한국 EFL 학습자들의 영어 순자음의 인지

Identification of English labial consonants by Korean EFL learners

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요약

기존의 유표성 이론에 따르면, 마찰음이 파열음보다 유표적이므로 발음하기 어렵다는 것은 잘 알려진 사실이다. 따라서 본 연구에서는 한국 EFL 학습자들이 발음하기 어려운 마찰음 [f, v]를 어떻게 인지하는지 살펴보기 위해서 영어 순자음 [p, b, f, v]를 판별하는 실험을 기획하였다. 40명의 한국 학생들이 영어 순자음이 들어간 임시어를 인지하는 테스트를 실행한 결과, 순자음의 운율적 위치가 인지 정확도를 결정짓는데 영향을 미침을 발견하였고 특히 유표성 이론의 예상과 달리 무성 마찰음 [f]의 정확도가 비강세 모음사이의 위치를 제외한 모든 위치에서 높게 나왔다. 영어 순자음의 평균인지 정확도는 강세 모음사이와 어두 초성에서 높은 반면에 어말 종성과 비강세 모음사이에서는 낮았다.

Abstract

The perception of English labial consonants was investigated via experiment where 40 Korean EFL learners identified nonwords with the target labial consonants [p, b, f, v] in 4 different prosodic locations. The results showed that there was a strong positional effect since the accuracy rates of the four target consonants differed by position. Specifically, the average accuracy rate for the target consonants was higher in the stressed intervocalic position and initial onset position than in the unstressed intervocalic position and final coda position. Further, the accuracy rate for [f] is was high in all prosodic locations except the unstressed intervocalic position. This is unexpected in markedness theory given that fricatives are assumed to be more difficult to learn than stops.

I. Introduction

The labial place of English contains bilabial and labiodental places of articulation. English [p] and [b] are bilabial stops whereas English [f] and [v] are labiodental fricatives. It is usually observed that English [p] and [b] are easier to pronounce than English [f] and [v] given the markedness theory originated from Trubetzkoy (1939/1969) and Jakobson (1941/1968). Markedness theory has been further developed by many scholars such as Greenberg(1966) and Chomsky and Halle(1968). According to markedness theory, fricatives are assumed to be more marked than stops. Likewise, voiced sounds are assumed to be more marked than voiceless sounds. Positional markedness is also found in which final position (i.e., coda) is more marked than initial position (i.e., onset). Markedness implies being more specific, less frequent, more limited, later acquired, and difficult to produce. Given the conventional markedness hierarchy, we may predict the degree of difficulty that language learners may experience.

The research question in this study is to investigate whether more marked sounds like English [f] and [v] are also more difficult to perceive than less marked sounds like English [p] and [b]. English /f/ and /v/ are famous for being hard to produce for Korean EFL (English as a Foreign Language) learners, so it is frequently mispronounced as Korean aspirated bilabial stop [p^h] and Korean unaspirated stop [p], respectively. Thus, in this study the perception of English labial consonants [p, b, f, v] by Korean learners are examined in details.

II. Research Design

1. Stimuli

In order to investigate how Korean learners of English perceive English labial obstruents, 4 obstruents /p, b, f, v/ were combined with the low vowel /ɑ/. The target English obstruents and the low vowel sequences were

located in 4 different prosodic contexts. The 4 different prosodic contexts were composed of initial onset position, final coda position, stressed intervocalic position and unstressed intervocalic position. Thus, a total of 16 types were made as non-words.

(1) Stimulus classification by prosodic position (When there are more than two syllables, double vowels indicate a stressed syllable.

		CV	VC	VCVV	VVCV
bilabial	voiceless stops	pɑ	ɑp	ɑpɑɑ	ɑɑpɑ
	voiced stops	bɑ	ɑb	ɑbɑɑ	ɑbɑɑ
labio dental	voiceless fricative	fɑ	ɑf	ɑfɑɑ	ɑɑfɑ
	voiced fricative	vɑ	ɑv	ɑvɑɑ	ɑɑvɑ

The 16 types of stimuli were spoken by 4 native speakers of American English. Two of them were male and the other two were female. The native speakers were asked to read the stimulus list. Thus, the 16 types of stimuli uttered by the 4 speakers amounted to a total of 64 tokens. The production of the 64 tokens by the native speakers were recorded in order to present the stimuli to Korean learners of English. The created stimuli were randomized so that the same type of a stimulus produced by the 4 different native speakers does not occur in a row.

2. Participants

Forty college student in a university in the metropolitan area of Seoul participated in this study. The participants are characterized as female predominant, consisting of 12 male students and 28 female students, with the mean age of 24.97 at the time of the experiment. The participants were drawn from the same division majoring in English language and literature. None of them was found to have spent time in English speaking countries previously. The participants had learned English for more than 10 years in Korea, beginning to receive English education around the age of 13. The proficiency level of the participants would be evaluated as upper-intermediate because their major was English with more than 10 years of English education.

3. Procedures

The participants were asked to listen to a CD containing the randomized 160 non-word stimuli and to identify each stimulus. The identification test was a paper-and-pencil type. The participants were asked to choose the consonant of each stimulus they heard from a list of 15 alternatives on the answer sheet. The 15 alternatives were presented in IPA(International Phonetic Alphabet) symbols. The answer sheet also has the option of writing-in response (Other: __) so that the listeners may write down what they heard when there was no correspondence between a stimulus and the choices. The 15 alternatives are given in the following table.

(2) Sample item

Keyword	tell	dog	thin	that	fall	vase	sit	zip	pin
1.	t	d	θ	ð	f	v	s	z	p

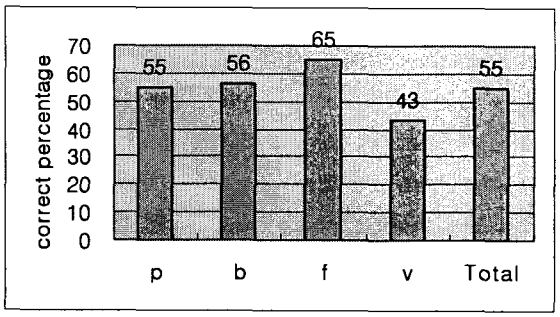
ball	rain	law	hall	wood	yes	
b	r	l	h	w	y	other ( )

Each alternative was presented with a key word on the top of the answer sheet in order to exemplify the IPA symbol. Before beginning the perception test, several examples in different prosodic locations indicating which sound each IPA symbol corresponds to were introduced to the listeners. Also, the listeners were provided a familiarization session where 5 sample questions were played for practice to clarify the experimental procedure. All of the participants' answer sheets were collected and scored.

III. Results and Discussions

In the analysis of the perception test, the proportion of accuracy of the stimuli was counted. The analysis out of 2560 tokens (4 consonants * 4 prosodic locations * 4 talkers * 40 listeners) showed that the number of correctly perceived tokens was 1396. Thus, the average accuracy rate amounted to only 55%. However, this average accuracy rate varied by consonant. Therefore, the correct percentage of each consonant were calculated as follows.

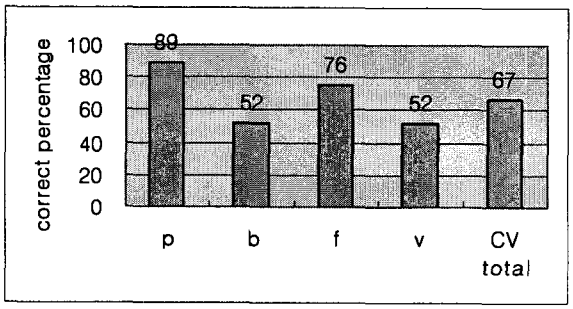
(3) Overall correct perception rate



This result was surprising given the fact that the accuracy rate of the voiceless labiodental fricative [f] was higher than the bilabial stops [p] and [b]. In markedness theory fricatives are more difficult to learn than stops. Nonetheless, 65% of accuracy was obtained in perceiving [f], compared with 55% and 56% of accuracy in perceiving [p] and [b], respectively. However, the voiced labiodental fricative [v] showed the lowest accuracy rate of 43%, as expected. Thus, the accuracy rate for each consonant is examined again by position. The accuracy for each consonant along with the positional average rate is reported below.

When the proportion of correct identification of the stimuli was compared depending on prosodic locations, positional effect has been found since the accuracy rates of the four target consonants differed by position. Specifically, the participants showed an average accuracy rate of 67% in initial onset position. However, 89% of the participants correctly perceived [p] in initial onset position, which is far higher than the average accuracy rate. Likewise, 76% of the participants correctly identified [f]. By contrast, only 52% of the participants correctly perceived the voiced [b] and [v].

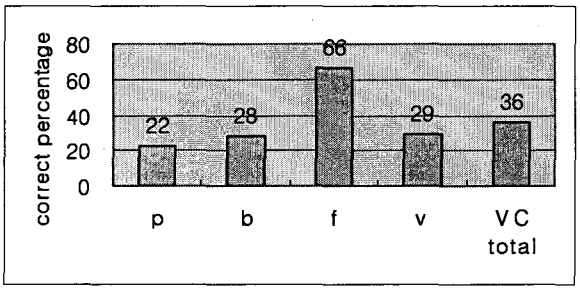
(4) Accuracy rate in initial onset position CV



In general, the listeners were more accurate in identifying the voiceless stimuli [p] and [f] than the voiced stimuli [b] and [v] in the initial onset position.

In the final coda position the average accuracy rate was only 36%, which is quite low compared to 67% of the initial onset position. Accordingly, there was apparent positional effect between initial onset position and final coda position in identifying the target labial consonants.

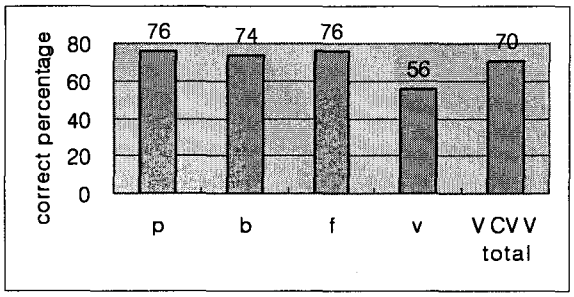
(5) Accuracy rate in final coda position VC



Regarding individual accuracy rates in the final coda position, the accuracy rate of [f] was far above the average rate, taking up 66%. By contrast, accuracy rates for the remaining stimuli [p], [b], and [v] took up 22%, 28%, and 29%, respectively. The identification of [p] (22%) was conspicuously low in the final coda position compared to the highest accuracy rate (89%) in the initial onset position. On the whole, it was observed that the overall accuracy for each stimulus was significantly worse in the final coda position than in the initial onset position.

In the stressed intervocalic position the listeners were good at identifying the stimuli. Thus, the average accuracy rate amounted to 70%.

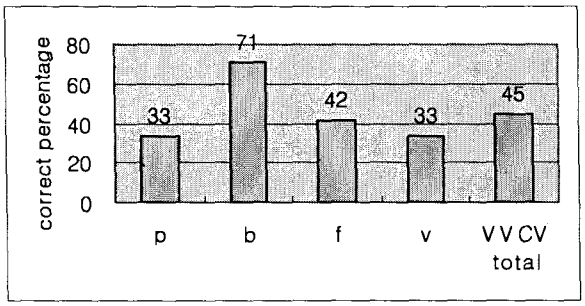
(6) Accuracy rate in stressed intervocalic position VCVV



All stimuli except [v] showed high accuracy; 76% of the listeners correctly perceived [p] and [f] and 74% of the listeners identified [b] targer-appropriately. By contrast, only 56% of the participants correctly identified [v].

In the unstressed intervocalic position the average accuracy rate was low (45%) compared to the stressed intervocalic position (70%).

(7) Accuracy rate in unstressed intervocalic position VVCV



The accuracy rates were 33% for [p] and [v]. The accuracy rate for [f] was also low, taking up 42%. However, the accuracy for the stimulus [b] was evidently high since 71% of the listeners perceived it correctly.

IV. Summary and Conclusions

To summarize, the listeners were better at identifying English labial consonants in the stressed intervocalic position VCVV (70%) and initial onset position CV (67%) than in the unstressed intervocalic position (45%) and final coda position (36%). In the initial onset position the voiceless stimulus were better identified than the voiced stimulus. In the final coda position the listeners had a great difficulty in identifying the stimulus except the stimulus [f]. In the stressed intervocalic position the listeners showed high accuracy rates for all stimuli except the stimulus [v]. In the unstressed intervocalic position the accuracy rates of the stimuli were relatively low compared to the stressed intervocalic position, However, the stimulus [b] showed the highest accuracy in this position.

References

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