

# Google Translate for Writing in a Japanese Class: What Students Do and Think

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## Abstract

Although the role of Machine Translation (MT) in second language (L2) learning and teaching has been controversial among educators, recent research has highlighted various potentials for using MT in classroom activities. This study investigated Japanese learners' behaviors and beliefs about Google Translate (GT) for revising self-written L2 texts. Sixteen students in a fourth-year Japanese class from a public university in the western US participated in the study. First, a comparison between participants' self-written texts and revisions with GT revealed that the revisions were at the local level, especially vocabulary and expression changes. Next, survey results and an examination of students' reflection reports showed that students believed that using GT for revisions has linguistic, cognitive, and affective benefits. While all participants acknowledged the benefits to various extents, some were concerned about overdependence and academic honesty violations.

**Keywords:** Google Translate; Japanese; L2 writing; Students' perceptions

## Introduction

Multiple research studies have reported that foreign language learners have been taking advantage of Machine Translation (MT) for a great variety of purposes because of the significantly increased ability to access MT in our daily lives (Clifford et al., 2013; Correa, 2011; Faber & Turrero-Garcia, 2020; Jolley & Maimone, 2015; Tian, 2018). While MT use is considered detrimental to language learning by some instructors, a growing body of literature, mostly in EFL and Spanish, has argued the importance of incorporating MT into language learning and teaching because of its convenience, increased accuracy, and potential benefits for language learning (Benda, 2013; Ducar & Schocket, 2018; Groves & Mundt, 2015; Jiménez-Crespo, 2017; Mundt & Groves, 2016; Stapleton & Kin, 2019). Studies have shown that MT can help raise metalinguistic awareness of the second language (Correa, 2014; Enkin & Mejías-Bikandi, 2016; Williams, 2006), enhance reading comprehension and writing quality (Garcia & Pena, 2011; Lee, 2020; Tsai, 2019), increase motivation and confidence (Lee, 2020; Niño, 2009; Xu, 2020; Zhang, 2019).

So far, however, only limited research examines learners' behaviors and beliefs regarding MT use for classroom writing activities (Lee, 2020; Niño, 2009; Tsai, 2019; White & Heidrich, 2013; Xu, 2020). Furthermore, no single study has examined MT use in a Japanese language learning

environment. Therefore, this study focuses on the learners' use of Google Translate (GT) for editing self-written Japanese texts. Rather than other MT, GT is chosen because of its widespread accessibility and frequent use among university students in the United States. For instance, Clifford et al. (2013) reported that 81% of the participating students from Duke University use GT as a tool to support their language learning, a significantly higher percentage than that of any other MT.

The present study has two primary aims: (a) to investigate how learners use GT for editing and (b) to explore learners' beliefs about GT use for editing. The learners' self-written texts without GT's help, the revised texts with GT's help, a survey, and reflection papers about their perceptions of GT use for editing were collected and analyzed. This research contributes to a deeper understanding of MT use in the classroom for language learning and teaching.

### **Literature Review**

While the literature has highlighted the potential of uses of MT for language learning and teaching (e.g., Benda, 2013; Ducar & Schocket, 2018; Correa, 2014; Enkin & Mejías-Bikandi, 2016), only limited research has explored MT use for writing in classroom settings (Lee, 2020; Niño, 2009; Tsai, 2019; White & Heidrich, 2013; Xu, 2020). This section provides a brief review of several empirical studies on MT use regarding how

MT is integrated into writing activities in the classroom, how students use MT for such activities, and how students perceive such MT use.

### **MT Use for Writing in the Classroom**

MT use for writing in the classroom involves two possible occasions: pre-editing and post-editing (Correa, 2014; Garcia & Pena, 2011; Jiménez-Crespo, 2017; Niño, 2009). Learners can revise self-written L1 texts to produce an adequate output in MT in pre-editing activities or edit MT L2 products in post-editing activities (Enkin & Mejías-Bikandi, 2016). Recent research concentrates on MT use for writing through a combination of pre-editing and post-editing in which learners either first write in their L1 or in L2 before MT is incorporated into the editing process (Lee, 2020; Tsai, 2019; White & Heidrich, 2013; Xu, 2020; Zhang, 2019).

For example, EFL learners, from Korea in Lee (2020) and from Taiwan in Tsai (2019), first wrote in L1, Korean and Chinese, respectively. Then they translated those L1 texts into English by themselves without the help of MT. In the next steps, learners used MT to translate their L1 texts into English (MT version). Last, they edited their self-translated versions by comparing them with the MT versions, eventually resulting in final versions.

In Xu (2020) and Zhang (2019), Mandarin Chinese learners first conducted writing tasks in the L2. MT was used

to translate those self-written L2 texts into L1. Then, in Xu (2020), learners used a procedure like that used in Lee (2020) and Tsai (2019): Learners completed their final versions by comparing their self-written versions with MT versions. Learners were encouraged to use MT between Chinese and English back and forth to achieve satisfactory results.

### **Learners' MT Use for Editing**

A search of the literature revealed that only Lee (2020) examined how learners edited self-written texts with MT's help. Lee (2020) found that the changes learners made occurred most frequently at the lexical level, twice as frequently as at the phrase level or clause/sentence level. No changes appeared at the symbol, e. g., punctuation, or paragraph levels. Also, Lee (2020) pointed out that learners most frequently replaced expressions, followed by editing grammar and fixing vocabulary. Vocabulary changes were primarily limited to the lexical level, while changes to grammar and expressions ranged from changing a single word to revising an entire phrase or sentence. It is of importance to note that learners did not merely accept the translations provided by MT. Instead, they “critically and strategically selected from alternatives based on their previous knowledge and sometimes combined their original with the MT version to produce a sentence” (Lee, 2020, p.170).

## **Learners' Perceptions of MT Use**

Learners' experiences are crucial when evaluating language learning resources (Chun et al., 2016). Multiple studies reveal that some learners hold positive attitudes towards MT use (Clifford et al., 2013; Lee, 2020; Niño, 2009; Tsai, 2019; Xu, 2020), while other students are confused about MT use in classroom writing activity (White & Heidrich, 2013).

Learners believe that MT is beneficial for vocabulary (Lee, 2020; Niño, 2009; Tsai, 2019; Xu, 2020). MT is thought to be able to find accurate or context-appropriate suggestions. Learners in Niño (2009) stated that MT was beneficial with terminology. Similarly, Lee (2020) also found that 88% of participants considered MT particularly useful in locating accurate words or authentic expressions for a given context. Tsai (2019) also reported that vocabulary use was considered the most significant benefit of using GT by most students.

In addition, students believe that by translating self-written sentences and corresponding English back and forth, MT can improve their lexico-grammatical awareness and help them to correct errors (Lee, 2020; Xu, 2020). Ultimately, they believe that MT help improves the quality of their writing (Lee, 2020; Tsai, 2019; Xu, 2020).

MT also has affective benefits. Not only can MT increase learners' confidence in their writing products, but it also makes students feel more confident about their language

competency. Xu (2020) reported that students think that MT allows them to confirm what they already know and what they can do, which eventually boosts their confidence. Besides, practicing with MT for writing can help learners understand how to use MT effectively and responsibly. Xu (2020) also found that some learners avoided using MT for writing because of concerns about violating academic integrity standards and MT output inaccuracy. However, after practicing MT under instruction, they felt that they became more autonomous learners because MT provides extra support and assistance.

While learners acknowledged MT's benefits, they were also aware of MT's limitations. Nineteen percent of Niño (2009) participants said they would not use MT in the future because of its low accuracy. Tsai (2019) and Lee (2020) also reported that learners noticed grammatical errors and awkward literal translations in MT versions.

On the other hand, White and Heidrich (2013) found that learners were confused about whether MT use made their writings better or worse. They also did not feel that they were giving their best efforts by using MT. Even when explicitly told to use MT for the writing task, some participants thought they were “cheating” with MT.

Overall, the studies presented thus far highlight the need to examine learners' behaviors and beliefs about MT use for writing in the classroom. So far, very little research exists about how learners edit self-written texts with MT. Further, conflicting results exist in the literature regarding students' beliefs about MT use. Also, there is no research on MT use in the context of learning Japanese. Therefore, the present study aims to address the following research questions:

- 1) How do learners edit self-written L2 (Japanese) compositions with GT?
- 2) What are Japanese learners' perceptions of such GT use?

## **Methodology**

### **Participants**

Sixteen participants, 12 females and four males, who enrolled in a fourth-year Japanese class from a public university in the western United States, participated in the study. (See Table 1 for detailed information about the participants). Thirteen participants had English as their L1; the other three had Chinese as their L1. Eight participants studied abroad for five weeks during the summer after completing third-year Japanese classes. Two were heritage learners who spoke Japanese at home with their parents. Because of the participants' various backgrounds and learning experiences, their proficiency levels varied from novice-high to advanced-low based on their



homework and classroom performance, as evaluated by the researcher, who was the course instructor.

*Table 1. Participants*

	L1	Heritage Learner	Study Abroad	Language Proficiency
S1	English	No	Yes	Intermediate-Mid
S2	English	No	Yes	Intermediate-Mid
S3	English	No	Yes	Intermediate-High
S4	English	No	Yes	Intermediate-High
S5	English	No	Yes	Intermediate-Mid

S6	Chinese	No	Yes	Advanced-Low
S7	Chinese	No	Yes	Advanced-Low
S8	English	Yes	Yes	Advanced-Low
S9	English	No	No	Novice-High
S10	English	No	No	Intermediate-Low
S11	English	No	No	Intermediate-Low
S12	English	No	No	Novice-High
S13	English	No	No	Intermediate-Low

S14	English	Yes	No	Advanced-Low
S15	Chinese	No	No	Intermediate-Low
S16	English	No	No	Intermediate-Low

## **Context of the Study**

The participants used GT to edit four compositions during the semester. For the first three compositions, participants wrote about the same topics. Participants could choose either one topic provided by the instructor or a topic of their own for the fourth composition.

Before the first composition task, as suggested by Ducar and Schocket (2018), the instructor introduced GT in class. First, participants shared their experiences and thoughts about GT, and the instructor discussed moral issues, strengths, and pitfalls regarding GT use. In particular, the participants were informed that the instructor would only grade each composition's final draft because writing is a process rather than merely a product. The purpose of such practice was to train students to "understand and practice writing as a growth and revision process rather than a short-term product" (Ducar & Schocket, 2018, p.792). Further, participants were instructed that GT could serve as a peer in the L2 revision processes (Correa, 2014; Ducar & Schocket, 2018; Lee, 2020). However, since GT is still evolving and far from perfect, the instructor reminded participants not to passively copy-and-paste GT's translations. Instead, they should actively decide whether to accept or reject GT suggestions.

The four writing tasks followed the same procedure, shown in Table 2. In step 1, participants wrote in Japanese outside of class without GT's help and submitted self-written drafts (SW version). Textbooks and dictionaries were allowed for reference. In step 2, participants consulted GT to revise the SW version and submit the revised version (GT version). Participants also submitted a reflection paper about GT use (Reflection One). In step 3, participants discussed their GT versions in groups or pairs and turned in Draft Three based on the discussion and peer response. In step 4, participants revised Draft Three based on the instructor's comments and turned in a final version (Draft Four). Participants also completed another reflection paper (Reflection Two) about the whole writing process. Throughout the entire process, participants received feedback from GT, peers, and the instructor for the four compositions.

*Table 2. Task Procedure*

	Content	Submission
Step 1	Self-written Composition	SW version
Step 2	Revision with GT	GT version; Reflection One
Step 3	Peer Response	Draft Three
Step 4	Revision with teacher Comments	Draft Four; Reflection Two

## Data Collection and Analysis

To answer the first research question, this study examined the SW version, GT version, and Reflection One from the fourth composition which was the last one of the semester. Only the fourth composition was focused upon because participants needed multiple opportunities to practice using GT for revision (Edwards & Liu, 2018). Moreover, Reflection One was included because it provided more detailed information about how participants edited the SW version with GT. Draft Three and Draft Four were excluded because they were more related to the effects of peer response and instructor's feedback, which were not the focus of this study.

To analyze the first research question concerning how participants use GT when editing their SW versions, Reflection One for the fourth composition was first coded to investigate how participants used GT to make revisions (Appendix 1). Second, SW versions and GT versions were compared to examine what participants edited. While all participants submitted the GT version, only seven participants (S1, S4, S7, S10, S11, S12, S14) also turned in their SW versions. Thus, comparisons occurred between these seven participants' compositions. The examination concentrated on revision levels (i.e., punctuation, spelling, word/phrase, clause/sentence, paragraph) by comparing the original texts in the SW version and the GT versions. Given that no revisions



at the punctuation and paragraph levels were observed, the analysis focused on the spelling, word/phrase, and clause/sentence levels of modifications.

It is noteworthy that this study focused on the changes participants *actually* made rather than changes participants *should* make. Thus, issues remaining in the GT version, such as word usage and grammatical errors, were excluded from examination. Also, given that participants wrote in their L1 when they did not know how to express something in Japanese in their SW versions, there were two subtypes of revisions: L1 (Chinese or English) to L2 (Japanese), and L2 (Japanese) to L2 (Japanese). The changes from L1 to L2 or L2 to L2 at various levels were identified and grouped for further analysis.

The underlined parts in Table 3 show examples of revisions in which (a) is considered as the clause/sentence level, (b) is a spelling revision, (c), (d), and (e) are word/phrase level revisions. Examples (a), (c), and (d) are L1 to L2 changes. Grammatical errors remaining in the GT version were not examined in this study.

Table 3. Example of Revision

SW version	GT version
<p>では、学生は外国語をよく分かるために外国語教育は <u>should include all aspects of language learning</u> (a)、<u>時に (b)</u>話すことや文化。そうすると学生はネイティブスピーカーとよく話すことと聞くこと。さらに、<u>fluently speak</u> (c)ために小学校の時外国語を教え始めるべきだ。そのことをす</p>	<p>では、学生は外国語をよく分かるには外国語教育には<u>言語のすべての側面を含める必要だ</u>、<u>特に</u>話すことや文化。そうすると学生はネイティブスピーカーとよく話すことと聞くこと。さらに、<u>ペラペラ</u>話すために小学校の時外国語を教え始めるべきだ。そのことをすると外国語学生</p>

<p>ると外国語学生は <u>confidently</u>(d)外国語を <u>話せる(e)</u>。</p>	<p>は<u>自信を持って</u>外国語を<u>話すことができ</u> <u>る</u>。</p>
<p>English Translation:</p> <p>So, in order for students to understand a foreign language well, foreign language education <u>should include all aspects of the language</u> (a), <u>especially</u> (b) speaking and culture. Then students often talk and listen to native speakers. In addition, in order to <u>speak fluently</u> (c), foreign languages should be taught in elementary school. By doing so, foreign language students <u>can speak</u> (e) a foreign language <u>confidently</u> (d).</p>	

For the second research question, only Reflection Two of the fourth composition was examined. As the final reflection paper on GT use for the entire semester, Reflection Two contained a 5-point Likert-scale questionnaire and four open-ended questions (see Appendix 2). Adapted from White & Heidrich (2013), the survey explored participants' general perceptions regarding GT use in revision. Participants responded with 1 "strongly disagree" to 5 "strongly agree" to 13 items in the questionnaire. Adapted from Niño (2009), Xu (2020), and Zhang (2019), the four open-ended questions assessed participants' opinions on effectiveness, confidence in writing in Japanese, future use, and possible changes in their views about GT use.

Participants' responses to the open-ended questions were coded through multiple steps (Baralt, 2012; Duff, 2012). Recurring themes, such as vocabulary, grammar, quality, confidence, and learning strategies, were identified to understand students' perceptions of GT's use for revision.

## Results

### **Research Question 1: How Students Edit Self-written L2 (Japanese) Compositions with GT?**

The data from seven participants' compositions shows that almost no additions or deletions occurred in revisions. Only one participant deleted one English sentence, and another participant deleted three Japanese sentences in their SW versions. Only one participant added a single new sentence into the GT version.

As Table 4 shows, most changes (85%) were from participants' L1 to Japanese. Also, the most frequent change occurred at the "word/phrase" level (65%), followed by the "clause/sentence" level (34%). There was only one case of a "spelling" revision.

*Table 4. Levels of Revision*

	L1 to L2	L2 to L2	Total	%
Punctuation	0	0	0	0%
Spelling	0	1	1	1%
Word/Phrase	44	7	51	65%
Clause/Sentence	23	4	27	34%
Paragraph	0	0	0	0%
Total level	67	12	79	100%
* This table is based on the drafts of seven participants who turned in their SW and GT versions.				

Participants' reflection papers revealed a great variety of resources besides GT were used for revision, including textbooks, the Google search engine, online dictionary or apps, and other online translation websites.

When participants made changes in the SW versions, they did not automatically accept the Japanese vocabulary/sentence suggested by GT or other resources. Instead, they reported various strategies to make final decisions. For example, participants either typed sentences in their L1 into GT to get corresponding translation in Japanese or put their self-written Japanese sentences into GT to confirm whether their L1 outputs made sense. When they were not satisfied with the GT productions in their L1, they edited the translations in their L1 and translated them back to Japanese. Such a process continued until an acceptable result emerged.

## **Research Question 2: What are the Japanese Learners' Perceptions of GT Use?**

### **Questionnaire Results**

Table 5 shows the survey results concerning participants' general perceptions about using GT, in which the 13 items are ranked based on the means of student responses to each question. It appears that participants have mixed feelings about GT use. On the one hand, they believed that GT helped

develop better content (Q11), deliver a better quality of the submission for their satisfaction or grade (Q4, Q5), organize their thoughts clearly (Q9), and find words to express themselves (Q7). On the other hand, although participants felt that they tried their best to use GT (Q1), they were unsure whether the submission's quality was indeed changed (Q2). Further, participants did not believe GT to be helpful with using new or sophisticated words (Q8) or with using more complex grammatical structures (Q6).

While most participants did not believe that using GT to edit their self-written compositions violated academic integrity, some participants felt guilty about using GT given the broad standard deviation (Q3).



*Table 5. Participants' Perceptions of Using GT*

	Question	Mean	SD	Median
Q11	I feel like it helps me develop better content	3.88	0.81	4
Q2	I am wondering whether I used this resource sophisticatedly, i.e., whether it made my writing better or worse.	3.81	0.66	4
Q9	I feel like it helps me organize what I want to say more clearly.	3.75	0.86	4
Q4	I feel like it helps me deliver my best work for my own satisfaction.	3.69	0.79	4

Q5	I feel like it helps me deliver my best work for getting a good grade.	3.69	0.70	4
Q1	I feel I am giving my best effort by using this resource.	3.63	0.72	4
Q7	I feel like it helps me use words that fit what I want to say.	3.56	0.96	4
Q10	I feel like it helps me spell more sophisticatedly.	3.44	0.63	3.5
Q8	I feel like it helps me use words that are new and sophisticated.	3.31	0.70	3
Q13	I feel like it helps my voice emerge more distinctly	3.31	0.87	3.5
Q12	I feel like it helps improve my style.	3.25	0.77	3

Q6	I feel like it helps me use more complex grammatical structures.	3.13	0.89	3
Q3	I feel like I might have cheated.	2.13	1.02	2
<p>*Scale:1=strongly disagree; 2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree</p> <p>*This table is based on the responses of all 16 participants.</p>				

## Open-Ended Question Results

### Linguistic Benefits

First, vocabulary emerged as a significant theme in their reflection papers. Participants reported that GT not only helped them locate new words but also helped find appropriate ones. Moreover, GT was also useful to understand the nuance of vocabulary. Participant S3 explained, “By going between English and Japanese...I feel like I’m able to think about this nuance better and know how to change words to convey a meaning closer to what I want to say.”

Another reported linguistic benefit regarding grammar. Although participants believed that GT provided *new* words or *better* words to express what they wanted to say, no participant mentioned that they had acquired *new* grammatical knowledge. Instead, it seemed that GT served as a “reminder” to aid students to *notice* what they had already learned. Participant S6 noted that GT “sometimes gave me a sentence structure/grammar that we have learned in class, but I forgot to use it in composition. Then, I got to improve my sentence by using this new sentence structure.”

### GT as a Proofreader

By examining their SW version’s translations provided by GT, participants believed that GT functioned as a proofreader. They thought that GT identified confusing parts and grammatical or vocabulary errors. Participant S2 responded

that GT could show how her writing sounds to another person and how they perceive it in English. Also, GT helped locate some errors overlooked by participants. Further, GT could identify some writing style flaws, such as using the same word too much. Participant S3 noted that “I may not see the confusing parts or overlook the mistakes. Google Translate proofreads for me and points these out.”

### **Willingness to Take Risks**

There were some suggestions that participants became risk-takers when writing with GT. It appeared that the participants strategically chose to experiment with more sophisticated language forms. Without GT’s help, participants might have chosen to avoid expressing what they wanted to say. However, when GT was integrated into the writing process, participants felt that they had gained some “wiggle room” to try out specific less-familiar language forms. As participant S11 responded, “I now feel like I can try new things more quickly, for example, if I had a bunch of different ways to say something in Japanese, I could put that phrase in, see how it translated and correct it from there.”

### **Confidence**

Twelve of 16 participants reported that they became more confident in writing by various degrees. Participant S3 commented, “Checking sentences in Google Translate and seeing that many sentences that I have written on my own

make sense have made me more confident in my writing. I was really unsure of this before.” In contrast, only one participant, S4, thought GT did not build up confidence because he believed that his confidence in the Japanese language came from writing something that used the same structures in textbooks.

Meanwhile, three participants emphasized that while GT did not help them acquire confidence in Japanese writing ability, they became more confident in their submission. Participant S13 commented, “Google Translate has given me more confidence in my ‘final product’ of the writing that I end up submitting, but... I don’t think that it has given me more confidence in terms of the actual *act* of writing” (emphasis in original).

### **Change of Views about GT Use**

Fifteen participants reported some changes in views about GT. Among them, 12 participants responded with positive changes. Some used to consider GT prone to errors and, thus, not a reliable resource. Others thought that GT could only work as an online dictionary to look up the meaning of a word, or GT could not provide accurate translations for long sentences. After using GT throughout the semester, they thought that with proper use, GT could be a useful tool for learning. Participant S3 commented, “At the beginning, I thought Google Translate always gave bad translations, especially in

Japanese. But as I've used it throughout the semester, I have come to think that it is a useful tool.”

In contrast, two participants who used to trust GT started to question the translations GT provides. They noted that after practicing with GT throughout the semester, they realized GT's limitations in translation. Participant S12 explained, “I relied more on Google Translate at the beginning of the semester than I do now. Now I am a little more skeptical about it and use it for basic things but check it with other resources.”

Overall, these results indicate that some participants hold positive attitudes towards GT use in editing. They felt that they understood the proper way to take advantage of it after several practices during the semester. As participant S16 noted, “After this semester, I think as I was able to understand better how to use Google Translate properly, it helped me develop my writing.”

### **Concerns about GT Use**

Although participants acknowledged various GT benefits, they also expressed concerns. The first concern was about the accuracy of the alternatives provided by GT. Some participants responded that they noticed some translations were incorrect or unnatural and had to use other resources to check GT's grammar or words. Another concern was about overdependence on GT. Participant S13 explained that she

became uncomfortable writing in Japanese all by herself because she developed a dependence on GT. The final concern regards academic integrity. Although most participants disagreed that GT use for editing is related to plagiarism, a few participants had conflicting feelings. While GT's advantages were well-acknowledged, they felt that they were "cheating" with GT. For example, participant S13 noted that "Alongside all of these good things, though, I still feel a little bit lazy when I use Google Translate. I feel like I am cheating."

## **Discussion**

### **GT Use in Revision**

This study's first research question sought to determine how learners use GT to edit their self-written texts. Consistent with Lee's (2020) findings, learners' revisions were mainly on the vocabulary/phrase level (65%) followed by clause/sentence level (34%). Also, there were very minimal additions or deletions of words/phrases and sentences in participants' revisions. Considering that MT can only translate learners' L1 or L2 texts without providing input on global features such as content and structure, learners seemed to focus on the local level, including vocabulary, phrases, and grammar, to increase accuracy.

As reported previously, participants in this study did not merely adopt GT's suggestions. Instead, they critically and strategically used various strategies, such as double-checking



and previous-knowledge checking, to decide whether and how to integrate the recommendations into their final drafts. Also, GT seemed to help participants *notice* what they already knew (Schmidt, 1990, 2010). As Lee (2020) points out, learners compared their self-written texts with GT-provided texts, detected errors, considered alternatives, and rewrote. It showed that GT uses participants' enhanced awareness of lexical and grammatical choices and particular language forms in L2 writing and promoted their interlanguage development (Correa, 2014; Enkin & Mejias-Bikandi, 2016; Lee, 2020).

It is important to note that 85% of the revisions were from L1 to L2. While the students were required to write in Japanese (L2), they could also use L1 when they had trouble expressing themselves. The task design might be one of the reasons resulting in more L1-L2 revisions occurring than L2-L2 changes. In addition, while there are individual differences between participants, preliminary observations show that the proficiency level might contribute to more L1-L2 revision and fewer L2-L2 revisions. For example, S7, who has advanced-low proficiency, only had two revisions from L1 to L2. S14, another advanced-low learner, had nine-word changes from L1 to L2. In contrast, S12, a novice-high learner, changed 21 English words in Draft 1 to Japanese with the help of GT. It is not a surprise that less proficient learners tend to have more L1 in their Draft 1 and rely on MT to translate that into L2 due

to their limited linguistic knowledge. Further, learner beliefs about how MT should be used might also play a role in this issue. For example, S4, an intermediate-high learner, only had four words in L1 in Draft 1. It appears that he tried to write in Japanese as much as possible in Draft 1. In his reflection paper, he commented that GT is “a good first resource when editing a paper” because GT “gives you a good idea of what is correct and what stuff needs to get changed.” For him, GT is more for editing the texts that he already composed rather than translating what he wants to express from L1 to Japanese. Because only seven participants’ compositions were examined, it is difficult to conclude the reasons for more L1-L2 revisions than L2-L2 revisions. Further examinations are needed to explore how task design, language proficiency level, beliefs, and other variables contribute to the process of writing and editing with MT.

### **Learners’ Perceptions of GT Use**

Although a few participants in this study had mixed feelings towards MT use, all participants acknowledged MT’s benefits for writing activities to various extents, which is in line with previous studies (Lee, 2019; Niño, 2009; Tsai, 2019; Xu, 2020).

Participants in this study highlighted that GT’s role as a proofreader in pointing out errors or finding overlooked mistakes ultimately improved their writing quality. Further, participants dared to step out of their comfort zones and take

risks with GT's help. After working with GT for a semester, they took risks in writing by actively exploring various ways to express themselves rather than avoiding using grammar with which they are less familiar. Additionally, participants became more confident when writing in Japanese using GT. Consequently, their views toward GT changed after practicing with GT for one semester. Whether the opinion about using MT changed from being skeptical to being positive or vice versa, participants appeared to understand GT's advantages and drawbacks so that they could use it responsibly and appropriately. These findings suggest integrating GT into writing assignments could help students notice errors, recall already-learned knowledge, take risks, and lower anxiety levels. Ultimately students can thrive in a non-threatening, low-stress language learning environment.

Meanwhile, one of the participants was concerned about overdependence and academic integrity. Technological development enables GT to have language proficiency equal to, if not higher than, intermediate level (Ducar & Schocket, 2018; Schuster et al., 2016). Some learners might consider GT products superior to their output and decide to take whatever GT provides. Educators may face challenges assessing student outcomes where most, if not all, come directly from GT. As Ducar and Schocket (2018) emphasize, it is critical to clearly and repeatedly inform students that “inputting data into GT

and reproducing those results patently violates the code of academic conduct” (p.788). Also, task design is another critical factor when considering GT use in class. For example, learners might need to present their writings to the entire class orally. Such a practice requires learners who adopted translation from GT to understand the content to deliver the presentation successfully. Instructors can also ask students to first write only in L2 no matter how confident they are of its accuracy. In that case, instructors need to create a low stress learning environment so that learners can understand that mistakes are part of the language acquisition process and can take risks in writing without worrying about grades. Finally, learners should have an opportunity to discuss their writings with the instructor; many students in this study suggested that they felt doing so was the best way to receive personalized and in-depth feedback.

Another concern is that participants were unsure whether GT use made their writings better or worse, as indicated in response to survey question Q2. This uncertainty might be because learners, especially those with lower proficiency levels, have difficulty assessing the products of MT. Although learners can turn to various resources to verify MT, they may be confused about making a final decision to accept or reject MT. Using MT requires students to improve their language proficiency and apply various strategies to deal

with such situations. It also indicates a need for instructors to familiarize themselves and their students with the available language corpora database (Ducar & Schocket, 2018). Students might become able to discern patterns of use from actual language productions to decide whether to accept or reject MT suggestions. In addition, as mentioned previously, teachers' feedback is indispensable to the whole writing process. In sum, MT is a useful complementary tool, but not the only one for language learning through writing activities.

### **Conclusion**

The present study investigated Japanese learners' behaviors and beliefs concerning GT use in editing self-written Japanese compositions. A comparison between participants' self-written texts and the revised texts with the help of GT and analysis of participants' responses to a survey indicated that participants mainly changed vocabulary and grammar at the word/phrase and clause/sentence levels with minimal deletion or addition of words or sentences. The study also found that while most participants held favorable attitudes toward GT use in writing activities, a few participants also had concerns, such as overdependence and academic integrity with GT use. Despite such mixed attitudes toward GT use, the students in this study believed GT could serve as a valuable supplemental source for the whole writing process.

Nevertheless, these findings face some limitations. The results must be interpreted carefully because of the relatively small sample size. Also, since the study was limited to examining the results of student revisions, the process in which students decide what to revise remains unclear. Another issue not addressed in this study was whether GT use has a long-term effect on students' proficiency. Moreover, Xu's (2020) participants unanimously chose Baidu, an MT in China, over GT for editing, which suggests that using a different MT might affect participants' perceptions and behaviors. As Lee (2020) suggests, further research should investigate how different variables such as the types of MT, writing procedures, language pairs, and language proficiency levels impact students' behavior and perceptions. Last, other research methods, such as using a thinking aloud protocol or interview, may help collect more in-depth data to understand how students use MT for writing activities.

Notwithstanding these limitations, as the first report on GT use in a Japanese writing class, the empirical findings in this study expand our understanding of MT's role in language teaching and learning. Given the rapid improvement of MT's accuracy and prevalence in our daily life, educators must take advantage of technology to develop learner proficiency through interactive, meaningful, and cognitively engaging learning experiences (ACTFL, 2017).

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## Appendix 1

### Reflection One

1. Did you use digital tools? What did you use (Jisho, Google Translate ...)?
2. How did you use digital tools? (Provide a detailed explanation)

## Appendix 2

### Final Reflection

1. When you used **Google Translate**, how did it make you feel? Please indicate your dis/agreement with the following statements:

Strongly Agree=5

Agree=4

Neither Agree nor Disagree=3

Disagree=2

Strongly Disagree=1

Q1: I feel I am giving my best effort by using this resource

Q2: I am wondering whether I used this resource sophisticatedly, i.e., whether it made my writing better or worse.

Q3: I feel like I might have cheated.

Q4: I feel like it helps me deliver my best work for my own satisfaction.

Q5: I feel like it helps me deliver my best work for getting a good grade.

Q6: I feel like it helps me use more complex grammatical structures.

Q7: I feel like it helps me use words that fit what I want to say.

Q8: I feel like it helps me use words that are new and sophisticated.

Q9: I feel like it helps me organize what I want to say more clearly.

Q10: I feel like it helps me spell more sophisticatedly.

Q11: I feel like it helps me develop better content.

Q12: I feel like it helps improve my style.

Q13: I feel like it helps my voice emerge more distinctly.

2. Has **Google Translate** helped you to improve your writing in Japanese? In which sense?
3. Has **Google Translate** given you more confidence in your foreign language written production? In which sense?
4. What was your opinion on **Google Translate** at the beginning of this semester? What is your current view? Are they the same? Why?
5. Are you going to use **Google Translate** or other digital tools in the future? For what purpose?