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【研究ノート】

Can Studying an L3 Make Meaningful Impact on the Acquisition of an L2?:

A Primary Analysis of Students Studying Third Languages at Tohoku University

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A number of studies have suggested that L3 acquisition can be aided by transferred knowledge from either the L1 or the L2. However, less attention has been given to the effects of studying an L3 on L2 acquisition. Therefore, this paper sought to make an initial investigation on how learning an L3 can affect L2 learning by looking at Tohoku University students who studied an L3 for one year after entering university and having had studied English as a foreign language for several years. We examined whether or not L3 type, motivation towards learning the L3, or awareness of similarity between the L2 and L3 had any impact on students' TOEFL scores or their reported improvement on the TOEFL test. The results of both quantitative and qualitative analysis suggest that awareness of L2 and L3 similarities was associated with more likelihood to improve on the TOEFL test, but not with final scores. However, L3 type and motivation towards learning the L3 were not associated with either final TOEFL scores or reported improvement.

1. Introduction

A large body of research argues that several factors influence the acquisition of a second language (L2) in the literature of second language acquisition from linguistic differences to motivation and anxiety (e.g. Bayona, 2009; Cenoz, 2001; Chin, 2009; Ellis, 1985; Hien & Spring, 2018; Marinova-Todd, 2003; Strid, 2017). However, among those factors, the role of individual learner motivation has been shown to be one of the strongest indicators of successful acquisition (Dörnyei & Ushioda, 2011; Gardner, 1985; Oxford, Park-Oh, Ito, & Sumrall, 1993; etc.). However, while the L2 acquisition has been well studied, there have been fewer studies on third language (L3) acquisition and the specific factors that may motivate and promote the learning for persons learning two or more languages. Though there seems to be consensus that knowledge from learners' previously acquired languages (e.g. L1 or L2) can affect the

learning of a target language (e.g. Chin, 2009; Ellis, 1985), most researchers only consider the unidirectional effects of L2 or L3 learning, i.e. the effect of the L1 on the L2 or of the L1/L2 on the L3, but not on how the L2 or L3 might affect the L2 or L1 (Cenoz, 2001; Chin, 2009; Hien & Spring, 2018). Furthermore, it is also unknown whether or not there are blended effects on the L2 or L3 from motivation towards learning languages in general or how much learners recognize similarities. For these reasons, this study examines whether learning an L3 has any impact on the acquisition of an L2 by looking at L1 Japanese students' attitudes and motivation towards their third language and their success in their L2 when studying both a third language (various) and a second language (English) at Tohoku University.

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2. Previous Studies

While it is understood that a number of factors that can impact the acquisition of an L2 or L3, many former studies point to the degree of similarity between the target language and previously learned languages and awareness of these similarities (e.g. Bayona, 2009; Cenoz, 2001; Cook, 2001), learning environment (e.g. Ellis, 1985; Hien & Spring, 2018; Oxford et al., 1993) and motivation (e.g. Dörnyei & Ushioda, 2011; Gardner, 1985) as some of the most influential. However, there is some ambiguity as to how these factors intertwine when learning an L3. Furthermore, differences in language environment, though important, could not be observed in this study and are not considered herein.

2.1 Linguistic Similarity

Linguistic typological similarities and differences have been well documented as influential on L2 acquisition (e.g. Cook, 2001; Flynn, 1987; Spring, 2015; 2019). It is generally thought that the more similar an L1 and L2 are, the more knowledge can be positively transferred from the L1 to the L2, and the less similar they are, the more likely negative transfer is to occur, causing learners to make mistakes. Similarly, in L3 acquisition, it is commonly assumed that positive transfer can occur either from the L2 or the L1, whichever is more typologically similar (Chin, 2009; Hien & Spring, 2018). However, some studies, such as Cenoz (2001) and Chin (2009), imply that positive transfer is aided significantly by learner awareness of the similarities and differences in the various language pairs (i.e. L1 and L3 or L2 and L3). However, there have not yet been any studies that suggest if awareness in the similarities of an L2 and L3 can also have a positive impact on the acquisition of the L2, as most have only focused on the acquisition of the L3.

In the case of this study, the participants are L1 Japanese speakers, who have been learning English

as a foreign language, and an L3 of their choice for one year at the time of the study, which were French, Spanish, German, or Chinese. As Japanese and English are typologically very different (Tsunoda, 2009; amongst many others), for most of the participants, the L2 is likely much more similar to their L3. German and English share similar roots, both being Germanic languages, and therefore have a number of typological similarities and shared vocabulary. Both French and Spanish are Latinate languages, and thus share a similar word order and a considerable amount of vocabulary. While Chinese is not a European language, and thus is not as similar to English as German, French or Spanish, it is more grammatically similar to English than to Japanese, as both are highly isolating, whereas Japanese is very agglutinative, and both English and Chinese share SVO word order, whereas Japanese is SOV. However, it should be noted that Chinese and Japanese share much more in terms of vocabulary than English and Japanese, and thus the participants in this study are more likely to attribute L2 knowledge to the L3 for French, Spanish and German than for Chinese.

2.2 Motivation

Though some researchers feel that linguistic similarity is the most important factor in L2 acquisition, others argue that learner motivation is far more influential (e.g. Clement et al., 1977; Dewaele et al., 2008; Du, 2009; Gardner, 1985, 2007; Gardner and Lambert, 1959). Researchers into the role of motivation in L2 acquisition, such as Gardner (1985), also make note of different types of motivation, dividing them mostly sharply into two types: (i) integrative motivation, triggered by learners' willingness to integrate and participate in the social life of the target language community, and (ii) instrumental motivation, the desire to pass examinations, study abroad, or increase practical

opportunities. Both types of motivation are said to correlate with their attitude toward the target language or the target language community (Clement et al., 1977; Du, 2009; Gardner, 2007), which in turn increases acquisition. On the other hand, a negative attitude toward the language community or the language itself can cause a motivation drop, which may impede acquisition (Dörnyei & Ushioda, 2011; Gardner, 1985; etc.). However, there have been few studies that examine if there are any integrated effects on learner attitudes towards L2s and L3s, and there have been none to examine specifically if learner attitudes towards their L3s have any effect on L2 learning.

2.3 Research Questions

Based on the aforementioned studies and the circumstances of the participants available to us, this study aims to conduct a preliminary investigation into the effects of studying an L3 on the acquisition of the L2 by looking at Tohoku University students, who study various L3s and English as their L2. Specifically, it looks at the L3 type, motivation and attitude towards L3 learning, and awareness of L2 and L3 similarity, and L2 acquisition as measured by TOEFL score and change in TOEFL score. Specifically, it seeks to answer the following research questions:

- (1) Are L3 type, attitude towards L3, motivation towards L3 learning, or awareness of similarities between L2 and L3 associated with higher TOEFL scores?
- (2) Are these factors associated with more increases in TOEFL scores?

3. Methods

3.1 Participants

216 first-year students at Tohoku University participated in the study and anonymously answered a survey (see Appendix 1) in which they were asked

a number of questions that would help us to detect outliers and remove them from our data set. Participants were removed as outliers if their first language was not Japanese, if they had lived abroad, if they had been studying English from earlier than the fourth year of elementary school, or if they had studied their L3 before entering the university. This left a pool of 150 participants that were considered in the analyses in this study. Their ages ranged from 18 to 23 years old ($M=19.21$, $SD=0.82$). Their onset age of English also varies from 9 to 14 years ($M=12.01$, $SD=0.97$) and all of them have been learning English for 6 to 9 years ($M=7.44$, $SD=0.87$). The participants had all been learning their L3 (Spanish, German, French, or Chinese) since entering the university, for exactly 10 months.

3.2 Methods

After participants answered the questions that allowed us to detect outliers, they were asked about their TOEFL scores, as first year students at Tohoku University take the TOEFL ITP test in April, before classes start, and again in December, 7-8 months later. The survey was given in February, shortly after TOEFL scores were announced. Participants were asked what their TOEFL score (taken 2 months prior) was and if their score had: a) improved 5 points or more from earlier, b) shown no change, or c) decreased by 5 points or more. Participants were then asked what L3 they were studying, followed by a series of 5-point Likert-scale questions (from 5, strongly agree, to 1, strongly disagree) to help determine their motivation towards learning their L3 and how aware they were of similarities between their L2 and their L3. The questions were designed to look at both intrinsic and instrumental motivation (i.e. Dörnyei, 2001). Intrinsic motivation was looked at through two main questions about whether or not they enjoyed studying the L3 and whether or not they were seriously trying to learn their L3, based

on MacIntyre and Gardner (1994) and Kato (2007). Instrumental motivation was looked at through two main questions about whether or not the learners thought it was important to learn their L3 and whether or not they planned to continue studying it after their classes at Tohoku University ended, based on Kato (2007) and Oxford (1996). Finally, in order to determine how aware students were of similarities between their L2 and L3, students were asked whether or not they felt their L3 had many similarities to English, their L2, and whether or not they felt there was any relationship between English and their L3. Finally, the survey included one open-ended question which was not mandatory, and simply asked the participants for any comments or opinions they had about learning an L3.

3.3 Data Analysis

While it is possible for students to have different types of motivation (i.e. Dörnyei, 2001; Kato, 2007), initial results of our study found that students generally answered the Likert-scale questions similarly for all questions regarding both intrinsic and instrumental motivation, resulting in highly correlated answers as determined by an ordinal regression analysis of all four questions ($r^2=.688$, $p<0.0001$), with each showing correlation of $p<0.001$. For that reason, the answers to the four questions regarding motivation were used to create a single “motivation” score by adding the numbers represented in the Likert-scale answers together. This resulted in a minimum motivation score of 5, and a maximum of 20 ($M=14.46$, $SD=3.38$). Similarly, the data for the two questions regarding feelings of similarity between the L2 and L3 was combined into a single “similarity” score, with a minimum score of 2 and a maximum score of 10 ($M=8.05$, $SD=1.82$). In order to see if any of the factors was associated with higher TOEFL scores, a univariate factorial ANOVA was conducted with TOEFL scores as the dependent,

continual variable, L3 type as an independent, nominal variable, and both motivation score and similarity score as ordinal independent variables. Furthermore, a multivariate logistic regression analysis was conducted to see if the same three factors had any association with reported increases in TOEFL scores. This test was used here due to the ordinal nature by which data regarding increases in TOEFL scores was collected. Finally, comments that were collected from the open-ended response question were analyzed by first sorting comments into categories (conceptually-clustered) and then by qualitatively comparing the characteristics of participants that gave certain types of comments.

4. Results

Table 1 shows the average TOEFL scores for each L3 type, motivation scores and similarity scores, as well as what percent of participants reported improvement in TOEFL scores.

Table 1. Average participant data divided by L3 type

L3	TOEFL Score	Percent TOEFL increase	Motivation Score	Similarity Score
French (N=39)	504.00	60%	16.28	8.43
Spanish (N=21)	501.48	68%	12.14	7.95
German (N=64)	496.72	57%	13.94	8.34
Chinese (N=22)	499.42	36%	14.46	6.65

*Change in TOEFL was ordinal, 1=improvement, 2=no improvement, 3=worse score

The results of the factorial ANOVA test showed that there was no significant interaction between any of the three variables (L3 type, motivation score, or similarity score); $F[92]=.624$, $p=.976$. None of the factors independently, or in combination with any others showed any significant correlation with

TOEFL scores either. Overall, the multivariate logistical regression analysis proved to be significant ($r^2=.402, p=0.017$), but the only factor that seemed to have any significant impact on increases in TOEFL scores was similarity scores ($p=.036$), with L3 type ($p=.206$) and motivation scores ($p=.45$) not showing significant impact.

Table 2 shows the number of comments, as divided by opinion type. If one participant gave multiple opinion types in their comment, their comment was recorded in both areas. Representative comments of the opinion “interesting” include “*tanoshikatta* [it was fun]” and “*Arata na gengo ni tuite shirete omoshirokatta* [I learned about a new language, and it was interesting]”. Participants who commented on their L3 being “important” said things such as “*Shorai ni yakudatsu to omou* [I think this will be helpful in the future]”. Most comments about learning an L3 being “hard” were simple one-word answers in which participants wrote “*muzukashikatta*” or “*taihen datta*”. There were various reasons why participants may have mentioned “disliking” learning their L3, varying from more practical complaints such as “*tsukau kikai ga sukunai* [I don’t have many chances to use it]” to “*ichinen dewa amari mi ni tsukanai ki ga suru* [I don’t think I could learn much in only a year]”, which were the most common, to simply complaints such as “*mou yaritakunai* [I don’t want to do this anymore]”, of which there were only two. Finally, some representative comments that included a mention of their L2 were “*Eigo ni niteite oboe-yasuku, wakari-yasukatta* [It was similar to English, so it was easy to remember and understand]” and “*Bunpo ga eigo ni kurabete fukuzatsu datta* [The grammar was more complex than English grammar]”.

Table 2. Participant comments regarding learning an L3

	Comment Type	Number of Responses
Positive	Interesting	48
	Important	3
	Total	51
Neutral	Mentioned their L2	11
Negative	Difficult	17
	Disliked	11
	Total	28

In looking at the characteristics of students with particular comments, those who chose to mention English in their comment mostly reported increases in their TOEFL scores, regardless of what their L3 was (9 out of 11). However, no particular characteristic could be discerned for any of the other groups of commenters, as participants with both positive and negative comments showed a large mix of having reported improving, not improving, and not changing in their TOEFL scores. For example, of the 48 who said that studying their L3 was interesting, 19 reported having improved, 14 reported no change, and 15 reported having lower scores. Similarly, amongst the 11 who commented that they disliked studying their L3, 5 reported having improved scores, 3 reported no change, and 3 reported having lower scores.

5. Discussion

The statistical analyses failed to show any correlation between motivation towards learning an L3 and L2 level, but there is some indication that learners who were more aware of the similarities, or felt there was relation, between their L2 and L3 tended to increase their TOEFL scores more than those who reported not having done so. While a first look at the data may make it seem that L3 Chinese learners showed less improvement than other L3 learners, the statistical analysis suggests that this is not due to

the nature of the language itself, but rather might be related to sampling error or to the fact that, on average, L3 Chinese learners found fewer similarities between their L2 and L3. The qualitative data also supports this idea, as the participants who mentioned the similarities between English and their L3 in the free comments section tended to show improved TOEFL scores, regardless of what their L3 was. Thus, it seems that rather than L3 type, some awareness or consideration of their L2s and L3s had much influence on improvement in the L2.

With regards to motivation, there are several reasons why correlation may not have been found. The first is that this study looked at motivation towards learning the L3, and while students who are interested in other languages and cultures in general may be equally motivated to learn their L2 and L3, this is not necessarily the case. In fact, this study did not look at L2 motivation, so no such correlation could be tested with our data set. Though there are several studies that suggest motivation towards learning an L2 plays a significant role in acquisition, there has been far less study about L3 learning and the connection between motivation towards both the L2 and L3. According to the results of this study, it should not be taken for granted that motivation towards learning a given foreign language will spread to the learning of other foreign languages. However, this could perhaps be studied in more detail in the future. Finally, it is also possible that the questions regarding motivation used in this study were not specific enough to correlate to improvement. For example, though enjoyment is often used as a way to detect intrinsic motivation, Spring, Kato, and Mori (2019) have shown that the reasons for enjoyment or disliking an L2 program are more important with regards to whether or not improvement will be seen in language learners, as opposed to simply having enjoyed or disliked it. For example, they found no correlation between

enjoyment and improvement in their language learning program, but they did find that those who claimed having enjoyed it because of how it helped them linguistically improved more than their peers. This notion has been echoed by Nakamura and Spring (forthcoming) who found that mention of the linguistic elements of their language program were more associated with improvement than enjoyment was. However, as most of the participants in this study who noted enjoying or finding the program difficult left simple one-word responses, it was difficult to discern anything further from our data set.

One interesting finding in the data, but which was not the focus or purpose of this study, is that motivation and similarity scores overall had a very strong correlation, as indicated by a Spearman's rank correlation test ($p=.322$, $p<0.001$) indicating that students are more motivated to learn their L3 when they find it similar to or their L2 or are aware of the similarities to it. This is important because it suggests that guiding students to see the similarities between their L2 and L3 may help to motivate them towards learning their L3. Since motivation has often been cited as important for foreign language acquisition, boosting motivation in this way could potentially be very helpful for L3 teachers. However, this finding still warrants further study in the future, as it is interesting that L3 Chinese learners seemed to be quite motivated towards learning their L3, but did not notice as many similarities between English and their L3 as other L3 learners did. It should be noted that there were many more L3 German participants than L3 Chinese or L3 Spanish participants, and thus, there is also the possibility that the difference in group size skewed the data. However, this is a result that should be given more attention in the future.

6. Conclusion

Overall, it seems that though motivation towards learning an L3 is connected with how similar participants feel it is to the L2, only awareness of similarities between the L2 and L3 were related to increases in TOEFL scores in the participants sampled in this study. This suggests that helping students to notice any similarities between their L3 and their L2 can be important for how likely they are both to improve at their L2 and be motivated to study their L3, which is suggested to be the most influential factor in successful acquisition. However, none of the factors observed showed any significant impact on final TOEFL scores. Part of this could be due to the limitations of this study, namely that students were asked to simply report whether or not their TOEFL scores had increased, and so we could not observe by how much, or if they were reporting accurately. Furthermore, there was inconsistency with the numbers of participants with each representative L3, with the sample of German learners being overrepresented, which may have skewed our data. While these shortcomings were unavoidable with the experimental design (we are not allowed access to actual TOEFL scores taken in both periods, and thus had to rely on self-reporting and memory of scorers that were given both 2 and 10 months ago), they should be noted when considering the results of our study. Finally, it should be noted that the L3 that student chose to study did not seem to impact their TOEFL scores significantly or their likelihood to improve significantly on the TOEFL. Thus, it would seem that L3 choice is not important for L2 study, but that motivating students through noting similarities between their L2 and L3 is important for both L2 and L3 acquisition.

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- Appendix 1 Survey Used (in original Japanese)**
- アンケート調査への協力、ありがとうございます。下記の質問に教えてください。
1. 年齢 :
 2. 母語 :
 3. 英語の学習年数 :
 4. 何歳から英語を習いましたか ?
 5. 東北大学で勉強している初修外国語は :
フランス語, スペイン語, ドイツ語, 韓国語, 中国語, ロシア語
 6. 初修外国語を東北大学以外で勉強した経験がありますか ?
 7. 日本語、英語、初修外国語以外に6か月以上に他の外国語を勉強した経験はありますか ?
 8. 6か月以上に海外に在住した経験はありますか ?

(ある場合は、国名と年数を教えてください)

9. もし宜しければ、TOEFLのスコア(点数)を教えてください:

10. TOEFLの点数は4月と比べて、上がりましたか?

- a) 上がった(5点以上)
- b) ほとんど変わっていない
- c) 下がった(5点以上)

初修外国語について、ご意見を聞かせてください

(The following series of questions all contained Likert-scale style questions on the following scale:

とても思う, 思う, どちらとも言えない, 思わない, 全く思わない

- 1. 初修外国語の勉強が楽しい
- 2. 初修外国語を頑張って、覚えようとしている
- 3. 今後も頑張って、初修外国語を勉強したい
- 4. 初修外国語の勉強は重要だ
- 5. 初修外国語と英語の関連性は感じた
- 6. 私が勉強した初修外国語と英語は似ているところが多い