

Phonological Issues Encountered by Thai Students Learning German: A Case Study¹

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Introduction

Contrastive analysis between German and Thai phonetics and phonology reveals certain areas which may be potential difficulties encountered by Thai students learning German, however, individual differences and previous learning may be important factors contributing to either hindrance or facilitation to language development.

In this paper, we studied 10 students; 5 first year and 5 fourth year, all majoring in German at the Faculty of Humanities, Kasetsart University, Bangkok. We selectively studied certain consonants, vowels, and phonological rules which are predicted to be problematic due to first language interference, especially, items which are obligatory in German and do not exist in Thai (James, 1980).

1. Thai vs. German Phonology

A brief summary of Thai and German phonetics and phonological systems is as follows.

1.1 A Sketch of Thai Phonology Thai has 21 consonants and 18 vowels with 9 contrastive short and long pairs, and 3 diphthongs. While the 8 stops are distinguished in voicing and aspiration, there are only two affricates-voiceless and voiceless aspirated alveo-palatal in the language. There are 3 different vowel heights for the vowels, only the back vowels are rounded.

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Consonants					Vowels		
p	t	tʰ	k	ʔ	i, i:	ɨ, ɨ:	u, u:
pʰ	tʰ	tʰʰ	kʰ		e, e:	ə, ə:	o, o:
b	d				æ, æ:	a, a:	ɔ, ɔ:
m	n		ŋ				
f	s		h		-----		
	l				diphthongs: ia, ɨa, ua		
	r						
w			j				

Up to two consonants are allowed as a cluster-onset, in which a voiceless stop is allowed as the first member of the cluster, and a sonorant as the second member. Only [k] is allowed as the first member of the cluster with [w] as a second member. Two phonological rules relevant to this study are: Obstruent Neutralization (ON), where obstruents become devoiced, de-aspirated and non-continuant word-finally, and Liquid Neutralization (LN), where liquids become unreleased nasals of the same place of articulation word-finally.

1.2 A Sketch of German Phonology There are 25 consonants, 14 vowels (and [ʁ]) and 3 diphthongs in German. Affricates have quite high functional loads in German.

Consonants					Vowels		
p	t		k		i:, I	y:, Y	u:, U
b	d		g		e:, ɛ	ø:, œ	ə
f	s	ʃ	ç	x	ɛ:, ɛ		a:, a
v	z	ʒ	j				
pf	ts	tʃ			-----		
		dʒ			diphthongs: ai, au, oy		
m	n		ŋ				
				R			
	l						

Up to three consonants are allowed as cluster-onsets. Relevant phonological rules are: Obstruent Devoicing (OD), where obstruents become devoiced word-finally, Alveolar Fricative Voicing (AFV), where alveolar fricatives are voiced intervocalically, or at syllable-initial after a voiced consonant, or at word-initial,

and Lateral Final Release (LFR), in which a syllable-final [l] releases its lateralization (Stock and Hirschfeld, 1996; Pornsan Wattanangkul, 1995).

2. Hypotheses

Contrasting Thai and German Phonetics and phonology, we find the following items predicted to be problematic to Thai speakers learning German as a foreign language:

(1) Consonants:

(a) Voiced and post-alveolar fricatives and affricates, i.e.,

[ʃ, ç, x, v, z, ʒ, j, pf, ts, tʃ, dʒ]

(b) Cluster-onsets e.g., [ʃpr, ʃpl], etc.

(2) Vowels:

(a) Rounded front vowels, i.e., [y, Y, ø, œ]

(b) Long vs. short vowel pairs of which the two vowels do not share the same place of articulation, e.g., [e:, ɛ], [ø:, œ], [o:, ɔ]

(3) Phonological rules:

(a) Obstruents at word-final position: Thai ON may interfere with OD causing unreleased obstruent-finals.

(b) Alveolar fricative voicing (AFV), [s-z].

(c) Lateral final release (LFR).

Moreover, unlike the Thai [r] which is an alveolar trill, the German [R], a uvular trill is predicted to present difficulty for Thai speakers, especially post-vocally, as [ʀ].

3. Phonetic Investigations

3.1 Subjects 10 undergraduate students majoring in German, 5 first year and 5 fourth year, all female, are the subjects of this study. The average age for the first year students is 18, with an average of 3 years of studying German. The average age for the fourth year students is 20 1/2, with approximately 5-6 years of studying German. None have been to a German speaking country and none are reported with speech or hearing deficits. All started learning German as a foreign language in highschool with Thai instructors. An exception is a fourth year student (subject 3) who has been studying German with native speakers at the Goethe-Institut in Bangkok for 6 years, throughout the years of her formal learning at highschool and university.

3.2 Experiments The subjects were asked to read 4 lists of German words and sentences (cf. appendix); A, B, C and D. List A consists of 8 words with consonant cluster and affricates as onsets. List B consists of sentences in which the test words from list A are present. List C consists of 6 words with 6 different vowels, [u:, y:, O:, ø:, a:, ε:], in more or less, similar syllable frames. Finally, list D consists of sentences in which the 6 words in list C are present. A and C were to be read carefully in citation. B and D were read at the speed of normal speech. For every word and sentence, each was to be repeated 5 times, summing up to a total of 40, 40, 30, and 30 tokens for lists A, B, C and D respectively. The tape recording was made in a soundproof room on cassette tapes using the Soundscape recording program at Kasetsart university sound laboratory.

The recording of each subject was observed by ear to detect errors. Errors made on citation forms (lists A and C) were grouped together, and those made on reading speech (lists B and D) were grouped together for each individual, and for all 1st year students as one set, and all 4th year students as another. The data is presented in percentage of errors most commonly made (cf. charts 1-4). It is noted that in both citation lists (A and C), both consonants and vowels were observed, and in both speech lists (B and D), not only the test words but also the entire sentences were observed.

3.3 Acoustic Analyses Acoustic analyses were made for the citation and speech vowels of each individual from lists C and D separately. Besides the 6 vowels in focus for list C, a [ə] and a lax [I] were also measured from unstressed syllables in two of the words on the list; 'schade' and 'Schädling' respectively. This is to give a relative center and high front area of the vowel space, (reduction considered for [I]). For list D, a stressed [i:] was also measured from the word 'Sie' in 10 sentences in order to find a relative high front area of the vowel space. For each vowel, the first, second and third formant frequencies were observed and measured on a wide-band spectrogram in conjunction with an observation of the waveform using the Kay Elemetrics CSL 4300 hardware and software programs. The means, standard deviation, and standard scores (z-scores) of the first and second formant frequencies were calculated for each set of vowels, tokens with z-scores beyond + or - 2 were disregarded. The means for all vowels were then plotted to show a relative vowel space of each individual.

3.4 Results The combined errors in both citation and reading speech of first year students (charts 1 & 3) reveal very high percentage up to 100% of errors made on rounded front vowels [y:, ø:, œ] and mid front vowels [e:] for citation forms. Interestingly, individual vowel space (figures 1-5) reveals a tendency to centralize both [y] and [ø]. Especially for [ø], the tendency is leaning toward the mid central unrounded vowel [ə]. For subjects 3 & 4, the target [u] is also centralized and for subject 5, the target [y] is back closer to [u]. In all, none of the first year students have anything close to high or mid front rounded vowels. Speech vowels were not taken into consideration at this point for vowel reduction due to reading speed and sentence stress patterns may jeopardize the vowel space.

For the consonants, the combined data of the first year students (charts 1 & 3) reveal very high percentages of errors on affricates [pf, ts^w, ts] for both citation and speech, and high percentage of errors on voiced fricative onsets [z, v] and velar fricatives [x] for speech, and 100% errors on lateral-finals [l] for citation.

On the combined errors of the fourth year students (charts 2 & 4), high percentages of errors were found on rounded front vowels [y:, ø, œ] for citation, and [y:] for speech. Also, mid front vowels [e:] were found to have high percentages of errors in speech. With the exception of subject 3, the other four subjects show a trend toward centralizing the mid front rounded vowel [ø] in citation. For the high front rounded vowel [y], subject 1 still has this vowel pronounced further back close to [u], and the other subjects including subject 3 have even the target [u] centralized. The vowel [y] for subjects 2 and 5, is pronounced closer to [ʊ] in the region between center and front of the space (figures 6-10).

For consonants, the combined data for fourth year students on citation show high percentages of errors on affricate onsets [pf, ts^w] and lateral-final [l]. On reading speech, high percentages of errors are found on affricates and voiced fricative onsets [pf, ts, ts^w, v], and velar fricative [x]. Apart from the above most commonly found errors, other items with lesser percentages of errors found are; stress placement, prevocalic [R] and postvocalic [ɐ], velar fricative [x] and its alternant [ç], etc. These are not covered in detail in this study.

3.5 Discussions For almost all students, the errors made on affricates are those substituted with single fricatives, e.g., [f, s, s^w] for [pf, ts, ts^w] respectively. Some inserted a vowel [ə] for the labialized affricate [ts^w] and pronounced it with an extra syllable, [sə. w....]. These errors can be clearly seen as an interference of

the first language (L1). Since Thai does not have labial affricates, [pf] is simply substituted with an [f] which does exist in Thai. Although [ts] is close to [tɕ] in Thai, however, the Thai affricate does not have the two consonants share the same place of articulation. Thai speakers naturally substitute [ts] with an alveolar fricative [s] familiar to them. For the labialized affricate [tsʷ], there is no Thai consonant comparable to it, therefore substituting it with [sʷ] is most probable in the same manner as [ts] being substituted with an [s]. However, for simplification of syllable structure and/or assimilation to Thai syllable structure, [sʷ] is breakable into two syllables [sə. w....].

On lateral-finals, unreleased [l̚] is native to Thai speakers (LN rule). There is no doubt that the data shows high to very high up to 100% errors for the two groups of students in both citation and reading speech. Although with a lesser percentage of errors, a more or less, similar type of error is made on other final consonants, e.g., [s, t, x], which also are not released. This unreleased final phenomenon is clearly seen as an interference of L1, in which obstruent neutralization (ON) is productive.

On the centralization of front rounded vowels, [y:, ø, œ], it seems almost all errors made on the mid front rounded vowels [ø, œ] are substituted with a mid central unrounded vowel [ə]. This is possibly due to the lack of front rounded vowels in Thai. The closest to a rounded mid back vowel [o] and yet more fronted known to native Thai speakers is a [ə]. For the centralization of the high front unrounded vowel, similar kinds of arguments can be made. However, there are some differences. On the high vowels, most students have it rounded, somewhat mispronounced as [ɥ] or a bit back as a lax [U] for some. In all, the contrast between L1 and L2 seems to be the reason behind such substitutions.

For the mid front vowel [e:], most errors were made with a yet lower front vowel [ɛ] or [æ] short or long. This superficially may not seem likely that L1 interference is operative since Thai does have the long vs. short vowel pair [e:] and [e]. However, the prevalence of the errors across subjects and speech styles in both 1st and 4th year students seems to indicate L1 interference. It is probable that the German long vs. short vowel pair [e:]/[ɛ] is not quite well controlled such that overgeneralization of [e:]/[ɛ] is applied in the test words 'der', 'er', and 'Pferd' in reading speech and 'Pferd' in citation. The substitution with an [æ] may be attributed to confusion of German long/short vowel pairs, but instead of mispronunciation with an [ɛ], the more familiar Thai vowel [æ] is used instead.

Overall, we find most consonants, vowels, and phonological rules predicted to be problematic true in the two sets of students observed. However, some items, in particular, three-consonant-cluster onsets and [ʃ] do not present much difficulty as had been expected. Perhaps, the fact that three-consonant-clusters and [ʃ] have been learned in English as the first foreign language, as early as in elementary school, has contributed to the ease of production for these sounds. This however, is merely a conjecture. Further studies are needed to verify much of the items not yet covered in this study.

Interestingly, the most common errors made on both consonants and vowels in the first year students are not much different from those made by the fourth year students, namely, [pf, ts^w], [l]-final, and [y:, ø:, œ]. The only difference is in the lesser percentage of errors for the fourth year students, which implicates a better control of the items in question even though not yet fully controlled (figure 11).

One interesting subject is a fourth year student (subject 3) who seems to have most of the vowels controlled but [u] and [y] (figure 8) and has made fewer consonant mistakes. Overall, both her speech and citation vowels and consonants were better pronounced than all other subjects despite the fact that they all have just about the same amount of years of language experience. She seems to have escaped the commonly made errors due to L1 interference. Checking her language background reveals that she has been studying German at the Goethe - Institut in Bangkok for 6 years with native speakers, which explains her good performance.

4. Summary

Overall, predictions made from contrastive phonological systems on difficulties encountered by Thai students learning German as a foreign language has shown to be highly valid. This is evident from the fact that both first and fourth year students have difficulties in, more or less, similar set of consonants, vowels, and phonological rules, parallel to those expected from contrastive analysis, only to different degrees of difficulty. The better performance on production made by the fourth year students as shown in the lesser percentage of errors made indicates further development along their interlingua when compared with the first year students. An exceptional performance by a fourth year student who seems to have the phonological system fairly well controlled, may be attributed to her language experiences; her exposure to native speakers since the beginning of her German

studies at the age of 15, other things being equal. For the centralization of [u], this may be attributed to overarticulation. The fact that all first year students come to the German program at Kasetart University already with language deficits—errors intact, as a product of the highschool system, raises an issue on the German language curriculum at highschool level. Since most students begin their German language studies in highschool at about the age of 15, for 3 years before college, highschool language programs set the foundation that instills the grammar of the language. Although an approximative system of L2 is movable along the interlingual development, setting the initial state right is more desirable than having to make corrections on later states of the grammar. This necessitates an evaluation of the highschool curriculum as a whole. Also, the fact that most fourth year students made quite similar errors as the first year students but to a lesser degree indicates persistence to change or improvement. All other things being equal, we beg the question of self-evaluation in our program of studies. Emphasis has always been made on writing and reading skills along with professional skills. Oral-aural skills have been given less attention. For example, the only course in German phonetics is offered at the fourth year level. This study has given us the challenge to make certain changes, to put more emphasis on the oral-aural skills, and to offer the phonetic course as early as possible.

5. Postscripts

This study opens up the door to linguistic investigations, particularly, phonetic and phonological analyses of German language teaching and learning as a foreign language for Thai students. This paper is only a preliminary to further studies and is not yet completed in itself. Nevertheless, it presents to us the importance of phonetic and phonological foundation of German language studies. It also presents challenges to language curriculum designers/developers both at highschool and university levels.

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Appendix

List of Words and Sentences used as Test Items

A.

1. Spiel
2. Sprache
3. Splitter
4. Stadion
5. Straße
6. Zeit
7. zwölf
8. Pferd

B.

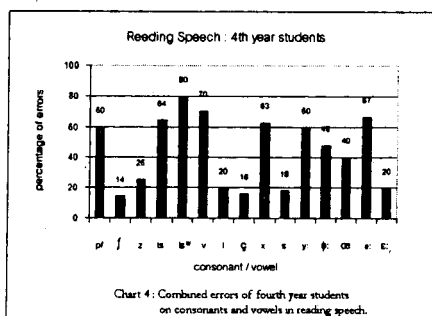
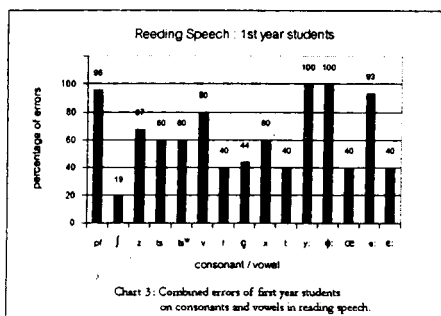
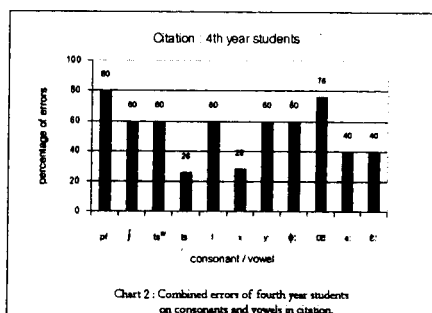
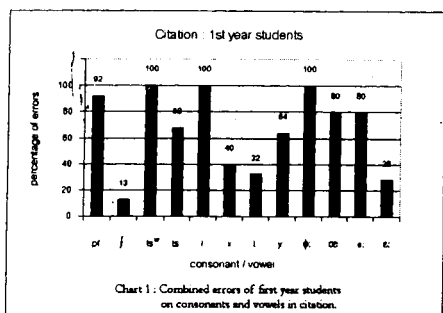
1. Machen Sie Ihr Spiel
2. Er ist ein Meister der Sprache
3. Das Glas zersprang in tausend Splitter
4. Mein Bruder geht gern ins Stadion
5. Er liegt auf der Straße
6. Ich habe noch eine Stunde Zeit
7. Wir sehen uns morgen um zwölf
8. Er arbeitet wie ein Pferd

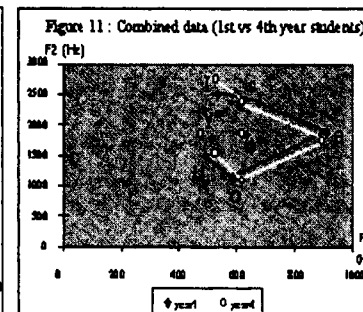
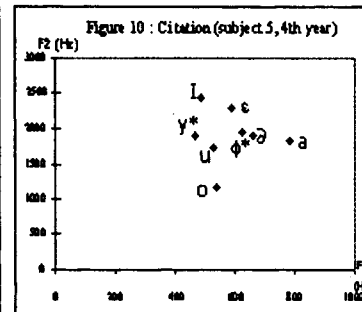
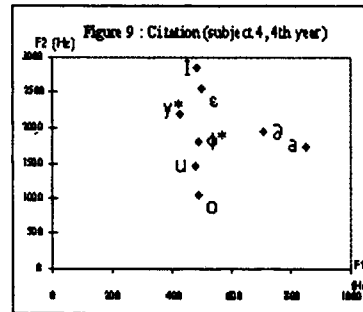
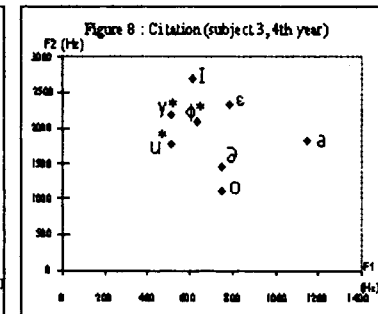
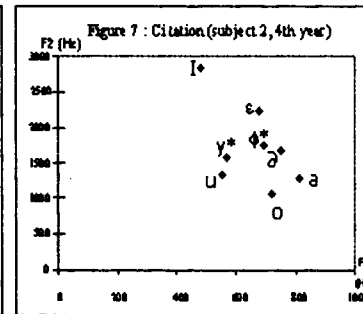
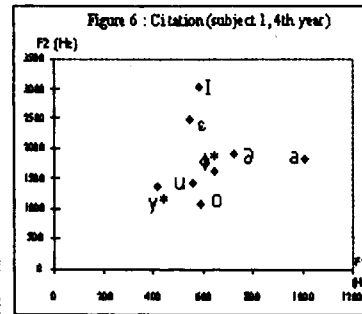
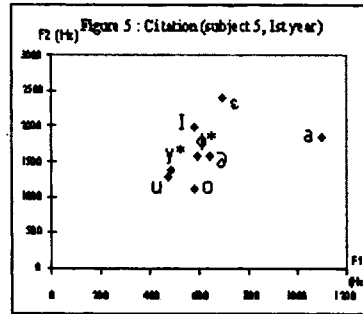
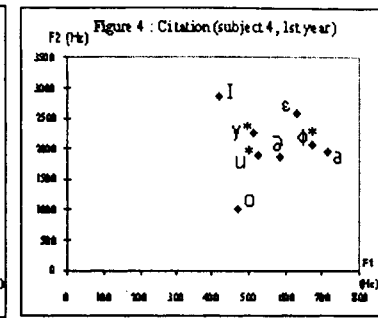
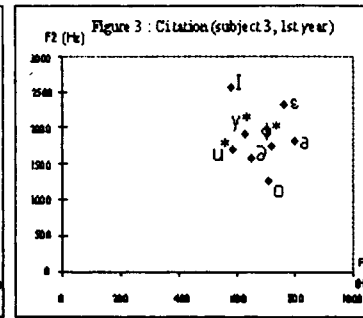
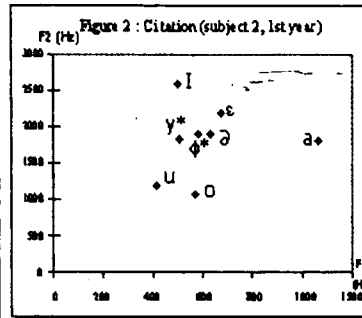
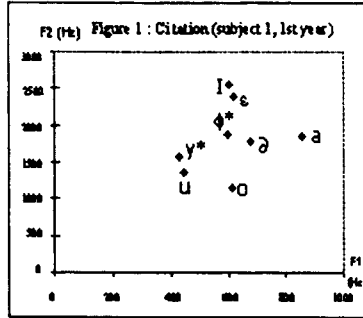
C.

1. schon
2. schön
3. Schule
4. Schüler
5. schade
6. Schädling

D.

1. Sagen Sie "schon"
2. Sagen Sie "schön"
3. Sagen Sie "Schule"
4. Sagen Sie "Schüler"
5. Sagen Sie "schade"
6. Sagen Sie "Schädling"





y* is symbolized for the target vowel [y], which, in many subjects, is unattained articulatorily and is mis-pronounced as [u]

φ* is symbolized for the target vowel [φ], which, in many subjects, is unattained articulatorily and is mis-pronounced as [ɔ]

u* is symbolized for the target vowel [u]