions. For the second writing task, there was still a statistically significant relationship between the judgments of raters and actual OT use, although not highly so. Instructors were rather successful in recognizing compositions where OT was not used, while the data show that they did not fare quite as well with correctly identifying OT when it had been used.

Rater Comments and Samples of Participant Writing

In addition to a binary decision of whether or not an online translator had been used for a given composition, raters were asked to indicate which passages or characteristics in the writing led them to their judgment. Some of these include ty-

pographical features, inappropriate lexical choices not deemed typical for this level, inconsistency in sophistication or accuracy of writing within a composition, misspelled words in English, or spelling or accent mistakes in French appearing in the composition. A brief discussion of a sampling of their comments, both for compositions where OT was used and for ones where there was no online translator involved, will give a more qualitative look at what went into the decision-making process. This discussion should serve as a look at which aspects present in participant compositions might be signs of OT-aided writing and what may not necessarily indicate the use of an online translator.

One feature that raters reported as suggesting OT use was a sudden change in font type or size. Such changes can indicate that text has been copied and pasted from another source, such as an OT site. This typographical change may also lead to noticing differences in writing before or after the inserted texts. For one composition, a rater noted that after the change in font size no missing articles or accents occurred, which helped lead to a correct identification of online translator use for that essay. In another case, the change in font was the main factor that was reported to allow a correct determination of translator use. One of the two raters for this composition commented, "Although I'm not sure if the entire essay was written with the help of a translator, I'm pretty certain that the last paragraph was largely because the font changes." A sudden change in typographical style was seen as a good indicator that a translator had likely been used during the writing process.

Another aspect cited for arousing suspicion of OT use involved inappropriate grammatical or lexical choices that do not seem typical of student-produced errors. One rater highlighted the following example, *chronométrer consommer*, which literally means *to time to consume* and was apparently intended by the participant to convey the idea of *time-consuming*. The verb *chronométrer*, which might be used when one is talking about timing a race, for example, is the wrong part of speech: a verb in infinitive form instead of a noun. This word is unlikely to be confused semantically with the more general concept of time. *Consommer* is also the wrong word class, an inappropriate semantic choice, and unlikely to be used by a student at this level without the use of an online translator, at least in the judgment of the rater. In another composition where OT use was allowed, a participant wrote *la décision est jusqu'à tu*, literally meaning *the decision is up to/until you*. While *jusqu'à* can mean *up to* in certain contexts, its primary acceptation is *until* in a temporal, numerical, or spatial sense. The rater judged this atypical and incorrect way of conveying the idiomatic use of *jusqu'à* to be OT-produced. Another sentence, *La bonne chance faisant cette grande décision!!,* literally, *The good luck making this big decision!!*, was judged to be indicative of translator use. The presence of the definite article at the beginning of the sentence is ungrammatical both in English and French for this type of exclamation. In addition, the French sentence contains a gerundive, a more rarely used grammatical form in French sometimes corresponding to *–ing* in English, but which is unlikely to have been produced by a student without OT, in the estimation of the rater.

Raters also found inconsistencies in level or accuracy, either between passages within a composition or as compared to typical production for students at the third- and fourth-semester level, which led them to believe an online translator had been used on all or portions of a given composition. There were a few examples of OT-

aided compositions that contained the correct use of the partitive article *de*, which is generally untranslated in English but expresses the idea of *some*, in front of a plural prepositive adjective. One example of this was *de vrais programmes,* meaning *real programs*, in lieu of the regular plural partitive article *des*. This finer grammatical point is one that even not all native French speakers respect, in the researcher's experience. In one composition, the presence of this feature was coupled with a number of more basic mistakes with accents, for example, *tres* instead of *très* for *very*, as well as with grammar, *je pense que te aimais le travail*, presumably meaning *I think that you would like the job/work*, but with an incorrect subject pronoun and the second verb in the imperfect instead of conditional mood. These inconsistencies helped raters identify the composition as being written at least in part with OT.

In some cases, instructors judging the tasks found usage to be above what a student would be expected to produce at this level, and described a composition's spelling, accents, or grammar as being, in their words, *too good* or *perfect* for participants to have produced on their own. For one composition, there were no orthographical errors whatsoever and only one error with accents: *proféssion* which, as in English, carries no accent. At the same time, other errors occurred, including varied usage for the formal and informal second person subject pronouns, *vous* and *tu*, respectively, and lack of the use of the subjunctive mood, *pour que tu peux choisir*, meaning *so that you can choose* but without the appropriate subjunctive on the first verb. The rater judged these aspects to be signs that the participant used an online translator to help in writing.

Similarly, four of the raters of compositions determined, on at least one of the compositions they judged, that the quality of writing was too poor to have been aided by an online translator. One composition contained orthographical, diacritical, and grammatical errors and was judged to be entirely human produced. One rater, who correctly determined that OT had not been used, marked errors such as *chiox* instead of *choix* for *choice*, *endôit* for *endroit*, meaning *place* in English, the noun *amour* in place of *aime* for the verb *love*; *J'ai ne cher pas* was apparently meant to express *Ce n'est pas cher*, which would be *It's not expensive* in English but with several syntactic and lexical mistakes in French, which obscure the meaning. As seen above, the presence or absence of certain mistakes led raters to their decision concerning possible OT use.

Lastly, one of the *red flags* cited by Luton (2003) also occurred on an OT-aided composition and was noted by a rater: the inclusion of a misspelled word in the writer's native language. One participant's composition included the word *recieve*, presumably a typographical error for *receive*. Since the rest of the composition is written in French and the online translator would not recognize the incorrectly spelled word, this was deemed by the rater to have been run through the translator. The mistake appeared in a composition that also included a number of orthographical and diacritical errors in French, e.g., *meuiller* instead of *meilleur* to mean *best*. This suggests that the participant used OT for select portions of writing, including the misspelled *recieve*, while composing and making orthographical and other errors in French without the online translator for other parts of the task.

It is important to note, however, that while the above-cited features may be good indicators of OT use, they are not necessarily foolproof ways of determining

whether a student has used a translator while writing. Students could, for example, change the font type or size on their own in word processors, although no such cases were found by raters or the researcher among participants who had not used a translator. Additionally, and more importantly, some variation in production is typical at this level of acquisition, so inconsistency in level or spelling is not necessarily caused by OT use.

One composition that was not written with the aid of an OT included the misspelled proper noun *Illnois* for *Illinois*, likely due to a typing mistake. While in this case the correctly spelled French and English words are identical in orthographical form, one could easily imagine a student mistyping another proper noun where the two languages differ. One example might be typing *Floirda, misspelled in English, instead of *Floride* in French, and including it on a composition not processed by an online translator. There were also several cases of participants inserting words in English that they assumedly did not know how to say in French, such as *beer* or *accountancy*, whose presence even had they been misspelled would not necessarily indicate OT use but could instead demonstrate incomplete lexical knowledge on the part of the participant. Cases with isolated English words, misspelled or otherwise, may occur where there are orthographical mistakes in English unrelated to OT use and do not definitively indicate that a student relied on an online translator for help in writing.

As mentioned above, there were a number of cases where rater judgments were incorrect concerning OT use. For one composition that was not written with the aid of an online translator, one rater mistakenly thought that one had been used, citing "[s]ome non-native speaker of French errors (e.g. *faire les vacances*), but also perfect use of the subjunctive '*pour qu'ils puissent…*')." The second phrase cited, which means *so that they can...*, uses a conjunction that requires the subjunctive mood in French. The subjunctive is a grammatical point that is often more difficult to master; one might expect a student who uses the expression *pour que*, knows that it takes the subjunctive, and can conjugate it correctly, would also know an appropriate expression to talk about vacation such as *faire un voyage*, in English *to take a trip*, or *prendre des vacances*, meaning *to take a vacation*. But the composition in question was written for the posttest, on which online translators were not authorized; the mistakes instead reflected the incomplete acquisition of the language by the composition's writer. For another composition, both raters underlined *ma grand-mère maison* (literally, *my grandmother house*) and thought that the incorrect possessive expression (which should be *la maison de ma grand-mère* for *my grandmother's house*, or *the house of my grandmother*) was a sign of translator use, along and with "nearly perfect" spelling, as one of them put it. The error in expressing possession, however, is not one that *Free Translation* makes; it provides the correct translation in French (SDL, 2012). While the composition did present few spelling errors, other mistakes throughout the composition were indicative of student-produced errors. Two such examples included another difficulty expressing possession, *votre amis* instead of the plural possessive of *vos* at the beginning to mean *your friends*, and using *très* instead of *beaucoup de* to mean *a lot of*.

On the other hand, there were compositions where OT was indeed used but which escaped detection by one or both raters. In some such cases, the presence of errors in some parts of the text appeared to lead raters to discount possible signs

of translator use elsewhere. In one composition, the participant had a number of mistakes in French: for example, *les travails*, meaning *the jobs* but with an incorrect plural, as well as *á*, or *at*, with an acute instead of a grave accent. Both of these are mistakes that would not be expected of an online translator. However, to talk about a Master's degree, the participant put *degré du maître*, which literally means *degree of the master*, but with both of the nouns incorrect lexical choices in French for this term. One rater specifically expressed the belief that a translator would have found a better translation for *Master's degree*, while another drew boxes around *degré* and *maître* and still judged that the composition was not written with the aid of a translator. In fact, *degré du maître* is the translation that is given by Free Translation for *Master's degree* (SDL, 2012).

In another composition, the participant misspelled several words and made a number of grammatical mistakes that would not appear to be translator-induced. An example of the latter was *bon professeurs*, meaning *good teachers*, but with missing plural agreement on the adjective. Misspelled words included *mone* instead of *mon* for the English *my*, and *beacoup* instead of *beaucoup* for *a lot*. These mistakes led one rater to conclude that no translator had been used. There were however other aspects that were judged to be possibly indicative of the influence of OT. The phrase *mes amis et je suis allé,* literally, *my friends and I went*, contains a subject pronoun instead of the disjunctive/tonic *moi* here, as well as a verb in French agreeing only with the second part of the combined subject; both of these errors are judged by the researcher to be atypical of student production. Other aspects that might suggest OT use include unusual lexical choices such *méchante*, meaning *nasty* as referring to people or animals, to talk instead about cooking, inconsistent spelling and usage on several words, such as the incorrect *ma université* co-occurring with the correct *mon université* for *my university*, and several cases of the preposition *à* (*to/in*) without its accent while it is included in others instances. None of these features alone might be considered definitive proof or *red flags* of OT use, but taken together they were enough for one of the two raters reading the composition to identify it correctly as being written with the aid of an online translator.

It is interesting to note that instructors correctly identified compositions written by Group C, which had training in OT use prior to experimental tasks, more often than those written with OT by Group B. Group C's compositions were correctly identified 31 times out of 44 compared to only 15 out of 44 times for Group B, even though the latter had received no training. Training in OT use did not appear to allow participants who were using an online translator to escape detection, even though as mentioned above, their scores did not suffer as a result, and in some cases were actually higher than those of the control group (O'Neill, 2012).

Overall, raters were able to determine whether or not compositions were written with the use of an online translator. In some cases instructors were able to identify passages or features that aided them in coming to the correct decision. For other compositions, however, raters were unable to determine correctly the presence of OT. Based on rater comments and participant writing samples, some of the incorrect choices may have been due to participants using an online translator for only some portions of the task, or rater opinions on how well or poorly an online translator would perform for certain features as compared to students writing without using a translator.

There were several limitations to the current research that should be noted. The study involved only third- and fourth-semester students from one university who were taking French and who reported having no intention of continuing their French coursework. More research would be needed to see if similar results would apply to other populations, such as students learning other languages or those at other levels, at the university or in K-12. In addition, participants volunteered for the study, which means there may have been a self-selection bias among those who were eager to use OT or who had preconceived attitudes towards online translators. While groups were found to be statistically similar at the start of the study, there were varied backgrounds and experiences represented. For example, there were some participants who had studied or were fluent in other languages besides English, while others had only taken French. Since raters knew that some of the compositions were written with the use of an online translator and that they were reading papers as part of a study on OT, it is possible that raters were less reticent to judge a composition as being written with the help of OT than they might be in a typical setting where there is no assumption that some essays were definitely completed with such aid. Additionally, since it was not feasible to use video recording or capture keystrokes, there was the possibility that participants had access to unauthorized tools; an example of this would be a student who was instructed not to use an online translator but who may have done so. There were, however, no cases found by proctors or the researcher where it appeared a participant had used an online translator when not permitted, and no participant mentioned doing so in written self-reports describing their writing and OT use.

In future research, it is recommended that participant input be recorded through video camera, screen recordings, or keystroke captures both to ensure that students do not access unauthorized materials and to get more detailed data about how students use OT. Such an approach would provide insight into a number of areas, including how often students accept or reject the output of the online translator, at what points in the writing process OT is used, and for what purposes the translator is used (e.g., to look up an individual lexical item or to check grammatical structures). Delayed posttests could help determine what long term effects, if any, using OT might have on student writing or acquisition; such results could help inform teachers looking for traces of OT use, or help teach to design lessons that effectively utilize online translators to illustrate certain linguistic features or concepts. Additionally, online translators might be compared with other language tools, such as paper or electronic dictionaries, phone or tablet applications, to measure the effects of various resources both on overall scores as well as on specific features of student writing.

Discussion

The research question that guided this study was answered affirmatively. That is, in the majority of the cases instructors were in fact able to distinguish compositions written with the help of an online translator from those written without OT aid. While these results were statistically significant, a closer look at the quantitative and qualitative data does not support the assumption that students using an online translator produce compositions that can always be easily identified. In nearly 30%

of the evaluations, compositions were grouped incorrectly. Although more research is needed, the findings indicate that students do not necessarily perform perceptibly differently when using an online translator, which raises the question of how much harm or help OT are actually providing to students in the short and long terms.

There are a number of features suggesting an online translator may have been used that can help guide instructors in their determination of online translator use among students. Knowing what features may be characteristic of OT in student writing may be useful in identifying possible infractions of policies that discourage use of OT on ethical grounds, or out of a concern OT tools might harm long-term language acquisition by students. This research provided a look at student compositions written with the use of an online translator, not necessarily to encourage or discourage its use, but to gain an understanding of how student writing with OT compares to that done without a translator. More research is needed to investigate how often these errors occur and to what extent they can be reliably identified as stemming from translator use as opposed to typical student production.

As information technology continues to develop, more language-related resources are becoming available to the general public and our students. It is important that language teachers and administrators make informed decisions concerning policies related to technologies whose use has not always been fully explored in the literature or in the field. Such determinations should strike a balance between pedagogical, administrative, and ethical concerns. Online translation is one such technology of which many teachers and students alike are aware, but for which the potential benefits or pitfalls are not fully known.

The finding that raters in this study were not always able to identify OT-assisted writing, and occasionally misjudged compositions as being written with an online translator, has important implications for the classroom. If the results obtained can be applied more broadly, then there are likely cases where students are submitting work that was written, at least in part, with the aid of an online translator without the instructor realizing it. For teachers or departments that impose sanctions against online translators, this means that some students may be using unauthorized materials without the instructor's knowledge. Given that prior research focusing on OT showed that scores for those using a translator were not lower than, and in some cases were actually higher than, those for participants not using a translator (O'Neill, 2012), it is possible that some students deviating from academic policy are receiving better grades than those who follow it. In other cases, some students may be assigned a lower grade or be accused of cheating on compositions for which an online translator was not in fact used. None of these outcomes is desirable from an instructional or administrative point of view.

The results of the current study suggest a number of possible avenues of further research. Future studies could attempt to find answers to questions such as does OT use by students result in long-term effects on their composition writing? Additionally, does the total number of errors, both overall and for specific linguistic features, differ between compositions written with OT and those written without? Further research could also investigate whether teacher-led lessons featuring online translators can be effective in either curbing their use or raising student awareness about what sorts of effects, be they negative or positive, OT use may have on their language

production. It is possible that OT may in some cases foster student achievement, or it may conversely hinder student learning. Similar discussions occurred with the advent of electronic calculators, which are now commonplace in many math classrooms for certain types of tasks. What to do about online translator use among language learners is an issue that is not easy to navigate, but that is nonetheless currently facing many foreign language instructors and administrators.

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Appendices

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http://tinyurl.com/ONeillDimension2013