



Virtual Learning of L3 Korean in Singapore: Learner Attitudes and Perceived Proficiency of Bilinguals

Introduction

In Singapore, Korean language learners in higher education are rarely monolinguals (Park 2016). Since its independence in 1965, Singapore has put in place a bilingual education system (Tan 2020), where primary and secondary school students are required to study English and their respective heritage mother tongues. An alternative is presented to students to pursue a mother tongue course outside school if their heritage languages fall outside of Mandarin Chinese, Malay, or Tamil—the three official languages under the Singaporean constitution. Consequently, most adult learners of Korean could be considered to have at least two first languages (L1s), with a subset that has studied additional second languages (L2). Building on Hammarberg's (2001) definition, Korean should be considered a third language (L3) rather than an immediate second language (L2) for the students in the prospective study.

The advantages of multilingualism are well-established. Firstly, it is widely accepted that in subsequent language (L3) learning, multilinguals benefit from enhanced metalinguistic awareness from their L2 learning experience (Jaensch 2009; Park and Starr 2015) and linguistic transfer (Bardel and Falk 2007; Flynn, Foley, and Vinnitskaya 2004; Park and Starr 2019; Rothman 2011; Westergaard et al. 2017). Furthermore, multilingualism is also known for its cognitive advantages, such as the development of executive function (Bialystock 2001) and the delay in the development of Alzheimer's Disease (Bak 2016).

In March 2020, the Covid-19 pandemic pushed higher education institutes to rethink methods in instructional delivery. The National University

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of Singapore (NUS) responded to the restrictions by offering virtual classes in place of traditional face-to-face classes. However, as online-learning was mandatory, a certain level of stress and resistance for learners had been anticipated.

This study seeks to discuss the role of multilingualism in this unique learning setting through exploring how it correlates with non-linguistic aspects of learning, such as attitudes towards unfamiliar learning environments (e.g. virtual) and the learners' self-perceived proficiency in L3 Korean.

Background

Further to advantages in L3 learning, multilingualism also positively predicts cognitive development of children and adults (Bialystok 2001, 2007, 2011), improves auditory attention (Bak, Vega-Mendoza, and Sorace 2014) and delays the onset age of dementia (Bak and Alladi 2014; Bak 2016; Craik et al. 2010). Interestingly, bi/multilinguals' performance in another unrelated subject, such as mathematics, has been reported by various researchers (see Dahm and De Angelis 2018 for a review). Dahm and De Angelis' review on previous research works provided evidence that bi/multilingualism supports problem-solving ability and mathematical creativity. However, research on the topic of multilingualism and its effects on learning attitudes could develop further, and it is worthwhile to explore the connection with learner response towards unfamiliar learning environments and self-perceived proficiency of a target language.

In general, it was found that students' attitudes correlated with confidence in learning mode (Wesely 2012) which subsequently impacts their performance in the course. Meanwhile, unfamiliar and novel learning environments closely relate to student performance (Wesely 2012) and positive attitudes towards such a new learning environment have been observed to result in a corresponding outcome (Rhema and Miliszewska 2014). Self-rated proficiency of a second language is too an impactful factor in the performance. Self-rated proficiency of an L2 was found to be correlated with Foreign Language Classroom Anxiety (FLCA) and Second Language Tolerance of Ambiguity (SLTA) (Dewaele and Ip 2013). In fact, FLCA goes as far to negatively predict learner performance in L2.

Research Questions

The research questions in this study are summarized as follows:

1. Do attitudes toward an unfamiliar learning environment and self-rated proficiency of L3 Korean change over one semester along with the experience of virtual learning?
2. How does multilingualism, especially late bilingualism, correlate with attitudes toward learning mode, and self-rated proficiency?

Method

Participants

The data was collected from an Advanced course of Korean (Korean 5) at NUS. The course was delivered in a fully virtual mode, consisting of one pre-recorded asynchronous lecture and two synchronous lectures weekly. There were 43 adult early bilingual learners of Korean (38 females and 5 males) who voluntarily completed a survey on their attitudes and self-rated proficiency of Korean at pre- and post-semester.

The early bilinguals are all of Singaporean nationality with English-Chinese L1 ($n=39$), English-Malay L1 ($n=3$), and English-Burmese L1 ($n=1$). Among the participants, 31 of them are early bilinguals without additional L2 learning experience before the target language Korean (EBLs), while 12 of them had learnt other L2s before studying Korean (EBLs+L2). However, the proficiency level of L2s (e.g. Japanese, Malay, Chinese, and French) vary from novice to lower intermediate. All the participants had no experience of fully virtual learning before the Pandemic.

Attitudes & Self-rated Proficiency Survey

Two surveys were conducted to find out about the students' attitudes towards online modes of learning. Pre-semester, the students answered questions about the anticipated impact of online learning on the eight areas of Korean language learning (General, Accuracy, Vocabulary, Comprehension, Writing,

Listening, Speaking, and Enjoyment). Participants scored these on a 5-point scale (Extremely positive, Somewhat positive, Neither positive nor negative, Somewhat negative, and Extremely negative). The survey, conducted post-semester, asked the same questions about the experienced impact.

The surveys also included questions about self-rated Korean proficiency (hereafter, “proficiency”). Responses were recorded on a five-point scale (Maximal, High, Medium, Low, and Minimal) in eight areas (Vocabulary, Grammar, Pronunciation, Reading, Writing, Listening, Speaking, and Cultural Understanding) and the questions in the pre- and post-semester surveys are the same. The eight specific areas investigated through the survey were selected according to the learning activities that enforce such skills. For instance, the learning activities in the course were related to at least one of the eight areas, and the learners are familiar with the terms. The purpose of the proficiency surveys is to take account of learner confidence in the corresponding areas and to follow up on how online learning would impact their self-perceived Korean proficiency over the semester.

Results and Discussion

Attitudes towards Online Mode

The results are converted from 5-point scales to continuous number from 1 (extremely negative) to 5 (extremely positive) to calculate the statistical significance.

Table 1. Scores (out of 5) of Attitudes at Pre- and Post-semester, by Group

Area	Group	Pre-	Post-
General	ALL	3	3.3
	EBL	2.9	3.2
	EBL+L2	3.3	3.8
Accuracy	ALL	3.1	3.3
	EBL	3.1	3.4
	EBL+L2	3.2	3.3

Vocabulary	ALL	3.5	3.7
	EBL	3.5	3.7
	EBL+L2	3.7	3.8
Comprehension	ALL	3.3	3.6
	EBL	3.4	3.5
	EBL+L2	3.1	3.6
Writing	ALL	3.1	3.9
	EBL	3.2	3.8
	EBL+L2	2.9	3.9
Listening	ALL	3.7	3.7
	EBL	3.7	3.6
	EBL+L2	3.8	4.0
Speaking	ALL	3.1	3.5
	EBL	3.2	3.3
	EBL+L2	3.1	3.8
Enjoyment	ALL	3.1	3.4
	EBL	3.1	3.4
	EBL+L2	3.1	3.5

In the pre-semester survey, the participants’ response toward “General” was 3, meaning that they anticipated “(n)either positive nor negative” impact from learning Korean online. The scores in each area found that the expectations by participants were largely positive. Areas of Listening ($M = 3.7$) and Vocabulary ($M = 3.5$) were rated particularly highly. The positive attitude was more pronounced in the post-semester survey, particularly in “Writing” ($M = 3.9$), followed by Listening and Vocabulary ($M = 3.7$ for both).

To investigate the effect of time on learner attitudes (“time effect”), a paired t-test using scores in all areas was conducted. It was found that the mean scores in all areas changed over the course of the semester significantly ($t(42) = 3.4105$, $p = 0.0014$). However, the more noteworthy changes occurred in “General” ($t(42) = 2.1913$, $p = 0.0340$) and Writing ($t(42) = 4.8692$, $p < 0.0001$).

An analysis of the distribution revealed another aspect of the data. As shown in Figure 1, the response to areas of General, Accuracy, and Enjoyment in the pre-semester survey varied more compared to post-semester. Pre-semester,

the participant attitudes were observed to spread across the scale of 2 “Somewhat negative” and 4 “Somewhat positive.” The time effect narrowed the gap in the post-semester scoring to between 3 “Neither positive nor negative” and 4 “Somewhat positive.” Conversely, despite maintaining the level of diversity, attitudes toward “Writing” improved. The pre-semester scores spread across 2 “Somewhat negative” and 4 “Somewhat positive.” In the post-semester scores, there was a uniformed shift toward 3 “Neither positive nor negative” to 5 “Extremely positive.” This reflects a positive shift in the overall attitudes of the students.

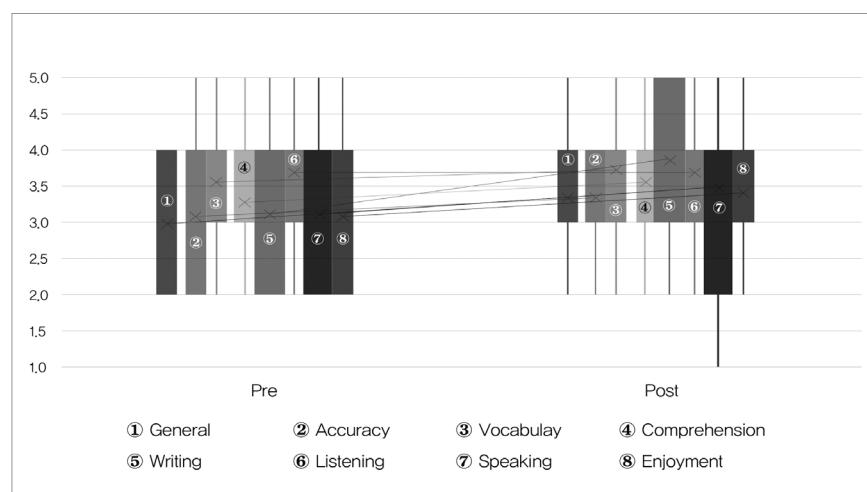


Figure 1. Box Plot¹ of Attitudes in Pre- and Post-semester by Area

A study of the mean scores in all areas showed that more students felt “Extremely positive” about their learning experience in the post-semester survey (Table 2), with the mean frequency increasing from 7% to 14%. Similarly, the mean frequency for “Somewhat positive” increased from 35% to 41% over the two surveys. This is consistent with the decrease in “Somewhat negative” sentiment which fell from 24% to 13%. Considering that none of the participants had experienced a fully virtual course prior to this, some students showed a certain level of reservation for online learning of L3 Korean during the pre-semester survey. After the semester of online learning, however, 11% of participants

who originally chose “Somewhat negative” changed their attitudes to neutral or positive. Interestingly, the neutral attitudes stayed the same over time (34% to 33%), while more pronounced changes in attitudes were shown for students who demonstrated reservations in the beginning.

Furthermore, the students’ L2 learning experience was taken into consideration to compare attitudes towards online learning. The results show that L2 learning experience did not play a significant role in any areas at both pre- and post-semester. However, a significant difference in time effect was found in both sub-groups, EBLs ($t(30) = 2.1953, p = 0.0360$) and EBLs+L2 ($t(11) = 3.9091, p = 0.0024$).

Table 2. Frequency (%) of Response Distribution for Attitudes at Pre- and Post-Semester by Area and Group

Pre-semester						
Area	Group	Extremely positive	Somewhat positive	Neither positive nor negative	Somewhat negative	Extremely negative
General	EBL	0%	26%	35%	39%	0%
	EBL+L2	0%	54%	23%	23%	0%
Accuracy	EBL	3%	26%	45%	26%	0%
	EBL+L2	0%	46%	31%	23%	0%
Vocabulary	EBL	6%	35%	58%	0%	0%
	EBL+L2	23%	31%	38%	8%	0%
Comprehension	EBL	6%	42%	32%	19%	0%
	EBL+L2	0%	38%	31%	31%	0%
Writing	EBL	3%	29%	48%	19%	0%
	EBL+L2	8%	23%	23%	46%	0%
Listening	EBL	23%	35%	29%	13%	0%
	EBL+L2	15%	54%	23%	8%	0%
Speaking	EBL	10%	35%	16%	39%	0%
	EBL+L2	0%	46%	15%	38%	0%
Enjoyment	EBL	0%	39%	29%	32%	0%
	EBL+L2	15%	15%	31%	38%	0%

1. The box plot is a standardized way of displaying the distribution of data based on the five-number summary: minimum, first quartile, median, third quartile, and maximum (Larson-Hall 2012).

MEAN	EBL	6%	33%	37%	23%	0%
	EBL+L2	8%	38%	27%	27%	0%
Pre-semester						
Area	Group	Extremely positive	Somewhat positive	Neither positive nor negative	Somewhat negative	Extremely negative
General	EBL	10%	26%	35%	29%	0%
	EBL+L2	8%	58%	33%	0%	0%
Accuracy	EBL	0%	42%	52%	6%	0%
	EBL+L2	0%	42%	42%	17%	0%
Vocabulary	EBL	13%	45%	39%	3%	0%
	EBL+L2	25%	33%	42%	0%	0%
Comprehension	EBL	6%	48%	39%	6%	0%
	EBL+L2	17%	42%	25%	17%	0%
Writing	EBL	26%	42%	23%	10%	0%
	EBL+L2	25%	42%	33%	0%	0%
Listening	EBL	16%	35%	39%	10%	0%
	EBL+L2	25%	58%	8%	8%	0%
Speaking	EBL	13%	39%	19%	26%	0%
	EBL+L2	25%	50%	8%	17%	0%
Enjoyment	EBL	16%	29%	32%	23%	0%
	EBL+L2	8%	50%	25%	17%	0%
MEAN	EBL	13%	38%	35%	14%	0%
	EBL+L2	17%	47%	27%	9%	0%

In order to investigate an interaction between late bilingualism and time, a repeated-measures ANOVA testing for differences in attitudes of pre- and post-semester for EBLs and EBLs+L2, using mean score, was conducted. A significant difference between the two sub-groups over time ($F(1, 43) = 11.78, p = 0.001380$) indicated that late bilingualism enhanced nurturing positive attitudes towards an online mode of learning of L3 Korean over time. Particularly, a significant interaction was shown in two areas, General ($F(1,43) = 4.76, p = 0.034916$) and Writing ($F(1,43) = 23.35, p < .0001$), a marginal difference was found in Speaking ($F(1,43) = 3.59, p = 0.065195$). Although all

the participants demonstrate significantly more positive attitudes toward the end of semester, L2 learning experiences accelerated positive attitudes in General and Writing over time, and marginally in Speaking. This could be the outcome of the weekly writing activity that the participants of the study were required to complete as a part of the course requirement. This was submitted through an online platform whereafter a personalised feedback was given. This intensive writing practice over the semester could have contributed to the growth in positive attitude towards the online learning platform. Here are excerpts from the course feedback submitted to the university at the end of semester.

I always feel very reassured and happy when reading her comments to me regarding my writing, speaking and overall performance.

The weekly reflections, while time-consuming, is a good way to get us to reflect on what we have learnt and helps us to identify and clarify anything we are unsure of, and it also encourages us to research beyond what we learnt in class.

She also provides comprehensive and timely feedback on our assignments and weekly reflections, all of which help to clarify doubts and improve our fluency in writing and speaking.

Self-rated Proficiency

With regard to self-rated proficiency, the mean score of proficiency for L3 Korean increased over time from pre-semester ($M = 3.1$) to post-semester ($M = 3.3$). At pre-semester, the participants rated their proficiency for Reading most highly ($M = 3.5$) followed by Listening ($M = 3.4$), while at post-semester, Reading and Pronunciation were the highest rated ($M = 3.7$ and $M = 3.6$, respectively). Although the proficiency level in all areas except Listening increased over time, a significant difference was found only in areas of Grammar ($t(42) = 2.4675, p = 0.0178$), Pronunciation ($t(42) = 3.5170, p = 0.0011$), and Speaking ($t(42) = 4.2192, p = 0.0001$). This shows that the participants had a higher regard of their Grammar, Pronunciation, and Speaking proficiency in L3 Korean at the end of the semester, regardless of their actual abilities. It is worth noting that while the participants perceived a marked positive impact in General and Writing through online learning (p. 351), it did not directly affect

the self-rated proficiency. The next section provides more detailed discussion on a correlation between attitudes and proficiency.

Further, L2 learning experiences do not predict any meaningful difference in self-rated proficiency at both pre- and post-semester in all areas. However, a repeated-measures ANOVA found that L2 learning experiences had significant impact in changes from pre-semester to post-semester for self-rated proficiency in Pronunciation ($F(1, 43) = 13.1, p = 0.000803$). A post-hoc test found that this significant difference between EBLs and EBLs+L2 in a time effect mainly is attributed to EBLs ($t(30) = 4.0303, p = 0.0004$), not to EBLs+L2. The results imply that EBLs perceived L3 proficiency in Pronunciation significantly better at the end of semester compared to EBLs+L2. This could be due to the fact that EBLs+L2 overly self-rated their proficiency of pronunciation compared to EBLs at pre-semester ($M = 3.5$ vs. $M = 3.1$). That impacted a difference in time effect between EBLs and EBLs+L2.

Table 3. Scores (out of 5) of Self-rated Proficiency at Pre- and Post-semester by Group

Area	Group	Pre-	Post-
Vocabulary	EBL	3.0	3.1
	EBL+L2	3.0	3.1
Grammar	EBL	3.0	3.2
	EBL+L2	2.8	3.0
Pronunciation	EBL	3.1	3.5
	EBL+L2	3.5	3.6
Reading	EBL	3.5	3.7
	EBL+L2	3.6	3.5
Writing	EBL	3.1	3.3
	EBL+L2	3.0	3.2
Listening	EBL	3.3	3.4
	EBL+L2	3.5	3.2
Speaking	EBL	2.7	3.0
	EBL+L2	2.7	3.0
Cultural Understanding	EBL	3.3	3.5
	EBL+L2	3.4	3.7

MEAN	EBL	3.1	3.4
	EBL+L2	3.2	3.3

In addition, it is EBLs+L2 self-rated their Listening and Reading proficiencies lower in post-semester than pre-semester. This could be due to their attitude towards online mode of learning in Comprehension. Table 2 displays that in the post-semester survey 17% of EBLs+L2 still felt “Somewhat negative” towards online learning compared to only 6% of EBLs. Although more students reflected positive attitudes toward Comprehension (20% increase in “Extremely positive” and “Somewhat positive”), overall this remained an area where the EBLs+L2 maintained a more negative outlook. This attitudes of EBLs+L2 reflect on self-rated proficiency in Reading. A detailed investigation on a correlation between attitudes and self-rated proficiency is presented at the following section under “Correlation between Attitudes and Proficiency.”

Table 4. Frequency (%) of Response Distribution for Self-rated Proficiency at Pre- and Post-semester by Area and Group

Time	Group	Pre				Post			
		Maximal	High	Medium	Low	Maximal	High	Medium	Low
Self-rated	All	0%	11%	77%	11%	0%	16%	77%	7%
	EBL	0%	13%	74%	13%	0%	16%	77%	6%
	EBL+L2	0%	8%	85%	8%	0%	17%	75%	8%
Vocabulary	All	0%	5%	89%	7%	0%	21%	74%	5%
	EBL	0%	6%	90%	3%	0%	26%	71%	3%
	EBL+L2	0%	0%	85%	15%	0%	8%	83%	8%
Grammar	All	0%	30%	64%	7%	0%	56%	44%	0%
	EBL	0%	19%	71%	10%	0%	55%	45%	0%
	EBL+L2	0%	54%	46%	0%	0%	58%	42%	0%
Pronunciation	All	2%	48%	50%	0%	5%	56%	40%	0%
	EBL	3%	42%	55%	0%	3%	65%	32%	0%
	EBL+L2	0%	62%	38%	0%	8%	33%	58%	0%
Reading	All	2%	48%	50%	0%	5%	56%	40%	0%
	EBL	3%	42%	55%	0%	3%	65%	32%	0%
	EBL+L2	0%	62%	38%	0%	8%	33%	58%	0%

	All	2%	16%	66%	16%	0%	26%	72%	2%
Writing	EBL	3%	13%	71%	13%	0%	26%	74%	0%
	EBL+L2	0%	23%	54%	23%	0%	25%	67%	8%
	All	0%	39%	59%	2%	0%	37%	58%	5%
Listening	EBL	0%	35%	61%	3%	0%	39%	61%	0%
	EBL+L2	0%	46%	54%	0%	0%	33%	50%	17%
	All	0%	5%	59%	36%	0%	16%	70%	14%
Speaking	EBL	0%	3%	61%	35%	0%	16%	71%	13%
	EBL+L2	0%	8%	54%	38%	0%	17%	67%	17%
	All	0%	41%	50%	9%	0%	42%	58%	0%
Cultural Understanding	EBL	0%	39%	52%	10%	0%	55%	45%	0%
	EBL+L2	0%	46%	46%	8%	0%	67%	33%	0%

Regarding lowly rated Listening and Reading proficiencies in post-semester by EBLs+L2, careful examination of the distribution of EBLs+L2's responses in Listening showed a 13% decrease in students who chose "High" in the post-semester survey, while the number that chose "Low" increased by 17%. In Reading, there was a 29% decrease in the EBLs+L2 who chose "High." A further 8% of the same group chose "Maximal." This can be explained by the perception of difficulty levels for the course materials. Based on the students' feedback, the reading and listening material used in the course were comparatively challenging to that of the previous courses. EBLs+L2 who felt relatively confident about reading and listening activities in the preceding courses could be more sensitive to the gap in difficulty levels compared to the EBLs.

Correlation between Attitudes and Proficiency

Lastly, the link between attitudes and self-rated proficiency of L3 Korean was investigated. A paired t-test between attitudes and self-rated proficiency for pre- and post-semester using mean scores found a significant correlation only in the post-semester responses ($t(42) = 2.5399, p = 0.0149$). A repeated-measures ANOVA testing for differences between attitudes and self-rated proficiency for EBLs and EBLs+L2 found a significant difference ($F(1, 43) =$

6.79, $p = 0.012719$) as well. Further to that, post-hoc tests for each sub-group revealed that only EBLs+L2 showed a significant correlation ($t(11) = 2.6623, p = 0.0221$) between attitudes and proficiency at post-semester. The results imply that positive attitudes predicted higher self-rated proficiency significantly for EBLs+L2 at post-semester, while no meaningful correlation was found in EBLs. In other words, L2 learning experiences enhance confidence in learning (Wesely 2012), and it significantly predicts higher tolerance of ambiguity and lower anxiety (Dewaele and Ip 2013).

Conclusion

This study found that attitudes towards online mode of learning L3 Korean has improved over the semester of virtual classes in a university setting. While it was found at the beginning of the study that multilingualism did not necessarily affect learner attitudes towards a forthcoming unfamiliar learning environment, L2 learning experiences appeared to encourage faster adaptation to it, particularly in the areas of General and Writing. This indicates that even though late bilingualism had no apparent benefit in face of virtual learning, over time, it nurtured positive, and consequently confident learners. This was especially evident in the areas practised independently on an online platform. For instance, I used an online platform (e.g. MS Teams) to supervise and give feedback to the students' independent writing every week. The course feedback from the students revealed that the students appreciated writing activities to enhance learning. This could be a reason for the positive attitude developed in Writing at the end of semester.

In the regard of self-rated proficiency, time effect was demonstrated in the learners' self-assessments in L3 Korean, particularly in their Grammar, Pronunciation, and Speaking skills. Consistent with the observations about learner attitudes, it was found that while L2 learning experiences did not play a significant role in the self-evaluations of their proficiency at pre- and post-semester, a meaningful interaction was still found between time effect and late bilingualism in Pronunciation. However, against expectation, L2 learning experiences did not enhance perceiving an improvement in Pronunciation over time. Instead, when comparing responses between early bilinguals with L2 learning experiences and those without L2 learning experiences, the former

showed a significant confidence in their self-evaluation with respect to the development of the pronunciation proficiencies.

Despite the perception of online learning as a challenge at the beginning of the semester, the participants in this study demonstrated more positive attitudes towards their online Korean language class over time. This is an important asset for successful learning outcomes. It is found that their positive attitudes towards a novel learning environment were especially facilitated by L2 learning experience. This points to the conclusion that the L2 learning experience seems to be a significantly reliable factor in supporting positive change in learner attitudes over the semester. Consequently, it enhances the development of confidence in a target language, and learners envision themselves to have higher proficiency at the end of the course. This observation aligns with a study conducted by Park and Starr (2015), where formal L2 learning experiences were found to predict a significantly better performance in a grammatical judgment task. Both studies indicate that the development of positive attitudes and perceptions of proficiency, particularly in the case of early bilingual learners with L2 learning experiences, may anticipate higher performance at the end of the virtual learning course. This is a finding worthy of further investigation in future studies.

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