

THIRD LANGUAGE PRONUNCIATION PERFORMANCE AND METAPHONOLOGICAL AWARENESS; A CORRELATIONAL STUDY

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ABSTRACT

The paper aims at exploring the relationship between perceived pronunciation performance and metalinguistic awareness in the acquisition of third language phonology. The study involved 27 participants with Polish as L1, English as L2 and French as L3. In the first part of the study, third language pronunciation performance was assessed by means of online ratings involving 3 components: foreign accentedness, comprehensibility and pronunciation accuracy judgements. In the second part, metaphonological awareness was investigated through the application of stimulated recall verbal protocols. A composite measure was calculated based on self-repair of L3 pronunciation, performed phonetic analysis, manifested self-awareness of pronunciation problems and metacognitive comments on cross-linguistic interactions. The findings point to patterns of correlations between the participants' measures of metaphonological awareness and their pronunciation ratings. Generally, the participants with higher levels of awareness were perceived as less foreign accented, more intelligible and accurate in terms of their L3 pronunciation performance.

Keywords: pronunciation ratings, metalinguistic awareness, third language phonology.

1. INTRODUCTION

Third Language Acquisition (TLA) of phonology is a young, yet dynamically developing area of research (e.g. Gut [3], Hammarberg & Hammarberg [4] or Wrembel [9], [10], [11]), however, there has been little exploration of potential correlations between different aspects of the domain as claimed by Cabrelli Amaro [1]. Therefore, in order to create a more complete view of L3 phonological acquisition, the present contribution aims at investigating the relationship between perceived L3 pronunciation performance and metalinguistic awareness in the acquisition of phonology (hereafter referred to as metaphonological awareness). Metalinguistic awareness has been acknowledged as a significant component of language proficiency and ascribed a facilitative role in foreign language

acquisition [2], particularly from the multilingual perspective as suggested by Jessner [5]. However, it has been rarely investigated from the point of view of foreign language pronunciation (cf. Kennedy & Trofimovich [6], Venkatagiri and Levis [8]). On the other hand, foreign accent ratings have been widely applied in SLA studies (e.g., [7]), yet they have been scarcely explored in research on third language phonological acquisition with the exception of Hammarberg & Hammarberg [4] or Wrembel [10].

2. STUDY

The study is part of a large scale project, yet for the purpose of the present contribution two components will be presented including foreign accentedness ratings and metaphonological awareness protocols.

2.1. Participants

The participants included 27 Polish university students of English (L2) who have been learning French as a subsequent foreign language (L3). There were 22 females and 5 males and their mean age was 20.3 years ($SD=1.4$, range 19-25). The participants' competence in L2 English was advanced ranging from B2 to C1 level according to CEFR. The length of formal training in English was 11.8 ($SD=2.1$); whereas the mean age of onset of learning equalled 8.5 years ($SD=2.2$). Their proficiency level in L3 French ranged from A1 (elementary) to B2 (intermediate) with an average exposure to French totalling 3.7 years ($SD=2.3$) and the mean age of onset of learning being 16.3 years ($SD=2.7$).

2.2. Research design

2.2.1. Foreign accent ratings

In the first part of the study, 30 speech samples (ca 20-30 seconds long) were selected from a previously recorded database of read texts in French featuring excerpts from 27 participants and 3 native controls. The accent ratings were performed online by 22 raters who included 10 native speakers of French and 12 Polish non-native speakers with a near-native proficiency in French. The performed ratings involved several parameters, including (1) the degree of the perceived foreign accent, (2) the

evaluation of individual speakers' comprehensibility, (3) the assessment of pronunciation correctness. Native control samples were excluded from the subsequent analysis of results.

2.2.2. Metaphonological awareness protocols

In the second part of the study, the data collection procedure involved introspective and retrospective oral protocols, in which the same participants were to modify and comment on their French pronunciation after listening to a series of short excerpts (2-3 seconds) of their previous text reading recording in this language. The protocols were audio-recorded, transcribed and coded for the purpose of the objectivisation of the data analysis using a designed coding system [12]. A proposed composite measure of metaphonological awareness was calculated on the basis of the observed instances of self-repair of L3 pronunciation, performed phonetic analysis, manifested self-awareness of problems in L3 pronunciation as well as metacognitive comments on cross-linguistic interactions.

The following research questions were posed in the study:

- RQ 1: How are different parameters of L3 pronunciation evaluated in the performed ratings?
- RQ 2: Do multilingual learners of L3 French exhibit evidence of metaphonological awareness? If so, how does it manifest itself?
- RQ 3: How are accentedness ratings related to the degree of MPhA in multilingual learners?

3. RESULTS

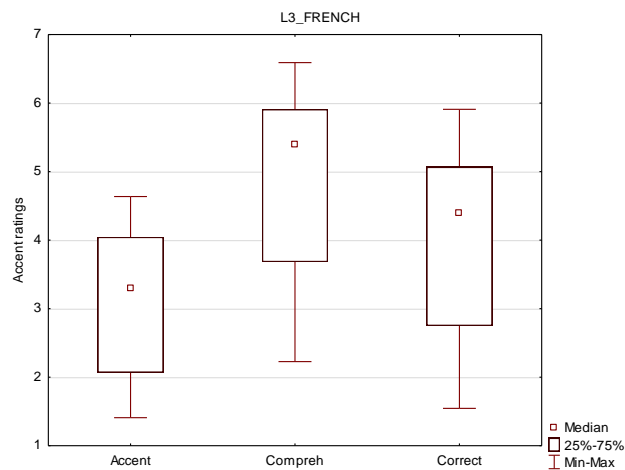
3.1 Foreign accent ratings

The first perceptual judgment task required the raters to assess the recorded L3 French samples for an overall degree of foreign accent on a 7-point scale (1= strongly accented, 7= native-like accent). The mean total rating was 3.1 (SD=1.7) and it was the lowest score of all the rating parameters. The comprehensibility ratings were significantly higher than those of foreign accentedness, with the mean score being 4.9 (SD=1.8) on a 7-point scale (1= incomprehensible, 7= comprehensible). The pronunciation correctness rating had a mean score of 4.0 (1.7) on a 7-point scale (1= incorrect, 7= correct) and ranked as the medium judgement in between accentedness and comprehensibility scores (see Fig. 1).

To compare the ratings of different parameters a Kruskal-Wallis test was performed and the results

were found to be significant $H(2, n= 84)=22.7, p<0.01$. Pairwise multiple comparisons between the samples showed statistically significant differences between accentedness and comprehensibility ratings as well as between accentedness and pronunciation correctness scores.

Figure 1: Box-whisker plot for L3 French pronunciation ratings.



A Spearman rank correlation test was run to verify if the selected aspects of perceived pronunciation performance in L3 French were related to one another. The results of the test showed that there are strong positive correlations between comprehensibility and pronunciation correctness scores ($R_s=0.78$), between foreign accentedness and correctness ($R_s=0.64$) and a moderate correlation between foreign accentedness and comprehensibility ratings ($R_s=0.52$), $p<0.05$.

Nonparametric Mann-Whitney tests were performed to compare the ratings with respect to the raters' native vs. non-native status. In case of foreign accentedness (NS_M = 2.9, NNS_M = 3.3) the difference between the two groups proved to be statistically significant ($Z=2.5, p<0.05$), indicating that native speaker raters were more severe in their ratings. For the remaining parameters of comprehensibility and pronunciation correctness no significant differences were found between native and non-native raters. Interraters' reliability was assessed by means of Cronbach alpha coefficient of internal consistency between raters. It was demonstrated to be very high for all the rating parameters (accentedness $\alpha=0.95$, comprehensibility $\alpha=0.95$, correctness $\alpha=0.93$).

3.2 Metaphonological awareness protocols

The analysis of the immediate retrospective verbal protocols showed 20 instances of self-repair during the actual reading performance in L3 French

($M=0.74$, $SD=1.1$). The nature of these ad hoc modifications concerned mostly the pronunciation of individual segments. As far as post hoc self-corrections are concerned, the total number of modifications during the analytic listening to one's recordings equaled 165, ($M=6$, $SD=2.8$) and they were correct in 63% of the cases.

Qualitative differences were found when the complexity of comments on reported problems with L3 pronunciation was analysed. Over half of all the comments (60.5%) were coded as low complexity level as they mostly involved noticing a particular phonological pattern in L3 without further elaboration. On the other hand, 33.5% of comments were classified as medium complexity level since they featured metalinguistic explanation, in which the participants performed conscious analysis of the targeted feature. High complexity awareness level was found to be the least frequent one (6%) as it required the use of appropriate metalanguage.

The introspective verbal protocols involved metacognitive comments on L3 oral performance including statements of phonological rules and reported cross-linguistic influence (CLI). The number of provided phonological rules accounting for their performance in L3 French equaled 30 ($M=1.1$, $SD=1.09$). These statements referred to salient features of French, English or Polish sound systems featuring conscious phonetic analysis and the use of metalanguage. Further generated metacomments were related to CLI and involved self-reports of perceived interactions between various language systems of the multilingual participants ($N=68$, $M=2.52$, $SD=0.9$). Among the declared sources of phonological CLI, the participants specified both their native Polish and the non-native English language pointing to examples of L1-to-L3 and L2-to-L3 transfer. They also provided explanatory accounts by identifying possible conditioning factors such as the frequency or recency of use of particular languages or typological closeness between the language systems.

On the basis of previous research [12], the following formula was proposed to account holistically for metaphonological awareness (MPhA) as a composite score of various parameters that were categorized in the oral protocol analysis.

$$A*2+B-C*0.5+D+E+F*2+G*3+H+I*2-J*0.5+K=MPhA \text{ composite score}$$

- A – Pronunciation ad hoc self-repair (x 2)
- B – Pronunciation post hoc self-correction (x 1)
- C – Incorrect correction (x -0.5)
- D – Noticing pronunciation problems (x 1)
- E – Low complexity level (x 1)
- F – Medium complexity level (x 2)

- G – High complexity level (x 3)
- H – Noticing cross-linguistic influence (x 1)
- I – Formulation of phonological rules (x 2)
- J – Expressions of uncertainty (x -0.5)
- K – Metacognitive comments (x 1)

For each participant the number of observed instances in each category was multiplied by an indicator and the total sum was calculated. The mean composite score for MPhA was 28.3 ($SD=12$), ranging from 6 to 54 points, with 22% of the participants falling in the low awareness category (<20 points), 59% in medium awareness (20-40) and 19% in the high awareness group (>40).

Spearman rank correlation tests were performed to investigate potential relations between metaphonological awareness and the participants' variables. Moderate correlations were observed between MPhA composite score and years of L3 training ($R_s=0.56$); MPhA and L3 proficiency level ($R_s=0.48$); MPhA and L2 proficiency ($R_s=0.54$).

3.3 Correlational analysis

Spearman rank correlation tests were performed to investigate correlations between pronunciation ratings and metaphonological awareness score. All the parameters of perceived pronunciation performance in L3 French correlated moderately to highly with the participants' composite score for metaphonological awareness (MPhA and foreign accentedness $R_s=0.5$; MPhA and comprehensibility $R_s=0.45$; MPhA and pronunciation correctness $R_s=0.39$, $p<0.05$). It follows that the higher the composite score of metaphonological awareness, the better the participants scored for their L3 pronunciation performance in terms of sounding less foreign accented, more comprehensible and correct.

4. DISCUSSION

The study was designed to determine if metaphonological awareness is related to measures of perceived pronunciation performance in a third language. Addressing the first research question, significant differences and patterns of correlation were found for the three selected rating parameters, with the degree of foreign accentedness as the most severely judged measure, followed by medium scores for pronunciation accuracy and considerably higher comprehensibility ratings. Moreover, the parameters of perceptual pronunciation assessment correlated strongly with one another and interraters' reliability was high, thus confirming the validity of the performed L3 ratings. The patterns of pronunciation performance scores generated in the present study proved to be fairly consistent with previous related L3 research [10]. They were also in

line with findings reported in the SLA literature, e.g. [7], according to which a degree of a foreign accent does not preclude comprehensibility.

The quantitative and qualitative analyses of verbal protocols demonstrated that the participants exhibited considerable evidence of metaphonological awareness, as investigated in the second research question. The observed instances of MPhA manifested themselves at the levels of noticing (e.g., modifying mispronunciations through self-corrections, noticing phonetic features in L3 performance); understanding (e.g., statements of phonological rules and reflective phonetic analysis); and metacognition (e.g., reports of CLI, explanations of specific language behaviour).

Moreover, different forms of metaphonological awareness observed in the analysis of verbal protocols can also be interpreted as examples of two types of awareness, i.e. epilinguistic and metalinguistic awareness as stipulated by Gombert [2]. The former category was demonstrated by spontaneous ad hoc self-repairs during the L3 reading performance, however, its manifestations were rather limited compared to the latter. On the other hand, the instances of metalinguistic phonological awareness were more numerous and included reflective phonetic analysis, intentional focus on articulatory gestures and post-hoc corrections. Consequently, it appears that metaphonological awareness exhibited by the participants was rather conscious and intentional.

In self-reports the participants identified various sources of phonological transfer including both the native and non-native languages and pointed to the assumption of combined cross-linguistic influence in L3 phonological acquisition. These introspections contribute to an ongoing debate in the field of third language acquisition on whether it is the established motor-routine in the L1 or the L2 status that determines the source of CLI [cf. 1, 9, 10]. Particularly interesting are the participants' explanatory accounts of CLI conditioning factors such as the recency of language use or typology and psychotypology, which closely correspond to the factors attested in the literature [4, 5].

The third research question focused on the relationship between the two major concepts investigated in the study. All parameters of perceived L3 pronunciation performance correlated moderately with the participants' composite score for MPhA. It appeared that the participants with higher levels of metaphonological awareness were generally rated as more intelligible speakers, less foreign accented and more accurate in terms of their L3 French pronunciation. The results are in line with related SLA studies, which showed a positive

correlation between rated comprehensibility in L2 and tests of explicit phonological awareness [8] or the relationship between pronunciation ratings and the number of qualitative language awareness comments generated through diary entries [6]. Nonetheless, in the present contribution more complex measures of metaphonological awareness and perceived pronunciation performance were applied.

Pedagogical implications of the study may involve recognizing metaphonological awareness as a significant component of multilingual competence, implementing awareness raising techniques in pronunciation instruction and drawing attention to the formal properties and complexity of third language speech.

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