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The Effects of the Variation of Phonological and Stylistic Contexts in the English Interlanguage of Cantonese Speakers*

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This study investigated the phonological variation of initial /n-/ in the English interlanguage of Cantonese speakers in Hong Kong. It closely examined the variations of phonological environment and stylistic context which lead to interlanguage variations. This study included elementary, intermediate, and post-intermediate English learners. Six oral tasks of different contextual styles were designed for collecting data, and different phonological environments of /n-/ were included in the tasks. Results indicate that, regardless of English proficiency, the effect of stylistic variation is much stronger than that of phonological environment on the phonological variation of /n-/ in the English interlanguage of Cantonese speakers. Style-shifting is more suitable than the variation of linguistic context in accounting for the interlanguage variation in focus. The findings of this study shed light on the pedagogy of L2 (second language) learning.

Keywords: phonological variation, stylistic variation, L1 (first language) phonological transfer, interlanguage phonology

Introduction

The phonological feature of the merging of the initial /n-/ with /l-/ in English by Hong Kong students, Cantonese speakers learning English as L2 (second language), has been described in a small number of publications (Bolton & Kwok, 1990; Chan, 2000; Hung, 2000, 2002; Au, 2002). Bolton and Kwok (1990) and Chan (2000) described the phonological variation of /n-/ and /l-/ based on a small quantity of incidental observation data. This phonological variation was more closely investigated in Hung (2000, 2002) and Au (2002). The data in these studies were collected from the reading of wordlists and controlled presentations by university students. Hung (2000, 2002) pointed out that the two initials, /n-/ and /l-/, were used interchangeably by students due to the influence of their mother tongue, Cantonese, in which /n-/ and /l-/ are merged.[1] In Au's (2002) study, the phenomenon of the loss of /n-/ in a number of lexical items demonstrated that Hong Kong students had

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[1] Hashimoto-Yue (1972) found that the merging of /n-/ with /l-/ in Hong Kong Cantonese started to appear in the 1960s and 1970s. The shifting of /n-/ to /l-/ in Hong Kong Cantonese has received more attention in the studies of Yeung (1980), Pan (1981), Bourgerie (1990), and Ho (2004), which investigated phonological variation in Hong Kong Cantonese from a sociolinguistic perspective. Ho (2004) suggested that the phonological change from /n-/ to /l-/ in Cantonese reached the final stage. The studies conducted so far found the replacement of initial /n-/ by /l-/, but not the replacement of final /-n/ by /-l/.

difficulty in producing the onset /n-/ in English. Au (2002) also suggested that the replacement of /n-/ by /l-/ in English is influenced by the non-distinction of /n-/ and /l-/ in Cantonese.

Unlike previous studies on the L2 English of Hong Kong students, which mainly emphasized the effect of the L1 (first language) on interlanguage phonology, this study investigated the influence of contextual variations on the phonological variation of /n-/ in L2 English of Cantonese speakers. Two kinds of variation, linguistic context variation and style-shifting were focused on in this investigation. The L2 studies that examined the effects of these two kinds of variation on L2 acquisition are briefly described below.

Previous studies which investigated L2 variability from the linguistic perspective show that the effects of the linguistic environment are evident at the phonological, morphological, and syntactic levels of language acquisition. Dickerson (1975) examined the production of English /z/ in different phonological environments in a reading task by Japanese learners. It was found that the accuracy of pronunciation of /z/ systematically varied in different phonological contexts. Saunders (1987) and Wolfram (1989) found that proper use of specific L2 grammatical morphemes was affected by the variation of the grammatical or phonetic form of the word to which a grammatical morpheme is attached. Hyltenstam's (1977) study suggested that the acquisition of Swedish negatives by L2 learners passed through several stages, proceeding from one linguistic context to another. It was observed that systematic variation in accordance with linguistic context did not appear during the early stages of acquisition.

L2 research suggests that the variation of stylistic context is associated with the variation of learners' attention to language form or propositional content. Ochs (1979) and Tarone (1982, 1983, 1988) adapted Labov's (1972) methodological framework and captured L2 learners' interlanguage variability along with the shifting of styles. The systematic variability in interlanguage was analysed as on an unplanned/planned continuum (Ochs 1979), or on a vernacular/careful stylistic continuum (Tarone, 1982, 1983, 1988). The planned and careful styles, which involve much attention to speech, manifest more correct and target-like language forms than do unplanned and vernacular styles. The effects of planning time on L2 production were also examined, and mixed results were obtained (Ellis, 1987; Crookes, 1989). J. Hulstijn and W. Hulstijn (1984) argued that learners' focusing attention on form, rather than planning time, increased language accuracy. Ellis (1994) explained that if planning time was used to focus on informational content but not on language form, language accuracy was not likely to increase.

On the basis of the previous studies, this study closely examined the effects of the variation of phonological environment and stylistic contexts on L2 interlanguage phonology. It evaluated the importance of phonological variation and style shifting in accounting for the phonological variation of /n-/ in L2 English of Cantonese speakers.

Aims of the Study

This study aimed to investigate: (1) Whether different variation patterns of the replacement of /n-/ by /l-/ in L2 English of Cantonese speakers appear in different contextual styles which require different amounts of attention to pronunciation, and raise different degrees of phonological awareness. (2) Whether the substitution of /n-/ by /l-/ in L2 English of Cantonese speakers varies in different phonological environments. If it does, what phonological environment(s) play(s) a role? (3) If both phonological environment and contextual style affect the phonological variation of /n-/ in L2 English of Cantonese speakers, which factor has a stronger effect?

Research Method

Participants

Unlike the previous Hong Kong studies described above which only involved university students, this study included primary school, secondary school, and university students of elementary, intermediate, and post-intermediate level of English respectively. The involvement of these three student groups gives us a clear picture of the phonological variation of /n-/ in Hong Kong English. There were 26 participants in the elementary group, 26 in the intermediate group, and 28 in the post-intermediate group. Elementary learners were aged 10-12, intermediate learners 16-18, and post-intermediate learners 20-23. There were equal numbers of females and males in each proficiency group. All participants were Cantonese native speakers who started to learn English as a second language in primary school. They participated in the study on a voluntary basis.

Elicitation Tasks

Adopting Tarone's (1982, 1983, 1988) research methodology, this study designed six oral tasks of different styles for collecting data. These six tasks varied in terms of speech styles which required different amounts of attention to speech. They were: (1) conversation in pairs, (2) informal interview, (3) passage reading, (4) word reading, (5) minimal pair reading, and (6) minimal pair repetition. The six tasks ranged from the most casual style (Task (1)) to the most careful style (Task (6)). Different phonological environments of /n-/ were included in the last four reading tasks. The design of each task is presented below.

Conversation in pairs. Two students in the same subject group formed a pair. All the students knew each other. Ten questions were given to them and some words with /n-/ were included in the questions. Examples of questions are given below (the /n-/ words were not underlined in the question paper given to the participants) (see Examples 1-3).

Example (1) What do you eat for lunch and for dinner?

(2) Does your mother let you go out with friends at night? Why/Why not?

(3) Do you wear new clothes at Chinese New Year? Why/Why not?

Each pair of participants took turns to ask questions and give responses to their partner's answers. They were allowed to talk about something else in which they were interested. Each pair was given 20 minutes for conversation.

Informal interview. Each subject was interviewed by the investigator or a research assistant in a casual way. Ten questions were included in the interview. Each interview lasted about 20 minutes. Examples of questions are as follows (see Examples 4-6):

Example (4) Do you have an English name? Would you like your friends to call you by your Chinese name or your English name?

(5) Which language do you like more? Chinese or English?

(6) What time do you wake up in the morning? Do you work late at night?

Passage reading. A passage in simple English of about 200 words was designed. About 40 words in the passage had a syllable initial /n-/. Students read the passage at their own pace. Part of the English passage is given below.

"… Nancy only liked eating, not studying! Her mother gave her money to buy lunch at school every day.

She spent all the money buying snacks, like chocolates, nuts and ice-cream. She never bought proper meals".

Word reading. In the English wordlist, there were 53 words in total. Forty-five of them had an initial /n-/ in the first, second, third or fourth syllable; five of them had an initial /n-/ in more than one syllable, and three of them had a /n/ in a consonant cluster (see Example 7). For example:

Example 7 (a) number, nation (15 words with an initial /n-/ in the first syllable)

(b) morning, penny (13 words with an initial /n-/ in the second syllable)

(c) questioning, cleverness (13 words with an initial /n-/ in the third syllable)

(d) unhappiness, examination (4 words with an initial /n-/ in the fourth syllable)

(e) National, Panasonic (5 words with initials /n-/ in more than one syllable)

(f) snake, snow (3 words with /n/ in a consonant cluster)

These 50 /n-/ words could be divided into two groups: one group of nine words with /n-/ followed by nasal coda, and another group of 41 words with /n-/ followed by non-nasal coda.

Minimal pair reading. There were 26 minimal pairs in total. There were 22 pairs of words in which one word had an initial /n-/ and one had an initial /l-/. There were five pairs of words with /n-/ and /l-/ followed by nasal coda, and other pairs followed by non-nasal coda, for example, nine/line, name/lame, net/let, and no/low. In addition, there were four pairs of words in which /n/ or /l/ was in a consonant cluster, for example, snow/slow and snack/slack.

Minimal pair repetition. The minimal pair list for Task (5) was used. Informants listened to the model pronunciation of each minimal pair and then read it aloud.

Administration Procedure

Each informant completed all the tasks in one day. All informants did the six task types in the following sequence: (1) conversation in pairs, (2) informal interview, (3) passage reading, (4) word reading, (5) minimal pair reading, and (6) minimal pair repetition. Tasks (1) and (2) were conducted first to collect natural data, because tasks (3) to (6) give increasing clues to participants to pay attention to the pronunciation of /n-/. All tasks done by the students were recorded by a professional digital recorder in a sound-proofed phonetic lab.

Methods of Data Transcription and Analysis

The data were transcribed by ear by four trained research assistants and then randomly checked by the investigator and a phonetician. Spectrographic analyses were done when the acoustic properties of /n-/ and /l-/ produced by the students were difficult to identify. In a few cases, the initial /n-/ or /l-/ was not clearly pronounced. Those data were not included in the analysis.

The VARBRUL computerised procedure was used to analyse the effect of each independent variable (i.e., English proficiency, phonological environments, contextual styles) on the phonological variation of /n-/ in the oral tasks completed by our participants.

Results

The Replacement of /n-/ by /l-/ by Three English Proficiency Groups

Figure 1 shows that the replacement of /n-/ by /l-/ by elementary English learners was more than that by the intermediate and post-intermediate learners. But the intermediate learners and post-intermediate learners

performed very similarly with regard to this sound substitution.

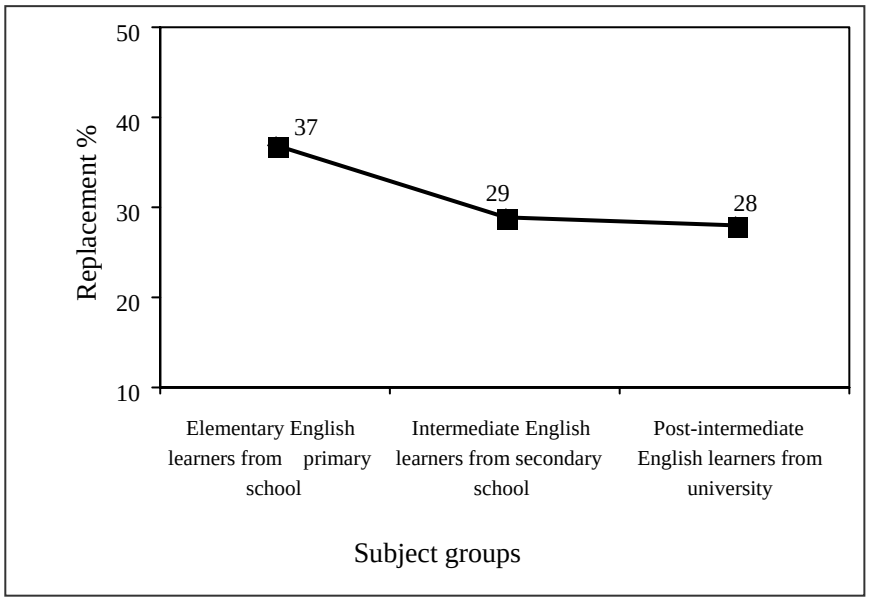

Figure 1. Mean percentage of words with replacement of /n-/ by /l-/ by three English proficiency groups.

The Merging of /n-/ With /l-/ in Different Tasks of Different Contextual Styles

Figure 2 indicates that the highest percentage of /n-/ words (about 50%) replaced by /l-/ was shown in the two casual spontaneous oral tasks (i.e., conversation and interview), the percentage decreased sharply in the passage reading task, and then decreased gradually in the other three oral tasks.

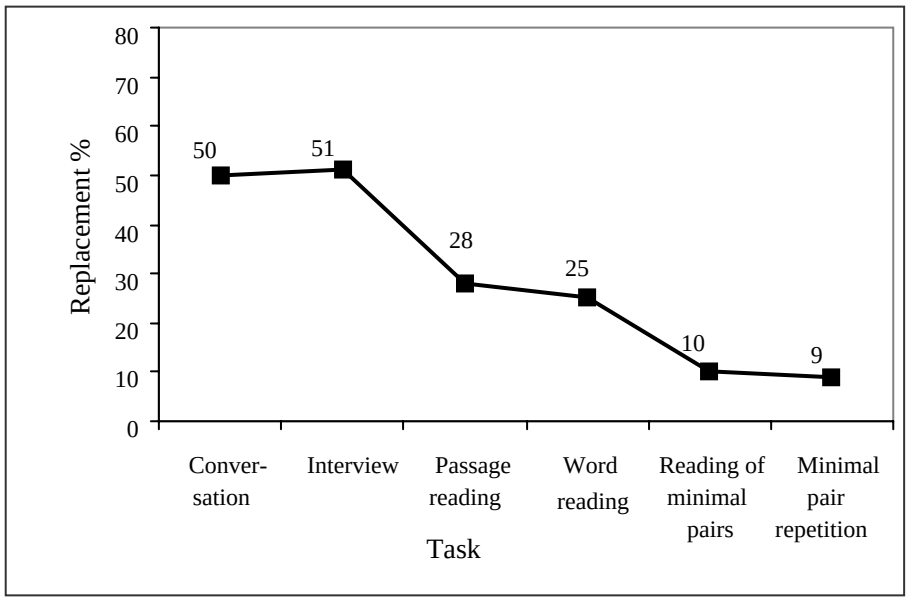

Figure 2. Mean percentage of words with replacement of /n-/ by /l-/ in each task.

In addition, hypercorrection occurred in the reading tasks. As shown in Figure 3, the replacement of /l-/ by /n-/ clearly appeared in the passage reading task and the two minimal reading tasks. But in the two casual

spontaneous oral tasks, it was very uncommon to find the replacement of /l-/ by /n-/.[2]

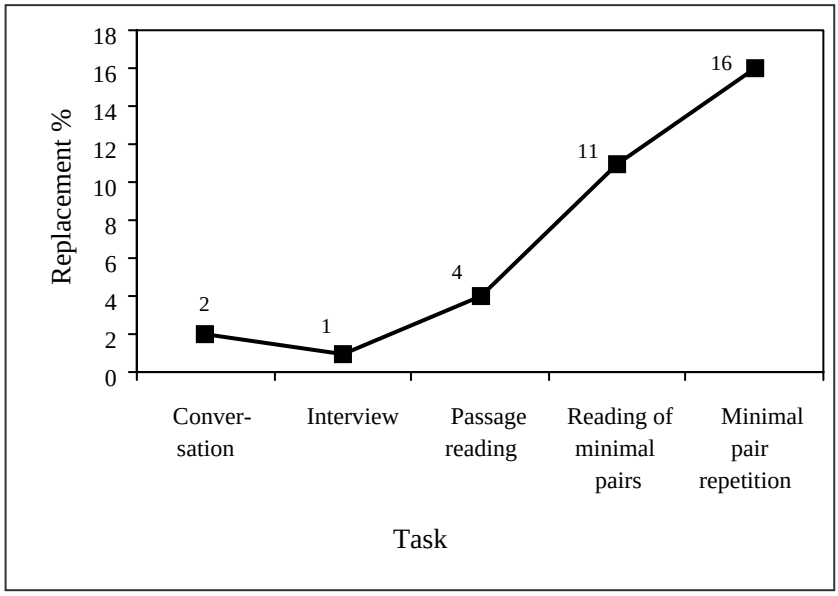

Figure 3. Mean percentage of words with replacement of /l-/ by /n-/ in each task.

The Replacement of /n-/ by /l-/ in Different Phonological Environments

Firstly, we predicted that, due to assimilation, when the /n-/ is followed by nasal coda or preceded by a syllable of nasal coda, it is less likely for the speakers to substitute /l-/ for /n-/. The results shown in Figure 4 are not in line with our prediction. The frequency of the replacement of /n-/ by /l-/ was very similar in the two phonological environments that the initial /n-/ was preceded by a syllable of nasal coda, and by a syllable of non-nasal coda. Again, in contrast to our prediction, the replacement of /n-/ by /l-/ in the /n-/ word followed by nasal coda was slightly more than that followed by non-nasal coda.

Secondly, we speculated that if an onset /n-/ is in a syllable in an earlier position of a polysyllabic word, the replacement of /n-/ by /l-/ will be less likely to appear. This is because speakers normally pay more attention to the pronunciation of a syllable in an earlier position. The results given in Figure 5 partially support this speculation. The pronunciation of /n-/ was most accurate when /n-/ was in the first syllable. But the frequency of the replacement of /n-/ by /l-/ was similar when the onset /n-/ was in the second, third, or fourth syllable of a polysyllabic word.

Thirdly, we further predicted that if /n/ is in a consonant cluster, and not as a single initial, it would be more likely to be replaced by /l-/. This is because when /n/ is a single initial, it is at a position more salient than it is in a consonant cluster. A consonant cluster is less easy to pronounce than a single consonant. It was found that 21% of words of /n-/ as a single initial were pronounced as /l-/, and the replacement of /n/ by /l-/ appeared in 17% of words of /n/ in a consonant cluster. The results obtained seem to support our prediction. But the effect of this independent variable was not strong in the Variable Rule Analysis, which will be presented in the next section.

[2] /l-/ is pronounced accurately by Cantonese speakers in Hong Kong. The production of /l-/ was also examined in this study (but it is not the focus of this paper). Some /l-/ words were included in the reading tasks of this study. The accuracy rates of the production of /l-/ in the tasks of conversation, interview, passage reading, word reading, minimal pair reading, and minimal pair repetition were 97%, 97%, 94%, 97%, 88%, and 83% respectively by all the three groups of students.

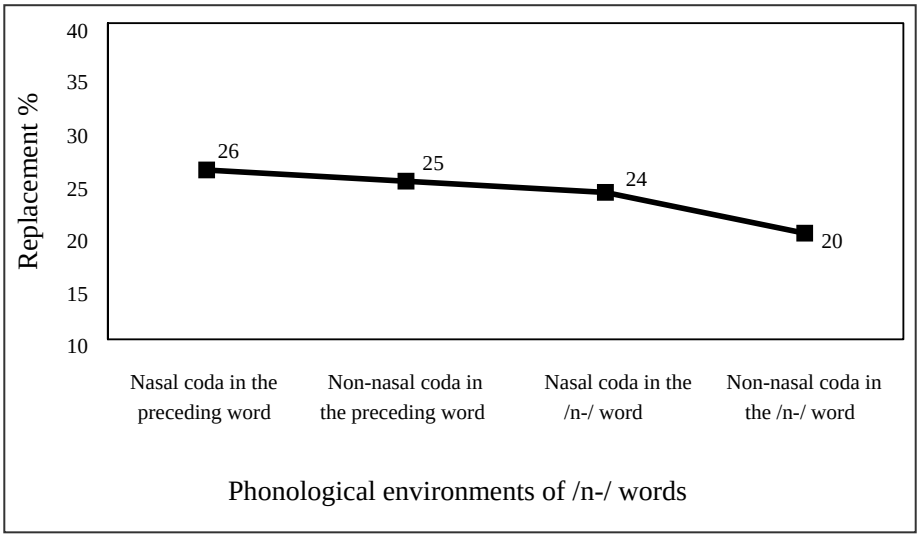

Figure 4. Mean percentage of replacement of /n-/ by /l-/ in the words /n-/ followed or preceded by nasal or non-nasal coda in all tasks.

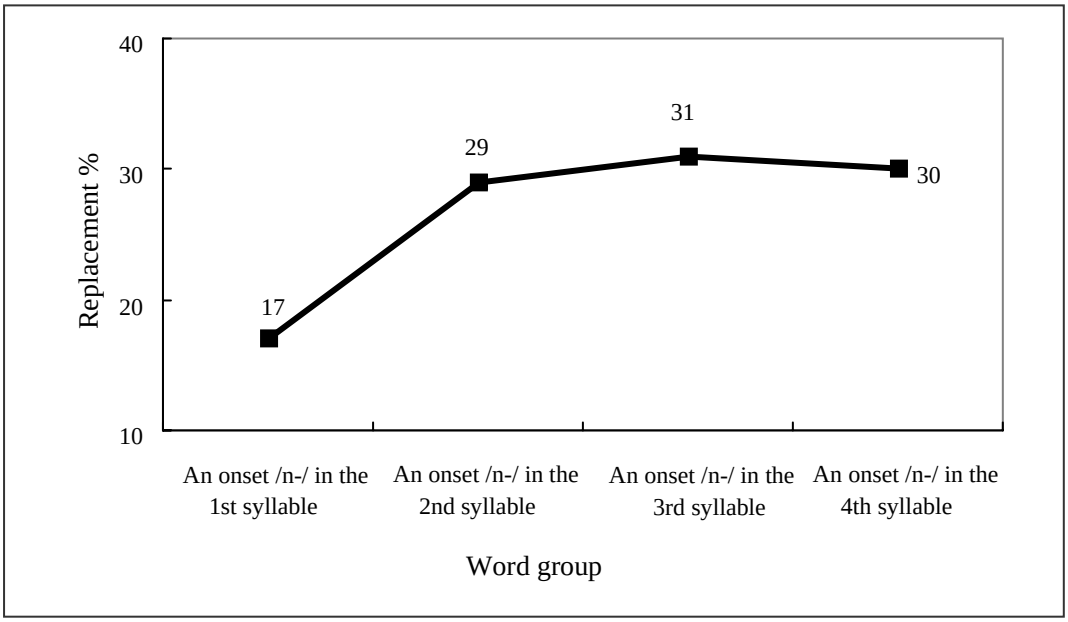

Figure 5. Mean percentage of replacement of /n-/ by /l-/ in polysyllabic words with an onset /n-/ in a syllable at different positions in all tasks.

Comparison of the Effects of Phonological Environment and Contextual Style on the Phonological Variation of /n-/

The results of Variable Rule Analysis in Table 1 show that contextual styles had the strongest effect on the phonological variation of /n-/ (0.484).[3] The effect of L2 proficiency was moderate (0.128). The results suggest that regardless of English proficiency, the factor of the variation of contextual styles plays the most important role in the substitution of /n-/ by /l-/ in the English interlanguage of Cantonese speakers.

[3] The classification of different levels of relative importance of factor group (e.g., strong, moderate, weak, and insignificant) is based on B. Horvath and R. Horvath (2002).

Table 1

Goldvarb Analysis of Substitution of /n-/ by /l- /by All Participants (27,604 Tokens)

Factor Groups		Goldvarb	Results	
	N	%	Weight	Relative importance
English proficiency				0.580-0.452
Elementary	9,646 (34%)	28	0.452	(0.128)
Intermediate	9,139 (33%)	29	0.473	Moderate
Post Intermediate	8,819 (31%)	37	0.580	
Contextual styles				0.705-0.227
Conversation	3,596 (13%)	50	0.705	(0.484)
Interview	6,000 (21%)	51	0.711	Strong
Passage reading	5,320 (19%)	28	0.509	
Word reading	6,656 (24%)	25	0.429	
Minimal pair reading	3,016 (10%)	10	0.261	
Minimal pair repetition	3,016 (10%)	9	0.227	
Coda in the /n-/ word				0.576-0.480
Nasal coda	3,683 (20%)	24	0.576	(0.096)
Non-nasal coda	14,325 (79%)	20	0.480	Weak
Coda in the preceding word				0.503-0.476
Nasal coda	1,622 (12%)	26	0.476	(0.027)
Non-nasal coda	11,027 (87%)	25	0.503	Insignificant
Onset /n-/ in a syllable at different positions of a polysyllabic word				0.599-0.469
1st syllable	12,485 (69%)	17	0.469	(0.107)
2nd syllable	2,755 (15%)	29	0.550	Moderate
3rd syllable	1,740 (9%)	31	0.599	
4th syllable	1,028 (5%)	30	0.576	
Consonant type of /n/				0.596-0.492
Single consonant	10,410 (92%)	21	0.492	(0.104)
In a consonant cluster	822 (7%)	17	0.596	Moderate
Input probability	0.292			
Log likelihood	-15,292.95			
Sig 0.000				

As for the factor groups of the variation of phonological environments, the effect of individual phonological environment ranged from insignificant to moderate (0.027-0.127). The onset /n-/ in a syllable at different positions of a polysyllabic word had a moderate effect (0.127), which was the strongest phonological environment factor. The second strong factor of phonological environment was /n/ as a single initial or in a consonant cluster (0.104). The effect of the factor of nasal/non-nasal coda of the /n-/ word was weak (0.096), but the factor of nasal/non-nasal coda of the preceding word had an insignificant effect (0.027).

Discussion

The results of this study indicate that systematic variation of the merging of /n-/ with /l-/ due to variation of phonological environment is not clearly shown. It is predicted that certain phonological environments will facilitate a high accuracy rate of pronunciation of /n-/. These phonological environments include a sound similar to /n-/, which shares the same phonetic feature (nasal) with /n-/ (i.e., /n-/ followed by nasal coda or preceded by a syllable of nasal coda), or include /n-/ at a more salient position of the word (i.e., /n/ as a single initial rather than in a consonant cluster; or including /n-/ in a syllable at an earlier position, instead of in a syllable at a later position, of a polysyllabic word). In contrast with our prediction, some phonological environments which are considered to be linked with a high accuracy rate of pronunciation of /n-/ do not facilitate accurate pronunciation.

We suggest that there are other factors which are better than phonological environment in accounting for the results obtained in this study. There is no doubt that L1 plays an important role in the phonological variation of /n-/ in the English production of Cantonese speakers. But, based on the results of this study, we argue that L2 learners' attention to pronunciation and their phonological awareness interacting with their L1 are the causative factors. With regard to L1 influence on the acquisition of English /n-/ by Cantonese speakers, negative transfer occurs. As pointed out by previous studies on Hong Kong English, /n-/ merges with /l-/ in the English interlanguage of Hong Kong students due to L1 interference. In our study, as shown in Figure 1, even though intermediate and post-intermediate learners substituted /l-/ for /n-/ less frequently than elementary learners, negative phonological transfer from L1 to L2 still appeared in these two groups of more advanced learners who had learnt English for more than 10 years. As presented in the previous section (Figure 2), the rate of the replacement of /n-/ by /l-/ was high (about 50%) in learners' casual spontaneous conversation and interviews. This result provides evidence to show that learners negatively transferred the sound substitution of /n-/ by /l-/ from their mother tongue to the L2. L1 influence on L2 phonology is evident.

We argue that there is an interaction between L1 phonological transfer and L2 learners' attention to pronunciation and phonological awareness in the acquisition of /n-/ in English by Cantonese speakers. It is more likely for L2 learners to transfer the phonological form from L1 to L2 if they pay less attention to pronunciation in L2 production, and if their phonological awareness of L2 is low, and vice versa. Given the results of this study, systematic variation of the merging of /n-/ with /l-/ appeared in different contextual styles which require different amounts of attention to pronunciation, and which arouse different degrees of phonological awareness of the distinction between /n-/ and /l-/. The tasks of casual spontaneous conversation and interview, which require most attention to speech content than pronunciation and arouse least phonological awareness of the distinction between /n-/ and /l-/, manifest least accurate pronunciation of /n-/ and most substitution of /n-/ by /l-/, and this phonological substitution is transferred from their L1. In contrast to the two casual conversational tasks, in the passage and word reading tasks the rates of replacement of /n-/ by /l-/ decreased. This is due to the fact that the passage and word reading tasks in careful and formal styles do not require participants' attention to the speech content, but only to pronunciation, and these tasks start to raise learners' phonological awareness of /n-/ and /l-/. The tasks of reading and repetition of minimal pairs that involve learners' high phonological awareness of, and focusing attention on, the difference between /n-/ and /l-/ show most accurate pronunciation of /n-/ and least replacement of /n-/ by /l-/. All these results show that our learners are less likely to suffer L1 interference when

their phonological awareness of making a distinction between /n-/ and /l-/ is increasingly raised. But it is also interesting to find in our study that hypercorrection of /l-/ occurs (i.e., replacement of /l-/ by /n-/) when learners' phonological awareness is raised.

We further argue that it is not the phonological environment itself which affects the phonological variation of /n-/ in the English interlanguage of Cantonese speakers. It is the variation in the amount of attention learners paid to pronunciation, which is associated with the variation of phonological environments that affects the accuracy of L2 pronunciation. Therefore, in our study, among all the factor groups concerning the variation of phonological environments, the factor group of /n-/ in the syllable at different positions of a polysyllabic word plays relatively the most important role in the replacement of /n-/ by /l-/. When an onset /n-/ is in the first syllable of a polysyllabic word, not in the second, third or fourth position, the onset /n-/ is least likely to be replaced by /l-/. This is because speakers normally pay more attention to the pronunciation of the first syllable than to the syllable in a later position of a polysyllabic word.

The above analyses try to argue that in addition to L1 influence, the amount of L2 learners' attention to pronunciation and degree of phonological awareness, play more important roles than the linguistic factor, the variation of phonological environments, in the merging of /n-/ with /l-/ in the English interlanguage of Cantonese speakers.

The findings of this study shed light on the pedagogy of L2 learning. In the training of L2 pronunciation, different speech styles that require different amounts of attention to L2 pronunciation and arouse different degrees of phonological awareness need to be included. Our L2 pronunciation training aims at high accuracy in both careful and casual speech.

Conclusions

On the whole, based on the results of this study, we found that the linguistic factor in terms of the variation of phonological environments does not fully account for the phonological variation of /n-/ in the English interlanguage of Cantonese speakers. Compared with the linguistic factor, the variation of stylistic contexts associated with attention to pronunciation and phonological awareness, plays a more important role in predicting and explaining the accurate pronunciation of /n-/ in English by Cantonese speakers. The findings of this study shed light on the pedagogy of L2 pronunciation training.

We argue that learners' phonological awareness and attention to L2 pronunciation, interacting with L1 influence, determine the phonological variation of /n-/ in the English interlanguage of Cantonese speakers. We propose that the variation of contextual styles, should receive enough attention in the training of L2 pronunciation and in the analysis of L2 interlanguage phonology.

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