The Impact of Learner Attitudes and Motivation on Phonological Features:

A Dissertation Pilot Study

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Abstract

An issue in second language pronunciation which has currently received great attention is the variability learners demonstrate in their acquiring of English pronunciation. In the pronunciation literature, although these individual differences are spoken of, little research has attempted to empirically account for them. In order to inform a larger dissertation study, the present pilot study analyzed two of these sources of individual variation: learners' motivation and attitudes towards English pronunciation. Fourteen students were recruited from the Program in Intensive English. These students responded to survey items to evaluate their motivation and attitudes towards learning English. Audio recordings were obtained from Task 2 of the Week-15 Achievement Test, and phonological analyses were performed to measure 11 variables of rate, stress, pausing, pitch, and tone. Simultaneous regression models were carried out for the two predictor variables (motivation and attitudes) on the 11 dependent variables (*i.e.*, the phonological features). Results of the analyses were not significant, perhaps due in part to the small sample size and lack of variance in pronunciation performance among the learners. However, trends from the study can inform future research on individual factors and acoustically measureable features of pronunciation performance.

Keywords: motivation, attitudes, pronunciation

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Background

It is no mystery that English language learners demonstrate significant individual differences (ID) when it comes to English pronunciation. While some learners tend to develop target-like pronunciation with ease, other learners seem to struggle, or even fossilize in this particular language skill. In the second language literature, these differential outcomes have been explored through affective, cognitive, and personality dimensions (Gardner, 1985). Some researchers in the pronunciation literature speculate that individual variability can be a result of some learner differences, including aspects of learner motivation (Flege, 1987; Levis, 2005) and attitudes (Derwing, 2003; Gatbonton, Trofimovich, & Majed, 2005). Part of a larger dissertation study which will explore a comprehensive range of interdisciplinary IDs (*i.e.*, motivation, attitudes, language contact, and phonological short term memory), the current study reports on the impact of learner attitudes and motivation on the acquisition of acoustically measured phonological features.

Attitudes

Learner attitudes towards the L2 community and its accent varieties also seem influential on how learners acquire English pronunciation. Attitudes are often discussed in terms of the opinions learners make of their L2 community in which they live. More positive attitudes are also thought to influence the extent to which one develops their pronunciation. In the pronunciation literature, L2 attitudes are further spoken of in reference to learner opinions about

L2 varieties of English. Although a very broad construct, similarities in hypotheses emerge from the literature that positive attitudes towards the L2 community and its speech variety seem to positively impact the way one acquires English pronunciation.

Motivation

When speaking of second language motivation, many reference Dornyei's (2005, 2009) tri-partite "L2 motivational self system," and its three sub-dimensions: the Ideal L2 self, the Ought-to L2 self, and the L2 learning experience. These dimensions arrive at different aspects of learner motivation such that the Ideal L2 self taps into the ideal language user one hopes to be in the future, the Ought-to L2 Self refers to the motivation a language user has based on outside pressure and responsibilities, and the L2 learning experience concerns the motivation learners have towards their immediate language learning environment. In second language acquisition studies, the composite of these dimensions seems to account for the motivation learners have when learning a second language. Pronunciation researchers speak of the effect of learner motivation on pronunciation acquisition, yet empirical research has yet to explore the relationship.

Research Questions

In an exploratory study which looks at the relationship between learner motivation and attitudes on acoustic features of pronunciation, the current research question is the following: Do learner attitudes and motivation predict phonological indices of rate, pauses, stress, pitch, and tone?

Methods

Participants

Survey and speech data were collected from 14 participants (10 males and 4 females). Their age ranged from 18-25 years. Six participants were native speakers of Chinese and 8 were native speakers of Arabic. Seven participants were enrolled in Level 4, and 7 were enrolled in Level 5.

Speech Stimuli

Recordings for each of the participants were obtained from the archived data at the PIE program. The learners recorded their speech in response to Task 2 on their week 15 Achievement Test (spring 2016). For level 4 learners, the topic of this task was about introverts and for level 5 learners, the topic was about placebo effects.

Phonological Analyses

All identifiers and task introductions were removed from the speech files, and the phonological analyses began with the commencement of the task. Approximately the first 30 seconds of each speech file were analyzed. Measures of speech rate (*i.e.*, syllables per second, articulation rate, mean length of run, phonation time ratio), pauses (*i.e.*, number of pauses, mean length of pauses), stress (*i.e.*, space and pace), pitch, and tone were coded and calculated. Operationalized definitions and calculations of these features can be found in Appendix A.

Instrument

The survey instrument used in this study (see Appendix B) was made up of items used to operationalize “attitudes” and “motivation.” There was a short component used to gather participants’ background information, including items on age, sex, and country of origin. The items used to measure each construct were informed by previous research and built upon existing

surveys. The questionnaire was written in English and revised several times for clarity and appropriateness.

Attitudes. The operationalization of attitudes in this survey was the opinions/feelings learners have towards L2 communities and varieties of English. Questions were informed and adapted from Kang (2010), Papi and Teimouri (2014), and Qiong (2004). There were a total of five questions measured on a 6 point Likert scale where 1 was "strongly disagree" and 6 was "strongly agree). There was an additional option of "Non-applicable" if the question did not apply. Cronbach's alpha for this subscale was .83.

Motivation. Fifteen items operationalized motivation and its three sub-dimensions, and these were informed from Dornyei's L2 self motivational system (2005) of the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience. Question items were adapted from Papi and Teimouri (2014) for the purposes of this study to include a focus on pronunciation. For example, Papi and Teimouri's question, "I study English because close friends of mine think it is important" was changed to "I try to improve my English pronunciation because close friends of mine think it is important."

All sub-scales had high reliability (Ideal L2 Self, $\alpha = .78$; Ought-to L2 Self, $\alpha = .92$; and L2 Learning Experience, $\alpha = .85$). Finally, one larger multi-item scale was created to measure the overall construct of "motivation" by using the mean of the 15 items, and Cronbach's alpha was calculated ($\alpha = .83$) and deemed acceptable.

Analyses

A total of 11 regression models were run for the 11 dependent variables (i.e., syllables per second, articulation rate, mean length of run, phonation time ratio, number of silent pauses, mean length of silent pauses, pace, space, pitch range, rising tones, and falling tones). In

simultaneous multiple regressions, both independent variables of motivation and attitude are entered into the model (*i.e.,* the equation) at the same time, and the results obtained depend on the combination of these variables in the model; therefore, it is advised to have a strong theoretical rationale for including the defined predictor variables.

Results

Across the 11 regression analyses, there were no statistically significant results. This could be due in part to the extremely small sample size which is not recommended for regression analyses. It could also be due to the lack of variance in pronunciation performance among the L2 speakers (initial analyses using t-tests issued that there were no significant differences across the 11 phonological variables between level 4 and level 5 students). However, some trends can be noted in order to inform future research in this area. For example, a positive relationship was noted between motivation and syllables per second (β=.20*)*; in other words, as motivation increased, syllables per second (measures of speech rate) also increased. Another positive relationship was seen with attitudes and mean length of runs ((β=.14); an increase in attitudes was related to longer runs, or stretches of speech. Studies have found that speech right impacts listeners' perception of accentedness (Munro & Derwing, 1998; Trofimovich & Baker, 2006), comprehensibility (Kang, 2010) and both accentedness and comprehensibility (Munro & Derwing, 1998; Munro & Derwing, 2011).

The negative relationship both attitudes and motivation showed with the number of silent pauses suggests that as motivation (β=-.03) and attitudes (β=-.15) increase, the number of silent pauses decreases. Trofimovich and Baker (2006) found that pause duration for Korean learners of English was the most significant predictor) of accentedness ratings.

Pitch, although contradictory in the relationships with attitudes (negative relationship, β=-.93) and motivation (positive relationship, β=1.18), produced the largest *F* ratio of all the analyses, which suggests an effect of these individual variables, yet requiring further research to substantiate these findings.

Relevance to PIE and Second Language Learning

As the results of this pilot study lack concreteness due to some methodological issues, the scope of the implications at this point are also quite limited. However, what can be relevant to the PIE is the fact that PIE students showed overall very high motivation towards learning English pronunciation, and they demonstrated positive attitudes towards the English speech community. This information can be informative to PIE administrators and educators in the consideration of level benchmarks and curriculum development. This sample of PIE students seemed to be very open to improving their pronunciation such that pronunciation classroom foci and practice could be of great interest to these students. Furthermore, there do seem to be some trends noted such that when motivation and attitudes increase, phonological performance may improve, yet again, further research is needed to provide more concrete results.

Implications to overall second language learning require further analyses as well, yet there do seem to be some dynamic relationships occurring in response to learner variables of motivation and attitudes. Researchers have hypothesized an effect based on these variables, yet improved instruments and research designs are needed to isolate and evaluate these factors even further. Once achieved, the results can be fruitful to understanding more about the individual variability seen in pronunciation performance.

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Appendix A
Summary of Phonological Features Analyzed for 14 Speakers

Feature	Description
Rate	
Syllables per second	This is a measure of the mean number of syllables produced per second, calculated as the total number of syllables divided by the total length of the speech sample.
Articulation rate	Calculated by determining the total number of syllables in each speech sample and dividing by the total time (in seconds) of the speech sample, excluding silent pause time.
Mean length of runs	This is a measure of the average number of syllables produced in utterances between pauses of 0.1 seconds and above. The mean length of runs is calculated by dividing the total number of syllables by the total number of runs.
Phonation time ratio	This is a measure of the percentage of time spent speaking as a proportion of the total time taken to produce the speech sample. This is calculated by dividing the total length of the time spent speaking (excluding pauses) by the total length of the speech sample.
Pauses	
Number of silent pauses	This measure calculates the total number of silent pauses over the speech sample.
Mean length of silent pauses	This measure calculates the total length of pauses of 0.1 seconds or greater by the total number of pauses of 0.1 or greater. This is calculated by dividing the total length of silent pauses by the total number of silent pauses.
Stress	
Pace	This is a measure of the average number of prominent syllables per run and is calculated by dividing the total number of prominent syllables by the total number of runs.
Space	This measure calculates the proportion of prominent words to the total number of words.
Pitch	
Pitch range	Calculated by determining the difference between the F_0 minima and maxima appearing on prominent syllables per task.
Tone	
Rising tones	Calculated by determining the percentage of use of rising or rise-falling tones in the speech sample.
Falling tones	Calculated by determining the percentage of use of falling or fall-rising tones in the speech sample.

Appendix B
Background

Provide the following information by checking (✓) the boxes or writing your response in the spaces provided.

1. ***Name:*** _____
2. **Gender:** ❑ Male ❑ Female
3. ***Age:*** _____
4. ***Country of birth:*** _____
5. ***The first language you spoke:*** _____

Tell me how much you agree or disagree with the following statements by circling a number from 1 to 6. If the question does not apply to you, circle NA. Please do not leave out any items.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree	Does not apply
1	2	3	4	5	6	NA

***Example*:** If you slightly disagree with the following statement, write this:

I like skiing very much. **1 2** (3) **4 5 6 NA**

Motivation

6. *I can imagine myself speaking English like a native speaker.*	***1 2 3 4 5 6 NA***
7. *I can imagine myself speaking English with international friends or colleagues.*	***1 2 3 4 5 6 NA***
8. *Whenever I think of my future career, I imagine myself using English.*	***1 2 3 4 5 6 NA***
9. *I can imagine myself studying in a university where all my courses are taught in English.*	***1 2 3 4 5 6 NA***
10. *I can imagine myself living abroad and using English effectively for communicating with the locals.*	***1 2 3 4 5 6 NA***
11. *I try to improve my English pronunciation because close friends of mine think it is important.*	***1 2 3 4 5 6 NA***

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree	Does not apply
1	2	3	4	5	6	NA

12. *Studying English pronunciation is important because the people I respect think that I should do it.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
13. *Studying English pronunciation is important to me in order to gain the approval of my friends, teachers, family, or boss.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
14. *Studying English pronunciation is necessary because people expect me to sound like a native speaker of English.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
15. *Studying English pronunciation is important to me because other people will respect me more if I sound like a native speaker.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
16. *I enjoy learning English pronunciation.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
17. *It is useful when teachers tell me my pronunciation problems.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
18. *Watching video clips in the classroom helps me improve my pronunciation skills.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
19. *I like practicing pronunciation with other students in the classroom.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
20. *I would like to have more English pronunciation lessons at school.*	***1***	***2***	***3***	***4***	***5***	***6***	***NA***

Attitudes

21. I like meeting people from English speaking countries.	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
22. I like when my English teacher is a native speaker of English.	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
23. I want to sound like a native speaker of English.	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
24. The English accent I prefer to listen to the most is a "standard" variety of English (American, British, Australian, Canadian, etc.)	***1***	***2***	***3***	***4***	***5***	***6***	***NA***
25. The English accent I hope to have is a "standard" variety of English (American, British, Australian, Canadian, etc.)	***1***	***2***	***3***	***4***	***5***	***6***	***NA***