Foreign Language Learners' Pronunciation Learning Beliefs and Strategies

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Abstract This quantitative research investigates the extent to which adult L2 learners act in line with what they declare to believe in regarding pronunciation learning. In other words, this paper focuses on determining the strength of the relationship between the frequency of use of L2 pronunciation learning strategies (PLS) and the beliefs the individuals hold on selected factors affecting pronunciation acquisition, pronunciation instruction, self-efficacy, pronunciation learning goals and affective factors in pronunciation learning. A group of 116 learners of English as a foreign language who took an English phonetics course responded to the *Pronunciation Learning Strategies Inventory* (PLSI) and the *Beliefs on Pronunciation Learning Inventory* (BPLI), an instrument designed for the purposes of the current study. Correlational analysis confirmed several statistically significant positive relationships and very few negative interplays between the two focal variables. The highest values of coefficients were calculated between the belief that theoretical knowledge on pronunciation can help in pronunciation learning and the use of cognitive ($r = 0.53$) and metacognitive ($r = 0.55$) PLS, explaining 27% and 29% of the variance respectively.

Keywords Pronunciation learning strategies · Pronunciation learning beliefs · Individual learner differences · Foreign language learning

1 Introduction

The relationship between individual learner differences (ILDs) and foreign or second language (L2) learning processes has long been established (Dörnyei, 2005). L2 learners' characteristics have attracted a number of scholars in the pursuit of categorizing ILDs and grasping their impact on the ultimate L2 attainment (cf. Arabski & Wojtaszek, 2011; Dörnyei & Ryan, 2015; Ellis, 2008). However, scarce consideration has been given to researching the interplays across various ILDs. This line of enquiry may lead to mapping several significantly correlated networks of ILDs that

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allow better understanding of how these clusters of ILDs affect language learning processes, including the processes of acquiring different L2 skills and subskills, for instance, pronunciation, which is in the limelight in this paper.

The acquisition processes of L2 segmental and suprasegmental systems interact with biological, cognitive and affective learner characteristics, such as age (Johnson & Newport, 1989; Piske et al., 2001), language aptitude (cf. Celce-Murcia et al., 2010), mimicry ability (Hinton, 2013; Purcell & Suter, 1980), learning styles (Baran-Łucarz, 2012), self-regulation (Moyer, 2014, 2018), learning strategies (cf. Pawlak & Szyszka, 2018), motivation (Purcell & Suter, 1980; Smit, 2002; Smit & Dalton, 2000) and beliefs (Pawlak et al., 2015). Nonetheless, more needs to be done in order to understand complex relationships between the above-mentioned ILDs and how their mutual interplay affects pronunciation acquisition. This research aims to add more insights into recognizing the relationship between two ILDs that inform L2 pronunciation acquisition: pronunciation learning beliefs and strategies. Interestingly, although the relationship between beliefs and action, for instance the use of learning strategies, has not been denied (Barcelos & Kalaja, 2011) and there has been a number of studies exploring the link between language learning strategies and beliefs (e.g. Abedini et al., 2011; Li, 2010; Yang, 1999; Zhong, 2015), there is a paucity in research investigating this relationship in the area of pronunciation learning. In order to fill this existing gap in research, the main objective of this paper is to verify whether L2 learners' beliefs concerning pronunciation (LLB) interact with actions they choose to learn L2 pronunciation which are operationalized here as pronunciation learning strategies (PLS). A further aim is to investigate specific beliefs about pronunciation learning that correlate highly with the types of pronunciation learning strategies.

2 Language Learner Beliefs and Pronunciation Learning Strategies

Research into the beliefs that L2 learners hold about various internal and external processes concerning language learning and teaching was grounded in the 1980s by its pioneers Horwitz (1987) and Wenden (1986). Since that time both the definitions of the construct and the stance in research have evolved to a considerable extent. Bernat and Gvozdenko (2005) reviewed the early definitions, in which the scholars would perceive learners' beliefs as metacognitive knowledge, stemming from implicit learner theories that are self-constructed on the basis of learners' general conceptions of learning. These, in turn, entail L2 learners' assumptions about themselves, about factors affecting L2 acquisition, and about the nature of L2 learning and teaching. Learner beliefs were viewed as stable characteristics shaped by the past experiences and socio-cultural background (Yang, 1999). The classic instrument, the *Beliefs About Language Learning Inventory* (BALLI), designed by Horwitz (1987), scrutinized learners' beliefs from the perspective of such areas as language aptitude,

motivation and expectations, language learning and communication strategies, difficulty and nature of L2 learning. However, more recent approaches position learners' beliefs as far more multidimensional and multilayered than they have previously been understood. For instance, Kalaja et al. (2016) explain that "holding a belief (or believing) is an occasion when a learner (…) happens to reflect on aspects of language learning or teaching, relates these to experiences of his or her own or those of others, and assigns these aspects his or her own personal meanings" (p. 10). These beliefs are no longer permanent characteristics because, being shared and influenced by experiences and others in time and space, they are dynamically constructed and reconstructed, simultaneously sustaining some elements of stability (see Mercer, 2011; Barcelos & Kalaja, 2011). Moreover, being contextually situated, they depend on a specific learning situation (Barcelos, 2003; Peng, 2011; Zhong, 2014), for instance, on pronunciation learning and teaching. They are also interpreted as dynamically related to actions (Borg, 2006; Kalaja & Barcelos, 2003), so also to the use of learning strategies or pronunciation learning strategies.

Pronunciation learning strategies can be understood as "deliberate actions and thoughts that are consciously employed, often in a logical sequence, for learning and gaining greater control over the use of various pronunciation aspects" (Pawlak, 2010, p. 191). Thus, PLS are goal-oriented actions directed towards improving L2 pronunciation features. They may also perform various functions, for instance memory, cognitive, compensation, metacognitive, social and affective, depending on "the task, the physical context, and the learner's internal context" (Oxford, 2017, p. 141). More specifically, a learner who wants to improve a specific pronunciation area usually selects one or more strategies, executing a specific function, from the available array but these choices may be determined by a number of contextual factors, such as task types (Szyszka, in press), instructed or naturalistic pronunciation learning, ESL or EFL environment, to name but a few, and individual learner differences (ILDs) or "personal variables such as motivation, personality, style, age, gender, affect, beliefs, nationality, ethnicity, culture, anxiety, self-efficacy, self-esteem, proficiency level" (Griffiths, 2013, p. 10). So far, however, little is known to what extent the choice of pronunciation learning strategies is related to learners' beliefs about pronunciation learning. And yet, L2 learning processes are tailored by learners' "individual contributions (…) such as their motivation, attitudes, learning styles, and beliefs, all of which frame what and how they learn" (Barcelos, 2015, p. 304). In other words, learners' beliefs shape the psycho-cognitive processes of learning which in turn inform learners' in- and out-of-class actions (Bernat, 2008), so also language learning strategies.

Beliefs concerning pronunciation have been mostly investigated from the learners' and teachers' perspectives (for an overview see Pawlak et al., 2015). For the purposes of this paper a brief account of selected studies regarding only the former standpoint is offered. Interestingly enough, learners coming from various L1 backgrounds differed in their beliefs on the acquisition and instruction of L2 pronunciation. Cenoz and Lecumberri (1999) investigated the beliefs concerning factors that influence pronunciation acquisition. They grouped these factors into seven categories: contact with native speakers, ear-training exercises, motivation, general proficiency

in English, phonetic practice, personal abilities and knowledge of other languages. Their 53 Spanish and 33 Basque respondents believed that the interaction with a native speaker as well as ear-training technique, motivation and proficiency were the key factors affecting the acquisition of the English sound system. Interestingly, only among the Basque participants a significant negative relationship was found between the perceived difficulty of segmentals and suprasegmentals, and the belief about the importance of ear-training, and a positive correlation between the perceived importance of individual sounds and contact with native speakers.

Beliefs concerning the value of pronunciation practice in L2 pronunciation learning were also investigated by Simon and Travernier (2011). Their study aimed, among others, to explore the beliefs concerning pronunciation learning of the tertiary level learners of English. Their 117 Dutch undergraduate students of English responded to an online questionnaire which included items on the beliefs about learning grammar, pronunciation and vocabulary. The participants held the belief that L2 pronunciation was not as important for effective communication as vocabulary. They connected the success in pronunciation learning with the effort invested in studying and practicing pronunciation. They also believed that an extended stay in a target language country was needed to achieve success in acquiring a foreign language pronunciation. In the study conducted by Pawlak et al. (2015), more attention was given to the beliefs associated with pronunciation instruction. The participants were 110 Polish learners of English pronunciation at the tertiary level who reported their beliefs regarding the value of pronunciation instruction, the choice of the syllabus, the design of pronunciation classes, introducing and practicing pronunciation features and the role of corrective feedback in pronunciation. Generally, the participants expressed their positive beliefs about the value of pronunciation instruction and appreciated their teachers' corrective feedback concerning pronunciation. However, they differed in their beliefs concerning the design of a pronunciation-centered lesson, as well as effective approaches to introducing and practicing pronunciation features.

Scarce investigations into the relationship between the beliefs on pronunciation learning and pronunciation learning strategies have provided only some preliminary evidence. For instance, Sardegna (2012) investigated the role of self-efficacy beliefs and strategy use in instructed learning of English stress and linking in the group of adult ESL learners. She also aimed to scrutinize some other factors contributing to final achievement regarding the above-mentioned pronunciation aspects. The findings of this exploratory research disclosed that pronunciation progress sustained over time resulted from a combined occurrence of such variables as engagement in pronunciation practice, use of pronunciation learning strategies, and the participants' strong belief in their self-efficacy.

Sardegna et al. (2018) hypothesized a structural model regarding self-efficacy beliefs, learners' attitudes toward pronunciation practice and pronunciation learning strategy use. The participants, 704 Korean adolescent learners of English, completed two questionnaires: the *Strategies for Pronunciation Improvement* (SPI) inventory and the *Learner Attitudes for Pronunciation* (LAP) inventory. The results confirmed that self-efficacy beliefs had a significant direct effect on pronunciation learning strategies. Interesting as they are, these findings provide a promising but preliminary

path of investigation. However, further research, exploiting not only self-efficacy but also a wide range of beliefs about pronunciation learning, entailing alternative research designs in various contexts might provide more insights into the area of pronunciation learning beliefs and strategies of individual learners.

3 The Current Study

The aim of this study was to examine whether and to what extent learning beliefs that advanced adult Polish learners of English as a foreign language hold on pronunciation learning processes are related to the declared use of pronunciation learning strategies. The following research questions were addressed:

1. Which beliefs on L2 pronunciation learning do advanced learners of English strongly agree or disagree with?
2. Do L2 learners' beliefs (LLB) on factors affecting pronunciation acquisition, pronunciation instruction, pronunciation self-efficacy, goals for pronunciation acquisition and affective factors in pronunciation acquisition interplay with the frequency of use of six pronunciation learning strategies' (PLS) categories?
3. Which specific beliefs about pronunciation learning correlate high with the use of PLS?

3.1 Participants

Participants included a group of 116 adult learners studying English (L2) at a BA level in one of Polish universities. Their age ranged between 17 and 24 with the mean value reaching 19.6. There were 19 males and 97 females declaring on average 12.3 years of experience in learning the L2. They expressed their satisfaction with their L1 and L2 pronunciation on a 9-point scale (from 1—*unsatisfactory* to 9—*very satisfactory*). The mean values equaled 7.7 and 6.8, respectively. Surprisingly enough, these outcomes revealed that the participants did not feel fully satisfied with their native language pronunciation, posing additional questions concerning the level of difficulty of Polish pronunciation not only for foreigners (see Tambor, 2010), which might be the subject of a separate investigation. Despite incomplete satisfaction regarding their L1 and L2 pronunciation, the individuals who participated in the current study were finishing their 30-h course of practical English phonetics. They were familiarized with the Standard British English sound system, transcription symbols and selected aspects of suprasegmental features (see Roach, 2009). However, their knowledge and instructed practice in several aspects of connected speech and intonation were still limited. Although the participants were not directly instructed in the use of pronunciation learning strategies, they were informed about their nature and provided examples of PLS prior to research.

3.2 Instruments and Procedure

The questionnaire adopted for the purposes of the current study consisted of three parts, the first of which focused on demographic queries regarding gender, age, age of onset—understood as the age of an individual when they initiated L2 learning—and the evaluation of the level of satisfaction concerning L1 and L2 pronunciation. Although the report was anonymous, the individuals were requested to provide their own codes, which they would be able to apply in further empirical investigations.

The second part of the questionnaire comprised the *Pronunciation Learning Strategies Inventory* (PLSI) (Szyszka, 2017)—the instrument collecting the data on the frequency of PLS use. This inventory consisted of 52 items belonging to PLS categories performing six functions, which reflected Oxford's (1990) memory (items 1–6), cognitive (items 7–28), compensation (items 29–35), metacognitive (items 36–43), affective (items 44–48) and social (items 49–52) strategies respectively. For instance, a strategy performing a memory function was represented by an item "I use phonetic symbols or my own code to remember how to pronounce words in English," an item reflecting a cognitive function was worded as "I imitate native speaker's or my teacher's pronunciation," item 29—"I avoid saying words which I have difficulties in pronouncing"—exemplified a compensation function, item 36—"I try to learn something about English phonetics"—a metacognitive function, item 44—"I have a sense of humor about my mispronunciations"—an affective function, and item 49—"I ask someone else to correct my pronunciation—a social function." The responses were reported on a 5-point Likert scale indicating the frequency of PLS use, ranging from *almost never or never* to *almost always or always*, with the minimum of 52 and the maximum number of points reaching 260. The PLSI's internal consistency reliability calculated with Cronbach's alpha was 0.88, which may be interpreted as very high.

In the third part, the instrument called the *Beliefs on Pronunciation Learning Inventory* (BPLI) was designed for the purposes of the study. It included 20 items and measured the degree to which the participants agreed or disagreed with the beliefs on selected factors affecting pronunciation acquisition (item 53—"Children learn L2 pronunciation in an easier way than adults," item 54—"Some people are born with special abilities to learn L2 pronunciation," item 55—"My pronunciation is affected by factors which are independent from me," item 56—"We can learn good pronunciation only when we live in an L2 country," item 64—"Communication with native speakers helps in improving pronunciation"), pronunciation instruction (item 57—"L2 pronunciation should be taught in secondary schools," item 58—"L2 pronunciation should be taught in primary schools," item 60—"L2 pronunciation course can improve my pronunciation," item 70—"Theoretical knowledge on pronunciation can help in pronunciation learning"), self-efficacy beliefs (item 69—"I am able to improve my pronunciation by working on it," item 71—"I think I have a talent for pronunciation," item 72—"Learning L2 pronunciation is difficult for me"), goals for pronunciation acquisition (item 59—"It's important for an English Philology student to have good pronunciation," item 62—"Good pronunciation is important in

everyday communication in L2," item 63—"It's important for an English teacher to have good pronunciation," item 68—"I want to speak English like a native speaker") and affective factors in pronunciation (item 61—"I do care to have good English pronunciation," item 65—"I am satisfied with my English pronunciation," item 66—"My L2 pronunciation gives me the feeling of high self-confidence," item 67—"It irritates me when my colleague speaks English with a strong Polish accent"). The design of this part of the instrument was inspired by the literature review. However, importantly enough, the list of the items included in the BPLI is limited, and the author did not intend to provide a fully-fledged scale on pronunciation learning beliefs in the current study. The individuals indicated their responses on a 5-point Likert scale, from 1 (*don't agree at all*) to 5 (*I totally agree*). The minimum score was 20 and maximum 100. The reliability of the scale was measured with Cronbach's alpha and reached the value of $\alpha = 0.69$.

The questionnaire was administered electronically during phonetics classes. The participants were requested to complete the Polish version of the questionnaire and encouraged to ask clarification questions. Prior to data collection, the students were instructed that the participation was voluntary, anonymous and would not affect their final course mark. The collected data were analyzed with the SPSS software. The analysis included the calculations of descriptive statistics (mean, median, min., max., and standard deviations), Pearson product moment correlations, measuring the degrees of relationship between PLS and beliefs on pronunciation learning, and R square (R^2), indicating the amount of variance in the dependent variable—the use of PLS belonging to a specific PLS category—that was explained in this study by the independent variables—the clusters of beliefs on pronunciation learning which correlated significantly with a dependent variable.

4 Results and Discussion

Descriptive statistics was used in order to address the first research question regarding the beliefs on L2 pronunciation learning that advanced learners of English strongly agree or disagree with, as can be seen from Table 1. In the study it has been assumed that the mean values equal to or above 4.5 presented high levels and those below 2.5 low levels of agreement with a given belief.

The belief concerning the importance of holding good pronunciation on part of an English teacher scored the highest mean value ($M = 4.82$) with low standard deviation ($SD = 0.47$), implying that the group was rather undivided in expressing strong agreement with this belief. The individuals also agreed that they did care about their L2 pronunciation ($M = 4.7$, $SD = 0.64$) and they also believed strongly that communication with native speakers helps in improving pronunciation ($M = 4.64$, $SD = 0.64$). Optimistically, the students of English held the belief that it is important for an English Philology student to have good pronunciation ($M = 4.54$, $SD = 0.61$) and they wanted to speak English like a native speaker ($M = 4.53$, $SD = 0.80$). Moreover, the participants generally disagreed with the statement depriving them of

Table 1 Descriptive statistics for the beliefs on pronunciation learning in the group of 116 participants

Beliefs on pronunciation learning	*Mean*	*Median*	*Min*	*Max*	*SD*
53—Children learn L2 pronunciation in an easier way than adults	3.99	4	1	5	1.10
54—Some people are born with special abilities to learn L2 pronunciation	3.78	4	1	5	1.14
55—My pronunciation is affected by factors which are independent from me	2.47	2	1	5	1.11
56—We can learn good pronunciation only when we live in an L2 country	2.49	2	1	5	1.15
64—Communication with native speakers helps in improving pronunciation	4.64	5	1	5	0.64
57—L2 pronunciation should be taught in secondary schools	4.32	5	1	5	1.00
58—L2 pronunciation should be taught in primary schools	4.03	4	1	5	1.13
60—L2 pronunciation course can improve my pronunciation	4.33	4	2	5	0.74
70—Theoretical knowledge on pronunciation can help in pronunciation learning	3.41	3	1	5	1.04
69—I am able to improve my pronunciation by working on it	4.50	5	2	5	0.69
71—I think I have a talent for pronunciation	3.23	3	1	5	1.11
72—Learning L2 pronunciation is difficult for me	2.84	3	1	5	1.14
59—It's important for an English Philology student to have good pronunciation	4.54	5	3	5	0.61
62—Good pronunciation is important in everyday communication in L2	4.16	4	1	5	0.84
63—It's important for an English teacher to have good pronunciation	4.82	5	3	5	0.47
68—I want to speak English like a native speaker	4.53	5	1	5	0.80
61—I do care to have good English pronunciation	4.70	5	1	5	0.64
65—I am satisfied with my English pronunciation	3.52	4	1	5	0.88
66—My L2 pronunciation gives me the feeling of high self-confidence	3.56	4	1	5	1.13
67—It irritates me when my colleague speaks English with a strong Polish accent	3.36	3	1	5	1.27

an active role in the process of pronunciation acquisition ("Pronunciation is affected by factors which are independent from me") ($M = 2.47$, $SD = 1.11$) as well as with the necessity of acquiring the sound system in the target language country ("We can learn good pronunciation only when we live in an L2 country") ($M = 2.49$, $SD = 1.15$).

The data collected in order to respond to the second research question—whether L2 learners' beliefs (LLB) on factors affecting pronunciation acquisition, pronunciation instruction, pronunciation self-efficacy, goals for pronunciation acquisition and affective factors in pronunciation acquisition interplay with the frequency of pronunciation learning strategies' (PLS) use—were analyzed statistically in terms of Pearson product moment correlation coefficient. Table 2 presents the outcomes generated from 116 participants.

A considerable number of 52 statistically significant correlations were detected between six PLS categories and 20 statements regarding beliefs on pronunciation learning. As many as 11 significant positive relationships were calculated between beliefs and the use of cognitive PLS, explaining 53% of the variance ($R^2 = 0.534$). The same number of significant positive correlation coefficients, explaining 33% of the variance ($R^2 = 0.334$), were found between pronunciation learning beliefs and social PLS. Half of the beliefs included in the questionnaire correlated positively with metacognitive PLS, accounting for 49% of the variance ($R^2 = 0.493$). Weak or moderate but significant positive correlation coefficients were calculated between six different beliefs and the frequency of use of compensation as well as affective PLS, explaining 28% and 18% of the variance respectively. Four beliefs correlated positively and significantly with memory PLS, accounting for 20% of the variance.

Although the majority of correlation coefficients indicated a positive relationship, there were few with a negative value. The participants who reported more frequent use of memory and compensation PLS scored statistically significantly lower on the belief concerning their level of satisfaction with L2 pronunciation. This might indicate that learners who are dissatisfied with their L2 articulation prefer to use strategies performing a memory function more often, or those who deploy these shallow processing memory strategies (cf. Oxford, 2011), perhaps not as effective as deep processing cognitive strategies, perceive their pronunciation as different from the target-like pronunciation which in turn affects their beliefs. Moreover, those who were displeased with their L2 pronunciation compensated for pronunciation inaccuracies and uncertainties more frequently. Nevertheless, the values of the correlation coefficients were weak ($r = -0.19$ and $r = -0.18$ respectively), explaining 3.7% and 3.4% of the variance, respectively. Similarly, a weak and negative relationship ($r = -0.19$) was found between social PLS and the self-efficacy belief stating that L2 pronunciation learning is difficult ($R^2 = 0.038$). Those who agreed with this belief tended to use social strategies less frequently. Naturally, a learner who believes that L2 pronunciation is problematic and perhaps does not feel confident in using it withdraws from any interaction that may expose him or her to a face-threatening situation.

Further scrutiny of the results revealed several interesting observations. There were two beliefs that had not correlated with the use of any PLS: "People are born with special abilities to learn L2 pronunciation" and "it's important for an English teacher to have good pronunciation." The responses to the former were varied within this group ($SD = 1.14$ and the mean value of 3.78), indicating the existence of strong discrepancies. In contrast to this, the latter scored very high and the group was comparatively unanimous, as discussed earlier. Those two beliefs do not directly refer

Table 2 Pearson's correlation coefficients (r) for pronunciation learning beliefs and six categories of pronunciation learning strategies (PLS)

Beliefs on pronunciation learning		PLS					
		Memory	Cognitive	Compen-sation	Meta-cognitive	Affective	Social
Pronunciation acquisition	53—Children learn L2 pronunciation in an easier way than adults	0.2*	0.00	0.38*	0.01	0.14	0.08
	54—Some people are born with special abilities to learn L2 pronunciation	−0.12	−0.01	0.02	0.03	0.02	0.06
	55—My pronunciation is affected by factors which are independent from me	0.19*	0.13	0.26*	0.2*	0.10	−0.08
	56—We can learn good pronunciation only when we live in an L2 country	0.09	0.08	0.16	0.19*	0.10	0.04
	64—Communication with native speakers helps in improving pronunciation	0.00	0.13	−0.03	0.07	0.00	0.20*
Pronunciation instruction	57—L2 pronunciation should be taught in secondary schools	0.09	0.22*	0.19*	0.14	0.23*	0.33*
	58—L2 pronunciation should be taught in primary schools	0.17	0.28*	0.14	0.16	0.18*	0.31*
	60—L2 pronunciation course can improve my pronunciation	0.21*	0.36*	0.21*	0.39*	0.31*	0.31*
	70—Theoretical knowledge on pronunciation can help in pronunciation learning	0.35*	0.53*	0.08	0.55*	0.13	0.12
Self-efficacy	69—I am able to improve my pronunciation by working on it	0.1	0.34*	−0.01	0.26*	0.16	0.20*
	71—I think I have a talent for pronunciation	−0.06	0.31*	−0.13	0.17	0.19*	0.24*

(continued)

Table 2 (continued)

Beliefs on pronunciation learning		PLS					
		Memory	Cognitive	Compen-sation	Meta-cognitive	Affective	Social
	72—Learning L2 pronunciation is difficult for me	0.14	0.05	0.23*	0.15	−0.05	−0.19*
Pronunciation goals	59—It's important for an English Philology student to have good pronunciation	0.14	0.37*	0.00	0.33*	0.22*	0.36*
	62—Good pronunciation is important in everyday communication in L2	0.02	0.16	−0.02	0.11	0.03	0.23*
	63—It's important for an English teacher to have good pronunciation	0.05	−0.01	−0.11	−0.05	−0.02	−0.06
	68—I want to speak English like a native speaker	0.06	0.36*	0.21*	0.31*	0.24*	0.30*
Affective factors	61—I do care to have good English pronunciation	−0.02	0.27*	0.01	0.24*	0.15	0.33*
	65—I am satisfied with my English pronunciation	−0.19*	0.10	-0.18*	0.00	0.11	0.16
	66—My L2 pronunciation gives me the feeling of high self-confidence	−0.01	0.35*	−0.11	0.22*	0.16	0.31*
	67—It irritates me when my colleague speaks English with a strong Polish accent	0.03	0.22*	-0.14	0.19*	0.04	0.12

Note * $p < 0.05$

to actions that learners might deploy in order to accelerate pronunciation learning, and for these reasons they may not correlate with any of PLS.

There were eleven beliefs which correlated weakly or moderately with the use of three or more PLS categories. For instance, the conviction that an L2 pronunciation course can improve pronunciation related positively with all types of PLS categories. In other words, those who declared frequent application of a range of various PLS also held the belief that instructed and guided pronunciation learning promotes its acquisition. The beliefs concerning pronunciation instruction on primary and secondary school levels were associated with more frequent use of both cognitive and social strategies. Additionally, those who set the goal of native-like pronunciation (item 68) reported using cognitive, metacognitive, compensation, affective and social strategies relatively frequently. And those who agreed that theoretical knowledge of pronunciation can help in pronunciation learning declared more often application of memory, cognitive and metacognitive PLS. Interestingly, the use of cognitive PLS correlated significantly with all the beliefs regarding pronunciation instruction but none of those referring to pronunciation acquisition. Perhaps learners' assumptions about guided pronunciation learning trigger the cognitive actions they take in order to improve pronunciation, or, reversely, the strategies selected for pronunciation perfection shape learners' beliefs on how the instructed learning should look like. This interplay, however, cannot be detected when the beliefs are linked to factors entailing impuissance concerning pronunciation learning processes. In brief, if adult learners believe that children learn L2 pronunciation in an easier way than adults, they may not be willing to invest effort in the deployment of cognitive PLS. Instead, they compensate for pronunciation inaccuracies by using a number of compensation PLS, such as synonyms, circumlocutions or avoidance.

The last research question pertained to the highest values of correlation coefficients calculated between the beliefs and particular pronunciation learning strategies. For the purposes of this research, only the values indicating correlations of more than $r = 0.4$ will be analyzed (see Table 3). Interestingly, the belief that theoretical knowledge about pronunciation can help in the process of an L2 pronunciation acquisition correlated with three PLS which entail metacognitive actions: application of phonetic symbols ($r = 0.48$, $p < 0.05$), forming-using hypotheses about pronunciation ($r = 0.49$, $p < 0.05$) and reading reference materials ($r = 0.43$, $p < 0.05$). In other words, in the group of the participants who were enrolled in the phonetics course the belief regarding metacognitive aspects in pronunciation was strongly associated with the actions they declared to take. In this case, context may have played a role in shaping both students' convictions and behaviors. Additionally, those who believed that their good pronunciation added to their high-confidence reported noticing different accents and dialects more often than those with lower confidence in their L2 pronunciation ($r = 0.43$, $p < 0.05$). The link between these two variables seems to be of an indirect nature because there may be several cognitive or emotional factors shaping both the belief regarding confidence in L2 pronunciation and the use of the strategy concerning L2 accents. For example, a learner may have not received sufficient input or instruction and may feel anxious about L2 pronunciation, which can interplay

Table 3 Higher than 0.4 values of correlation coefficients calculated for pronunciation learning beliefs and strategies

	Pronunciation learning strategies				
Beliefs on pronunciation learning	I use phonetic symbols to remember how to pronounce words in English	I form and use hypotheses about pronunciation rules	I notice different English accents and dialects	I read reference materials about pronunciation rules	I teach or help someone else with their English pronunciation
It's important for an English Philology student to have good pronunciation					0.43
My L2 pronunciation gives me the feeling of high self-confidence			0.43		
Theoretical knowledge on pronunciation can help in pronunciation learning	0.48	0.49		0.43	

with both confidence and accent or dialect recognition. Finally, a moderate correlation was detected between the belief that an English philology student—all the participants belonged to this group—should have a good English pronunciation and know strategies of helping others with their pronunciation ($r = 0.43$, $p < 0.05$). Learners who believed strongly that the way students of English articulate words and utterances was important engaged in teaching English sound system to other peers more frequently than those who did not hold this belief. This relationship, however, may be affected by a number of moderating variables, such as the level of an L2 sound system proficiency or other individual learner differences.

5 Concluding Remarks

This research investigated the relationship between the beliefs that advanced adult Polish learners of English held about their L2 pronunciation learning and the actions they declared to take in order to improve English sound system acquisition. Firstly, the results showed that this group believed strongly that an English teacher should be a good pronunciation model. This stance is in line with Celce-Murcia et al. (2010)

who emphasize the role of pronunciation in the course of professional training of non-native teachers of English. Secondly, similarly to Cenoz and Lecumberri (1999), communication with native speakers was believed to advance pronunciation competence. Thirdly, most English philology students held the belief that having good pronunciation was important for them and they aimed at native-like pronunciation. Finally, in contrast to Simon and Travernier's (2011) outcomes, the participants generally did not believe that they could acquire good pronunciation only by residing in English-speaking countries.

The analyses of the outcomes of the current study revealed a considerable number of positive relationships between beliefs and strategies regarding pronunciation learning, generally supporting the interplay between what students think and do. Cognitive, metacognitive and social pronunciation learning strategies correlated significantly with at least half of the statements representing pronunciation learning beliefs on instruction, self-efficacy, learning goals and affective factors in pronunciation. These results are in line with other research investigating general language learning beliefs and the use of language learning strategies, where moderate correlations were found (cf. Abedini et al., 2011; Li, 2010; Yang, 1999).

Despite the fact that the current study provided a lot of interesting insights into the intricate interplays between beliefs and actions in the area of pronunciation learning, its limitations need to be addressed. Firstly, the result are by no means generalizable because, being informed by other research, language learner beliefs including those regarding pronunciation are context-dependent and dynamic. Therefore, the outcomes show only one piece of a puzzle that requires broader synchronic and diachronic investigations. Secondly, more fine-tuned instruments and study design incorporating qualitative data would generate more findings, supplementing the sophisticated representation of the relationship between beliefs and actions associated with pronunciation learning. Finally, the participants were English Philology students, forming a group not fully representing an average L2 pronunciation learner. All in all, more research in different contexts, age and proficiency groups is needed in order to paint a more comprehensive picture of this interplay.

On a more practical level, the results of the current study raise the issue of the role of the teacher as the provider of not only the model pronunciation, but also instruction on how to approach pronunciation learning. If beliefs are influenced by significant others (Navarro & Thornton, 2011), so also teachers, then pronunciation instructors may shape these beliefs, for instance, by teaching pronunciation learning strategies. As a result, learners' awareness of a broad repertoire of strategies may trigger their more frequent use, which again with a down-spiraling effect can alter beliefs on pronunciation learning.

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