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Language awareness and second language pronunciation: a classroom study

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We examined the relationship between the quality of second language (L2) learners' language awareness (as shown through dialogue journal entries) and the quality of their L2 pronunciation (as assessed through listener-based ratings of accentedness, comprehensibility, and fluency). The participants were 10 students enrolled in a 13-week university-level pronunciation course focusing on the suprasegmental aspects of English. We evaluated the students' pronunciation during week 1 and week 11 of class and examined weekly dialogue journal entries written by the students over 10 weeks for evidence of language awareness. We analysed the comments for aspects of language awareness which were quantitative (language learning as assimilating a set of discrete items) and qualitative (language learning as a meaningful context in which learning occurs). We found a relationship between the students' pronunciation ratings and the number of qualitative (not quantitative) language awareness comments, such that higher pronunciation ratings were associated with a greater number of qualitative language awareness comments. We also found that the students who produced the most qualitative language awareness comments were those who reported the largest amount of L2 listening done outside of class. We discuss the results in light of the role of language awareness in L2 pronunciation learning.

Keywords: awareness; pronunciation; second language learning

When I take a course for pronunciation, I think I improve; I learn a lot, but after the course finish . . . I remember what I learn, but because course finish, I just stopped [using what I learned]. (University-level learner of English)

Introduction

It is a common complaint of adult second or foreign language (L2) learners: 'I've learned what I need to change about my pronunciation, so why hasn't my pronunciation improved?'. As with any complex skill, learning to use a language proficiently takes time. However, evidence from both research (e.g. Macdonald, Yule, & Powers, 1994; Schneiderman, Bourdages, & Champagne, 1988) and language teachers' own experiences (e.g. Grant, 1999; Kennedy, 2008) suggests that the pronunciation of adult L2 learners is particularly resistant to change, even if those learners have received targeted pronunciation instruction.

How, then, do adult L2 learners benefit from pronunciation instruction? To investigate this question, researchers typically examine learners' production and/or perception (e.g. Schneiderman et al., 1988). However, pronunciation instruction may benefit learners in

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other ways. In this paper, we consider not only learners' L2 pronunciation but also their language awareness, particularly their awareness of L2 speech. L2 teachers are often advised not simply to model pronunciation but also to raise learners' consciousness of pronunciation patterns so that learners can work on their pronunciation outside class (e.g. Celce-Murcia, Brinton, & Goodwin, 1996). Therefore, in this study we investigated both the pronunciation and the language awareness of English as a second language (ESL) students in a university-level pronunciation course. Our objective was to explore the relationship between listener ratings of students' pronunciation and their language awareness measured through weekly dialogue journal entries.

In this paper, we target two aspects of language awareness: being aware of 'the way language works to convey meaning' (Hawkins, 1984, p. 5) and being aware of 'how language is acquired' (Tulasiewicz, 2000, p. 10). Researchers hypothesise that when learners become aware of specific ways in which an L2 conveys meaning and/or become aware of how language is acquired, they might in time be able to produce the L2 more accurately or appropriately (Lam, 2009; White & Ranta, 2002). Moreover, teachers and methodologists have long recognised that pronunciation instruction can help learners become more aware of how particular aspects of L2 speech convey meaning (Celce-Murcia et al., 1996; Morley, 1991; Yule, Hoffman, & Damico, 1987). However, it is still not clear whether learners' awareness is *necessarily* linked to their pronunciation. To our knowledge, only one study has shown that L2 learners instructed about English intonation became more aware of the meaning of intonation patterns and were also rated as having better pronunciation than a control group (Ramírez Verdugo, 2006).

However, it is quite possible that L2 learners may become aware of how an aspect of L2 speech conveys meaning but still cannot proficiently use that aspect. For example, an ESL learner might be well aware that in all multisyllabic words in English one syllable carries the heaviest stress, as opposed to each syllable being stressed equally. The learner may also be aware that proficient English speakers use word stress as an important cue for word identification (Field, 2005). That is, if a speaker pronounces a multisyllabic word and stresses all syllables equally or stresses the wrong syllable (e.g. saying *Where do we reGIster?* in place of *Where do we REgister?*), a listener may have difficulty identifying what was said. Despite knowing about these aspects of word stress, the learner might still be unable to consistently stress the appropriate syllable in multisyllabic words. In this case, awareness of an aspect of L2 speech would not necessarily translate into accurate L2 use.

To our knowledge, only a handful of studies on pronunciation instruction also mention learners' language awareness, with nearly all observations about language awareness based on anecdotal evidence. For example, Wajnryb, Coan, and McCabe (1997) found that when ESL learners were surveyed about the general effectiveness of a pronunciation clinic, they used metalanguage to describe their improvement in particular areas of pronunciation. In a similar vein, Jones and Evans (1995) reported on Cantonese learners who learned about the communicative impact of different voice qualities in English. These learners stated that they were more aware 'of how pronunciation can affect communication' (Jones and Evans, 1995, p. 250).

However, there are a very few researchers who have explicitly focused on language awareness by using targeted assessments. Ramírez Verdugo (2006), mentioned above, used field observation, intonation exercises, and a questionnaire to assess learners' awareness of intonation over their 10-week period of training. The only study known to us to include individualised observation of learners' awareness was Moore (1997). In this study, students in a university-level Japanese speaking course kept reflective journals throughout the course, responding to instructors' weekly questions about the process and progress of their

learning. Students' entries revealed different learning styles and strategies used in learning to speak accurately and with appropriate pronunciation. Students also described becoming aware of new aspects of Japanese pronunciation and of their own strengths and weaknesses in producing appropriate pronunciation. Although instructors assessed students' pronunciation, Moore did not describe the results of the assessment in detail. Nevertheless, many students reported that they had become both more aware of and more proficient in Japanese pronunciation.

Moore's (1997) study demonstrates that pronunciation instruction can promote learners' awareness of the spoken L2 and of their own learning. However, there was no formal measurement of learners' pronunciation, so Moore was not able to clearly establish how the quality of learners' awareness and the quality of their pronunciation was related. That relationship is the focus of the current study. Students in a university-level ESL pronunciation course were asked to comment on their pronunciation learning in 10 weekly reflective dialogue journals. We then assessed the students' pronunciation both at the beginning and at the end of the course, using several measures. The following question guided our research: how is the quality of L2 learners' language awareness (as shown in the students' dialogue journal entries) related to the quality of their L2 pronunciation (as assessed through listener-based ratings of accentedness, comprehensibility, and fluency)?

Method and materials

Course

The course featured in this study was a 13-week intermediate-level pronunciation course for non-native speakers at an English-medium university in Montreal. The course, taught by an experienced pronunciation instructor, met once a week for three hours. Although the course was officially open only to graduate students, several undergraduate students were given permission to attend. The course focused on the development of effective oral academic skills. Its aims were to raise the students' awareness of English pronunciation patterns and to help them improve their speaking fluency and intelligibility. The course content featured exclusively suprasegmental aspects of English pronunciation (i.e. thought groups, word stress, rhythm, sentence stress, and intonation). Although there was no assigned textbook, the instructor drew heavily on activities from Hahn and Dickerson's (1999) *Speechcraft* textbook series.

Each content unit, which typically spanned two class periods, followed the following sequence. First, the instructor gave a brief explanation of the topic (e.g. alternation of stressed syllables). Then, the students and the instructor practised this topic by working with a short video (e.g. an excerpt of an interview) in class. The students first viewed the video while answering several comprehension questions. They then read an unmarked transcript of the video in order to predict native speakers' pronunciation patterns. After that, they viewed the video several times so that they could identify and explain these patterns. Next, they rehearsed the entire video script, initially producing one sentence at a time and ultimately 'shadowing' each native speaker model in real time. Finally, they performed several paired and group speaking tasks. The instructor guided all in-class activities by highlighting targeted pronunciation patterns, monitoring student production, and providing brief feedback.

The course also featured other assignments: conducting an interview with a native speaker of English and analysing his or her speech, writing weekly dialogue journals (discussed in detail below), filling out weekly language use logs, preparing and presenting

a 10-minute talk on a topic in the student's field, and completing language lab assignments using the CAN-8 Virtual Lab software (1990) to listen to authentic English speech and to record him- or herself speaking. The goal of all assignments was to raise the students' awareness of their own and of proficient speakers' pronunciation patterns and to improve their skills in understanding and using oral English.

Students

There were 11 students originally registered for this course. However, one student missed more than 50% of all class meetings and failed to complete most of the course assignments. Therefore, her data were not included in the final data-set. The remaining 10 students (four female, six male) came from different first language (L1) backgrounds (see Table 1 for detailed information about the students). At the time of the study, all were enrolled as full-time students. The students had arrived in Montreal as adults to pursue graduate (six) or undergraduate (four) degrees and had resided there for a mean of 2.4 years. Nine grew up in their home countries in monolingual homes; one was raised in a bilingual French–Portuguese household. All students received primary and secondary education in their L1s. For nine students, English was an L2; one cited French as her L2 and English as her third language. All had begun learning English in school at a mean age of 14.5 years. From now on, when we mention the students' L2, we are referring to English.

On the first day of class, the students rated their overall ability in their L1s and their L2 using a 9-point scale (1 = extremely poor, 9 = extremely fluent). The students also estimated their daily L2 use in speaking, listening, reading, and writing on a 0–100% scale. Table 2 summarises the students' ratings of language ability and their language use.

On the first day of class, the instructor administered a speaking test to obtain several baseline measures of the students' L2 ability. The students responded to a simple prompt (talk about your favourite teacher), individually recording themselves with Olympus DS-2 digital recorders and Sony ECM-T6 lapel microphones. These recordings were transcribed by a trained judge, who then computed morphosyntactic, lexical, and pronunciation or phonological errors for each student. Morphosyntactic errors were defined as mistakes in sentence structure (including word order), morphology, or syntax (e.g. *manage* for *managed* or *she knew what is the problem* for *she knew what the problem was*). Lexical errors included odd lexical choices (e.g. *enroll* for *enlisted*). Phonological errors involved omitted,

Table 1.   The students' background characteristics.

Student (gender)	Home country	Native language	Age	Years in Canada	Major (degree)
Ali (M)	Saudi Arabia	Arabic	26.1	2.5	Engineering (MA)
Bianca (F)	Peru	Spanish	33.2	2.3	Finance (BA)
Francis (M)	Switzerland	French/Portuguese	24.1	0.3	Sociology/anthropology (BA)
Hui (M)	China	Chinese	30.6	2.5	Engineering (MA)
Jin (M)	China	Chinese	24.1	4.0	Finance (MA)
Julie (F)	France	French	22.4	1.0	Political science (BA)
Liang (M)	China	Chinese	40.5	1.0	Engineering (MA)
Marina (F)	Romania	Romanian	24.1	6.0	French studies (Ph.D.)
Martin (M)	France	French	39.9	1.0	International business (BA)
Ying (F)	China	Chinese	26.1	3.0	Computer science (MA)

Note: All the students' names have been replaced with pseudonyms.

Table 2.   The students' self-ratings of language ability (1–9 scale) and language use (0–100% scale).

Student	L1 rating	L2 rating	Percentage of daily L2 use			
			Speaking	Listening	Reading	Writing
Ali	8.3	4.8	50	40	70	30
Bianca	9.0	7.3	40	40	70	80
Francis	7.5	6.0	40	80	80	50
Hui	9.0	4.0	30	30	50	50
Jin	8.8	6.0	10	30	40	80
Julie	9.0	4.8	50	70	60	50
Liang	9.0	5.8	20	20	60	50
Marina	9.0	6.5	10	50	70	60
Martin	8.5	4.5	10	20	70	70
Ying	8.8	4.0	30	50	60	60
M	8.7	5.4	29.0	43.0	63.0	58.0
SD	0.5	1.1	16.0	20.0	11.6	15.5

Note: *M*, mean; *SD*, standard deviation.

transposed, or inserted phonemes or syllables (e.g. *ave* for *have*), phonemic substitution errors (e.g. *bed* for *bad*), or errors of word stress (e.g. *studEnt* for *stUdent*).

All errors were counted per word, meaning that an error score of 1 was given if a word contained at least one error of a particular kind. Because the transcripts varied in word length (33–210 words), the three error rates were normalised by dividing the total number of errors by the total number of words in each sample. Error rates for each student are listed in Table 3.

Measures of pronunciation
The students' pronunciation was evaluated along three dimensions: accentedness, comprehensibility, and fluency. Accentedness is defined here as listeners' judgements of how

Table 3.   The students' morphosyntactic, lexical, and phonological error rates (baseline measures).

Student	Error rate			
	Morphosyntax	Lexis	Phonology	M
Ali	0.09	0.06	0.10	0.08
Bianca	0.13	0.22	0.24	0.20
Francis	0.12	0.02	0.09	0.08
Hui	0.06	0.06	0.23	0.12
Jin	0.14	0.09	0.15	0.13
Julie	0.07	0.18	0.18	0.14
Liang	0.08	0.00	0.08	0.05
Marina	0.10	0.03	0.15	0.09
Martin	0.11	0.02	0.23	0.12
Ying	0.12	0.38	0.24	0.25
M	0.10	0.11	0.17	0.13
SD	0.03	0.12	0.06	0.06

Note: *M*, mean; *SD*, standard deviation.

closely the pronunciation of an utterance approaches that of a native speaker (Munro & Derwing, 1999). Comprehensibility refers to listeners' perceptions of how easily they understand an utterance (Munro & Derwing, 1999). Fluency denotes listeners' assessments of how smoothly and rapidly an utterance is spoken (Derwing, Rossiter, Munro, & Thomson, 2004). The students' accentedness, comprehensibility, and fluency were evaluated from two sets of recordings: one completed during week 1 of the course (pre-test) and the other 10 weeks later, during week 11 (post-test).

The pre-test and post-test recordings consisted of a 167-word reading passage about medical innovations in the nineteenth century. The text, created using information from Gardner (1996), featured content that was typical of academic English but contained vocabulary that was relatively frequent and therefore probably familiar to university-level students. When the text was analysed using lexical frequency profiling software (Cobb, 2000), a majority of the words in the text (77.3%) fell within the first 1000 most frequent words of English. Although reading aloud may not be representative of spontaneous speech, we decided to use a reading task because it made the pre-test and post-test easily comparable.

For both the pre-test and the post-test, the students individually recorded themselves, using the same recording equipment as for the baseline speaking test. The students took a few minutes to read the text silently. They were not allowed to use dictionaries or translators but could ask about the meanings of unfamiliar words (which happened very infrequently). The students then practised reading the text aloud once before recording themselves.

The 10 pre-test and 10 post-test recordings (which ranged in length from 58 seconds to 1 minute and 41 seconds) were subsequently presented to 10 raters (8 female, 2 male) to assess the degree of accentedness, comprehensibility, and fluency in the students' speech. The raters, native speakers of English (aged 25–47), were recruited from a pool of ESL teachers and teachers-in-training at the same university. All but one rater had completed at least one course in L2 teaching or linguistics and had taught ESL for an average of 3.4 years (1.5–6.0) at the time they did the task. All raters reported normal hearing. The raters listened to the 20 recordings presented one at a time in one of two randomised orders and rated each for accentedness, comprehensibility, and fluency.

The three rating dimensions were operationalised on the basis of previous L2 research (e.g. Kennedy & Trofimovich, 2008; Munro & Derwing, 1999): accentedness (1 = heavily accented, 9 = not accented at all), comprehensibility (1 = hard to understand, 9 = easy to understand), and fluency (1 = not fluent at all, 9 = very fluent). The listening sessions were self-paced, and the raters could listen to each recording, replay it, and change their responses as many times as they wished. The interrater reliability (Cronbach's alpha) computed for the three sets of ratings (.88–.93) was sufficiently high for listeners with no rater training (cf. Derwing et al., 2004). Therefore, a single mean accentedness, comprehensibility, and fluency score was computed for each student (separately for the pre-test and the post-test) by averaging across the 10 raters' scores. These final scores were used in all subsequent analyses.

Measures of language awareness

The students' language awareness was evaluated through their written comments in weekly dialogue journals. The journals were introduced as a means of reflecting on what they were learning. For this assignment, the students were paired up for the duration of the term. They were asked to write one journal entry per week, then to exchange their entries with their partners, and to respond to them by the following week. All together, the students were

to produce 10 journal entries each (five original entries and five responses) between week 2 and week 12 of the term. The students were encouraged to write about the connections between what they were learning and what they already knew, to discuss what they noticed about native speakers' use of language, or to write about how they themselves could use what they were learning. The students were also encouraged to interact with their partners through the journals, asking them questions and soliciting their opinions.

Although this assignment was marked (with each completed entry receiving a full mark), the students were informed that the instructor would not read any entries until after the course was over and the final marks were assigned. This was done to discourage the students from writing entries with the instructor or the final mark in mind. All journal entries were completed and exchanged electronically. Overall, the 10 students produced 80 dialogue journal entries during the term, with four students supplying the entire set of 10 (Julie, Marina, Francis, Ying), three students producing eight or nine (Bianca, Martin, Jin), and the remaining three students writing four or five entries (Ali, Hui, Liang). On average, each dialogue journal entry was about 289 words long (222–342 words).

The journal entries were analysed using Benson and Lor's (1999) analytical framework of quantitative and qualitative conceptions of learning (i.e. quantitative and qualitative awareness). In this framework, learners who show quantitative awareness view language as a set of items (grammatical concepts, word patterns, etc.) which need to be taken in and remembered. They consequently view language learning as assimilating a number of linguistic items through effort, practice, and time. In contrast, learners who show qualitative awareness see language as something that carries meaning (Benson & Lor, p. 463) and as 'an environment to which [learners] respond' (p. 467). Language is therefore not a set of items to be memorised and used but a context in which learning can occur. Thus, qualitatively aware learners regard learning as 'making sense of an unfamiliar environment' (Benson & Lor, p. 467), that is, a way of extracting meaning from a given context.

To illustrate, we quote several of the dialogue journal comments showing either quantitative or qualitative awareness. For example, Jin describes thought groups (meaningful units of speech) by focusing purely on their technical aspects. He reveals only quantitative awareness of language, as he makes no reference to the function of thought groups or their effect on meaning:

> In each sentence, only the rhythm of the last thought group goes down at the end, and the rhythms of all other thought groups go up. In the class, the demonstration of [the teacher] is natural and perfect, but when I try, the upper accents are kind of weird.

In contrast, Ying shows qualitative awareness by mentioning how producing intonation in a certain way can have a strong effect on listeners' understanding:

> Incorrect down-and-up intonation might make a person misunderstood. It sounds funny, but maybe we make the same mistakes sometimes. So, mastering the correct up or down intonation in normal conversation is necessary. At least, it will reduce misunderstanding.

In another comment, Jin again shows quantitative awareness by emphasising the amount of conversation necessary for language learning:

> You need to be free of time, since massive conversation is essential to sharpen your verbal skills.

On the other hand, Julie demonstrates qualitative awareness by distinguishing between knowing rules and understanding speech. She prioritises improving her understanding as a way of learning better pronunciation:

I must reckon than [*sic*], even if I know rules ... for instance the length of certain vowels compared to the short duration of the others which sounds likely, understanding oral English and catching some words remains a hard work to me. Consequently, improving this understanding helps me to have a better pronunciation, and reciprocally.

Each dialogue journal entry was coded for quantitative and qualitative awareness using Benson and Lor's (1999) framework, as illustrated above. The initial coding was done by a coder experienced in the analysis of qualitative data. This coder first identified all content pertaining to language learning and use, disregarding all unrelated statements (e.g. about events in students' daily lives). Then, the coder categorised each comment as demonstrating either quantitative or qualitative awareness, following Benson and Lor's guidelines. Each instance of quantitative or qualitative awareness was at least one sentence long, with some instances comprising a paragraph of several sentences. All students' entries showed multiple instances of both qualitative and quantitative awareness. Next, to estimate the reliability of this initial coding, the entire data-set was recoded by an independent coder trained in Benson and Lor's framework. The percentage of agreement between the two coders' judgements was 95.3%, and the 12 cases of disagreement were discussed until consensus was reached. We computed the total number of quantitative and qualitative awareness comments produced by each student across all dialogue journal entries. These frequency counts were used in all subsequent analyses as our measures of quantitative and qualitative awareness.

Results

For all analyses, the alpha level for significance was set at .05. Because our sample size was small and because the pronunciation ratings were essentially ordinal-scale measurements, only non-parametric statistical procedures were carried out.

In our initial analysis, we compared the ratings of the students' pronunciation from the pre-test and the post-test (shown in Table 4). Although this comparison did not include data from a control group, we nevertheless wished to determine if there were any differences in listener-rated accentedness, comprehensibility, and fluency at the beginning and the end of the course. The three sets of scores were submitted separately to Wilcoxon signed-rank

Table 4.   The students' pre-test and post-test pronunciation ratings (1–9 scale) and total number of quantitative and qualitative language awareness comments.

Student	Accentedness		Comprehensibility		Fluency		Awareness comments	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Quantitative	Qualitative
Ali	4.6	4.4	5.7	6.1	4.8	5.2	7	7
Bianca	3.1	3.3	3.9	5.0	4.8	5.9	13	15
Francis	4.9	4.4	6.7	6.1	7.0	6.5	13	23
Hui	3.6	3.6	5.8	5.4	5.2	4.9	11	5
Jin	3.7	3.1	4.9	5.4	5.0	6.4	10	15
Julie	5.1	5.2	6.7	6.4	7.3	6.4	9	33
Liang	2.8	2.7	3.7	3.8	4.0	4.7	4	6
Marina	5.1	5.2	7.1	6.7	6.7	5.4	2	22
Martin	3.5	3.0	4.7	4.6	4.8	5.7	8	15
Ying	3.2	3.6	4.5	5.5	4.5	5.2	14	23
M	4.0	3.9	5.4	5.5	5.4	5.6	9.1	16.4
SD	0.9	0.9	1.2	0.9	1.2	0.7	4.0	9.0

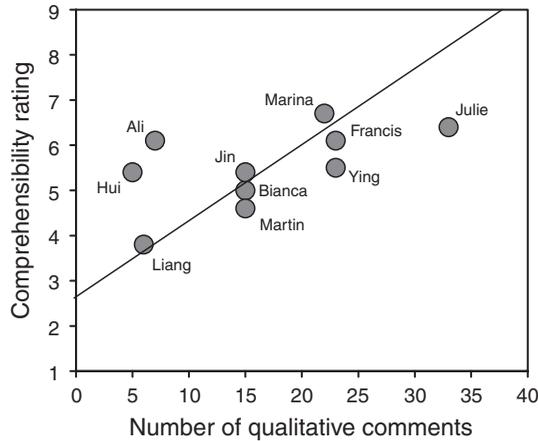Note: *M*, mean; *SD*, standard deviation.

Figure 1.   The relationship between comprehensibility ratings and qualitative language awareness scores, with a regression line showing the best fit to the data.

tests which yielded no significant z values for any of the measures: accentedness, $z = -31$ and $p = .76$; comprehensibility, $z = -.94$ and $p = .35$; fluency, $z = -1.20$ and $p = .23$. These analyses thus confirmed that there was no improvement in the ratings of the students' pronunciation from the pre-test to the post-test.[1]

In our next analysis, we explored the relationship between the two measures of language awareness (quantitative and qualitative) and the ratings of the students' pronunciation. We conducted a series of Spearman correlations between the students' accentedness, comprehensibility, and fluency scores on the one hand and the numbers of quantitative and qualitative awareness comments on the other. For the pre-test, these analyses revealed no significant relationships ($r < .50$, $p > .07$). For the post-test, however, these analyses yielded three significant associations solely for qualitative awareness comments. The three significant associations were between the number of qualitative awareness comments and accentedness ($r = .55$, $p = .049$), comprehensibility ($r = .60$, $p = .03$), and fluency ($r = 67$, $p = .017$). In all cases, higher pronunciation ratings were associated with a greater number of qualitative language awareness comments. For illustrative purposes, the relationship between comprehensibility ratings and the number of qualitative language awareness comments is plotted in Figure 1. The remaining two relationships look nearly identical to the one shown in this figure.

Our preceding analyses showed that there was no improvement in the ratings of the students' pronunciation from the beginning to the end of the course. However, the students who were perceived as being relatively less accented, more comprehensible, and more fluent at the end of the term were those who had logged the greatest number of qualitative language awareness comments. Our follow-up analyses explored the factors which could explain this relationship.

One possibility was that the students who produced the most qualitative language awareness comments were those who were already better in accentedness, comprehensibility, and fluency at the outset of the course. To test this possibility, we computed Spearman correlations between each of the pronunciation ratings at the pre-test and the post-test. These analyses yielded strong associations between the pre-test and the post-test scores for accentedness ($r = .85$, $p = .001$) and comprehensibility ($r = .86$, $p = .001$) and a slightly

weaker (albeit significant) association for fluency ($r = .64$, $p = .024$). In fact, an inspection of the pronunciation ratings in Table 4 reveals that indeed the students who produced the greatest number of qualitative awareness comments (Julie, Marina, Francis, Ying) were those who received some of the highest pronunciation ratings both at the pre-test and the post-test.[2]

What is interesting, however, is that none of the baseline measures of the students' L2 ability (morphosyntactic, lexical, and pronunciation error rates, all shown in Table 3) or the students' L2 ability self-rating (shown in Table 2) were associated with the number of qualitative awareness comments produced. The correlations between the number of qualitative awareness comments and these L2 ability variables were low and non-significant ($r < .42$, $p > .11$). It appears, then, that those students who were already good at the outset of the course (in terms of listener ratings but not in terms of other indexes of L2 speaking ability) were also the students with the greatest number of qualitative awareness comments.

In our final analysis, we explored the possibility that the students' language awareness might be related to the amount of their L2 use. It is through L2 use, aided by classroom instruction, that the students might become aware of various aspects of language learning. Therefore, we computed Spearman correlations between the students' number of qualitative awareness comments on the one hand and their self-reported L2 use in speaking, listening, reading, and writing on the other. These analyses yielded only one significant association – between the number of qualitative awareness comments and self-reported L2 use in listening ($r = .80$, $p = .003$). Those students who reported using their L2 extensively in listening were those who made the greatest number of qualitative awareness comments. This very strong association between L2 use and qualitative aspects of language awareness is plotted in Figure 2.

After looking at the quantitative and qualitative comments in more detail, it was not surprising that the students who produced relatively more qualitative awareness comments also reported doing relatively more listening in the L2. The four students who produced the highest number of qualitative comments (Julie, Marina, Francis, Ying) also made sophisticated and perceptive comments about the English speech they heard outside the
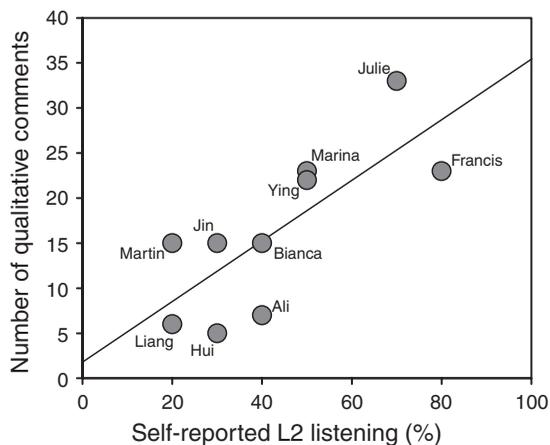

Figure 2.   The relationship between qualitative language awareness scores and percentage of self-reported L2 use in listening, with a regression line showing the best fit to the data.

class and how that speech related to what they were learning in class. For example, Francis commented:

I have been trying to really listen to the people to hear if I could find some r[h]ythm, but I could not. For example, today I went to the cinema to watch a movie and I could hear the stress pattern and the thought groups, but I could not get any r[h]ythm. Therefore, I am wondering if that movie was special and there were really not any r[h]ythm or if r[h]ythm is not something people use in their everyday life.

Julie also related her experiences to what she was learning in the course:

We also attended Mass in the Abyssinian Baptist Church of Harlem. It was a great experience as well as the opportunity to hear a different way of speaking English and singing it! The reverend's sermon was spectacular, particularly noticeable concerning intonations with strong fall and rise patterns! I tried to keep his sentences in my mind just to remember his way of changing intonations!

On the other hand, for those students who produced relatively few qualitative awareness comments (Hui, Ali, Liang), even their qualitative comments about what they learned from out-of-class experience with L2 speech were somewhat superficial. Here Liang tells his partner one way he tried to improve his speech:

I watch TV and movies, and then try my best to speak as the actor's style. Although I can imitate most of the sentences, I will forget it in the application of those sentences in daily life.

To summarise, the students with relatively more qualitative comments and a relatively large amount of self-reported daily L2 listening made comments which analysed L2 speech in terms of specific aspects of pronunciation covered in the course. The students with the fewest qualitative comments and relatively low L2 listening made comments which analysed L2 speech only superficially.

Discussion

The overall goal of this classroom-based study was to examine the relationship between quantitative and qualitative aspects of L2 learners' language awareness and the quality of their L2 pronunciation. Our findings showed that only qualitative aspects of learners' language awareness (measured through dialogue journals) were linked to listener ratings of their L2 pronunciation at the end of the course. The more qualitative language aware-ness comments the students produced, the higher their pronunciation was rated at the end of the course. These results align well with findings from studies on L2 grammar, namely that learners with high levels of metalinguistic knowledge of particular grammar features (grammatical awareness) were also highly accurate in their production of those features (Roehr, 2008, Roehr & Gánem-Gutiérrez, 2009; White & Ranta, 2002). To our knowledge, ours is the first study to extend the scope of these awareness results from grammar to pronunciation. Our findings also showed that only qualitative aspects of learn-ers' language awareness were associated with the amount of their self-reported daily L2 listening.

These findings raise a number of questions about the relationship between language awareness and L2 pronunciation learning. One question is why only comments showing qualitative (not quantitative) awareness were related to learners' pronunciation ratings. It is possible that different types of language awareness are linked to different levels of language ability. For instance, one student who received high pronunciation ratings (Marina) commented on her ability to successfully understand and communicate with

native speakers on a trip she took during the course, thus showing qualitative awareness of language learning (i.e. making sense of an unfamiliar environment):

> Regarding the way of speaking of the Americans I can say that I was able to understand quite well. I was also able to make a conversation with my Ph.D. colleagues from other Americans [*sic*] Universities or with professors. I'm very glad.

This student's assessment of her learning may have focused on her success in communicating because she had already reached some threshold level of ability in identifying and pronouncing elements of spoken English. In other words, she was not struggling to identify even just a few words in a stream of English speech, and she already had some level of comfort in speaking English:

> I studied music, and probably I have a 'particular sensibility' to hear the sounds, the rhythm . . . so I'm pronouncing well.

In contrast to Marina, a different student (Hui) who received relatively low pronunciation ratings often commented on the technical aspects of pronunciation in individual words, making no reference to meaning. Hui's comments portrayed English as a set of items to be assimilated (quantitative awareness), and as shown below, learning English was seen as the process of assimilating those items:

> Actually, more than 80% words [in English] are pronounced regularly. If we master the spelling rules, we'll know how to pronounce them without checking phonetic symbols. . . . Practice is the key to improve pronunciation.

Unlike Marina, Hui still struggled to pronounce English speech:

> I failed to be accepted by native English due to my incorrect pronunciation . . . I couldn't speak English perfectly even though I have studied English more than 20 years . . . Vowel pronunciation is a big problem for me.

Given Hui's difficulties with pronunciation, a primarily quantitative approach to learning English may have been advantageous to him initially because it helped him attain basic pronunciation skills. Hui might later be able to draw on these skills in order to work on higher-level skills of comprehending and producing meaning in fluent speech. At that point, qualitative awareness of language and language learning might come to the forefront because Hui would be more able to consider how speech conveys meaning, rather than simply focusing on learning specific items.

It is not surprising that the students' qualitative awareness comments were strongly associated in this study with their self-reported amount of daily English listening. This association, though, was not due to the students changing their patterns of L2 use as a result of the course. The students who made the most qualitative awareness comments by the end of the course were already doing substantial L2 listening from the outset, as shown by the self-reported language use data collected on the first day of the course. In other words, these students might have been ready to listen for particular ways that meaning is conveyed through pronunciation (qualitative awareness) precisely because they had already reached a threshold level of aural comprehension by listening to substantial amounts of L2 speech. The idea of a threshold of ability is not new: similar explanations have been put forth for L2 reading (e.g. Cziko, 1980) and listening (e.g. Vandergrift, 2006). Our data suggest that

the same threshold of prerequisite skills might apply to the development of pronunciation and language awareness.[3]

In this sense, our findings call to mind the results of research on the Matthew effect in the development of reading skills in both L1 (e.g. Stanovich, 1986) and L2 (e.g. Pulido, 2003). The Matthew effect in reading refers to the reciprocal relationship between, for example, word decoding skills and reading comprehension. Those readers who can easily decode words from a printed page are more likely to read extensively, increasing their knowledge base. In contrast, other readers for whom low-level decoding skills are problematic are likely to keep falling behind. Pronunciation learning by adults could involve Matthew effects as well. Those learners who reach a certain threshold of aural comprehension (e.g. through extensive prior listening) are often those who are able to extract and analyse meaning in oral interaction, thus being able to make sense of the environment in a qualitative way. These learners are also often those who tend to improve in their L2 pronunciation. However, other learners for whom aural comprehension poses difficulty will often not avail themselves of many opportunities to listen to and analyse L2 speech because this task proves too complicated for them. These learners are often those who tend to fossilise in their L2 pronunciation learning, frequently despite great effort, practice, and time spent on 'assimilating' specific aspects of L2 pronunciation in a quantitative sense.

This brings up the question of precisely how language awareness is related to language development. Does awareness precede language development? Or is language awareness an integral and inseparable part of language development (e.g. see Jessner, 2008)? As with other studies (e.g. Roehr, 2008), our findings do not allow us to determine whether one precedes the other. In fact, it is most likely that the relationship between qualitative awareness and pronunciation is reciprocal. As learners become more skilled at using pronunciation to convey their intended messages, their orientation to spoken input may shift more strongly towards noticing how particular characteristics of English speech carry particular meanings (for more on noticing, see Schmidt, 1990). In turn, learners' heightened awareness of these characteristics may eventually be incorporated into their pronunciation. If, however, language awareness is an integral and inseparable part of language development, then this raises the possibility that the quality of learners' language awareness could be used as an indicator of the level of their language development. This intriguing possibility should be investigated in further research.

The findings of this study have implications for both pedagogy and research. For pedagogy, the strong relationship between language awareness and learners' amount of L2 listening implies that for learners to become aware of L2 speech (and to improve in their L2 pronunciation), they need to reach a certain level of skill in L2 listening. Therefore, L2 teachers who are targeting learners' pronunciation should consider also focusing on learners' aural comprehension skills (e.g. Underbakke, 1993) and strongly encouraging learners to seek out opportunities outside of class to hear fluent L2 speech (e.g. Wennerstrom, 1992). For research, the finding that some students were more likely than others to make qualitative comments about language awareness indicates that further investigation is needed to understand how individual learner differences may contribute to language awareness. Such individual differences may include learners' cognitive and learning styles (Collentine, 2000), phonological memory (Venkatagiri & Levis, 2007), or amount of prior L2 learning (Alderson, Clapham, & Steel, 1997). These and other future studies will help researchers and teachers to uncover the rich and multifaceted nature of language awareness as a key factor in language development.

Acknowledgements

Notes

1. This absence of observable change after pronunciation instruction is not unusual for adult L2 learners. For example, Macdonald et al. (1994) and Schneiderman et al. (1988) found that learners instructed in L2 pronunciation received speech ratings that were either not different from their pre-instruction scores or similar to the ratings given to a non-instructed control group. The instruction provided in these studies was often brief or (as was the case here) not intensive, which may have explained the lack of change.
2. Incidentally, these were also the same four students who completed the entire set of 10 dialogue journals; the remaining students completed 4 to 9 journal entries. To ensure that our measure of qualitative awareness was not in fact a reflection of the number of journal entries completed, we computed a ratio of the total number of qualitative comments produced to the total number of completed journal entries. We then used this new measure of qualitative awareness to rerun all analyses. The results of these analyses were identical to the ones we reported.
3. An anonymous reviewer noted that the relationship between the students' reported amount of L2 listening, their level of qualitative language awareness, and their performance on the pronunciation post-test seemed to be independent of their L1 background. The students' L2 pronunciation may therefore have had a stronger relationship with individual differences in their language awareness and L2 use than with any L1 transfer effects. This interesting possibility should be explored in future research.

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References

Alderson, J.C., Clapham, C., & Steel, D. (1997). Metalinguistic knowledge, language aptitude and language proficiency. *Language Teaching Research, 1*, 93–121.
Benson, P., & Lor, W. (1999). Conceptions of language and language learning. *System, 27*, 459–472.
CAN-8 Virtual Lab [Computer Software]. (1990). Toronto, ON, Canada: Sounds Virtual.
Celce-Murcia, M., Brinton, D.M., & Goodwin, J.M. (1996). *Teaching pronunciation: A reference for teachers of English to speakers of other languages*. Cambridge: Cambridge University Press.
Cobb, T. (2000). *The compleat lexical tutor*. Retrieved from http://www.lextutor.ca/vp/
Collentine, J. (2000). Insights into the construction of grammatical knowledge provided by user-behavior tracking technologies. *Language Learning and Technology, 3*(2), 44–57.
Cziko, G.A. (1980). Language competence and reading strategies: A comparison of first- and second-language oral reading errors. *Language Learning, 30*, 101–116.
Derwing, T.M., Rossiter, M.J., Munro, M.J., & Thomson, R.I. (2004). Second language fluency: Judgments on different tasks. *Language Learning, 54*, 665–679.

Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL Quarterly, 39*, 399–423.

Gardner, B. (1996). *Joseph Lister and antiseptic surgery*. Retrieved from http://web.ukonline.co.uk/b.gardner/Lister.html

Grant, L. (1999). Form to meaning: Bridges in pronunciation teaching. *TESOL Matters, 9*, 18.

Hahn, L., & Dickerson, W. (1999). *Speechcraft: Discourse pronunciation for advanced learners*. Ann Arbor, MI: University of Michigan Press.

Hawkins, E. (1984). *Awareness of language: An introduction*. Cambridge: Cambridge University Press.

Jessner, U. (2008). A DST model of multilingualism and the role of metalinguistic awareness. *Modern Language Journal, 92*, 270–283.

Jones, R.H., & Evans, S. (1995). Teaching pronunciation through voice quality. *ELT Journal, 49*, 244–251.

Kennedy, S. (2008). *Second language learner speech and intelligibility: Instruction and environment in a university setting*. Unpublished doctoral dissertation. Montreal: McGill University.

Kennedy, S., & Trofimovich, P. (2008). Intelligibility, comprehensibility, and accentedness of L2 speech: The role of listener experience and semantic context. *Canadian Modern Language Review, 64*, 459–490.

Lam, Y. (2009). Applying cognitive linguistics to teaching the Spanish prepositions *por* and *para*. *Language Awareness, 18*, 2–18.

Macdonald, D., Yule, G., & Powers, M. (1994). Attempts to improve English L2 pronunciation: The variable effects of different types of instruction. *Language Learning, 44*, 75–100.

Moore, H. (1997). Learning pronunciation and intonation of Japanese through drama. *Japanese Association of Language Teachers, 19*, 235–269.

Morley, J. (1991). The pronunciation component in teaching English to speakers of other languages. *TESOL Quarterly, 25*, 481–520.

Munro, M., & Derwing, T. (1999). Foreign accent, comprehensibility and intelligibility in the speech of second language learners. *Language Learning, 49*, 285–310.

Pulido, D. (2003). Modeling the role of second language proficiency and topic familiarity in second language incidental vocabulary acquisition through reading. *Language Learning, 53*, 233–284.

Ramírez Verdugo, D. (2006). A study of intonation awareness and learning in non-native speakers of English. *Language Awareness, 15*, 141–159.

Roehr, K. (2008). Metalinguistic knowledge and language ability in university-level L2 learners. *Applied Linguistics, 29*, 173–199.

Roehr, K., & Gánem-Gutiérrez, G.A. (2009). Metalinguistic knowledge: A stepping stone towards L2 proficiency? In A. Benati (Ed.), *Issues in second language proficiency* (pp. 79–94). London: Continuum.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*, 129–158.

Schneiderman, E., Bourdages, J., & Champagne, C. (1988). Second-language accent: The relationship between discrimination and perception in acquisition. *Language Learning, 38*, 1–19.

Stanovich, K.E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*, 360–407.

Tulasiewicz, W. (2000). Whither language awareness? Enhancing the literacy of the language user. In L.J. White, B. Maylath, A. Adams, & M. Couzijn (Eds.), *Language awareness: A history and implementation* (pp. 5–20). Amsterdam: Amsterdam University Press.

Underbakke, M.E. (1993). Hearing the difference: Improving Japanese students' pronunciation of a second language through listening. *Language Quarterly, 31*, 67–89.

Vandergrift, L. (2006). Second language listening: Listening ability or language proficiency? *The Modern Language Journal, 90*, 6–18.

Venkatagiri, H.S., & Levis, J.M. (2007). Phonological awareness and speech comprehensibility: An exploratory study. *Language Awareness, 16*, 263–277.

Wajnryb, R., Coan, J., & McCabe, L. (1997). 'What you put into it is what you get out of it': A report on a remedial phonology clinic. *EA Journal, 15*, 38–51.

Wennerstrom, A.K. (1992). Content-based pronunciation. *TESOL Journal, 1*, 15–18.

White, J., & Ranta, L. (2002). Examining the interface between metalinguistic knowledge and oral production in a second language. *Language Awareness, 11*, 259–290.

Yule, G., Hoffman, P., & Damico, J. (1987). Paying attention to pronunciation: The role of self-monitoring in perception. *TESOL Quarterly, 21*, 765–768.