
BRIEF REPORTS AND SUMMARIES

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Investigating the Pedagogical Potential of Recasts for L2 Vowel Acquisition

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■ Whereas second language (L2) education research has extensively examined how different types of interactional feedback can be facilitative of L2 development in meaning-oriented classrooms, most of these primary studies have focused on recasts (i.e., teachers' reformulations of students' errors). Some researchers have claimed that recasts serve an ideal pedagogical function, arguably because they enable teachers to implicitly draw students' attention to the accurate use of language without interrupting the flow of classroom discourse (Long, 2007). However, classroom studies have shown that recasts may not be so effective when they target morphosyntactic errors (Ellis & Sheen, 2006; Lyster & Saito, 2010). Nonetheless, several observational studies have found that recasts can be quite salient to learners when their targets are L2 pronunciation errors, because inaccurate pronunciation has "more potential to seriously interfere with understanding" than do morphosyntactic inaccuracies (Mackey, Gass, &

McDonough, 2000, p. 493; see also Sheen, 2006). Students' high awareness of pronunciation-focused recasts suggests that recasts might be relatively facilitative of L2 pronunciation development.

The development of intelligible (but not native-like) language is essential for successful L2 communication, yet little research attention has been directed toward the role of pronunciation teaching in this regard (Derwing & Munro, 2005). One possible reason is that pronunciation teaching has been notorious for its overdependence on decontextualized practice activities such as repetition and mechanical drills even though it remains unclear to what degree instruction with an exclusive focus on forms enables students to transfer what they learn in the classroom to outside of the classroom (for discussion, see Trofimovich & Gatbonton, 2006). Given that communicative focus on form plays a key role in leading to students' linguistic development not only at a controlled but also a spontaneous level (Norris & Ortega, 2000), pronunciation-focused recasts can be a theoretically and pedagogically interesting way to promote their awareness of correct pronunciation in meaning-oriented classrooms.

Saito and Lyster (2011) took a first step toward examining the acquisitional value of pronunciation-focused recasts by conducting a quasi-experimental study with a pre- and posttest design. Participants were adult native speakers of Japanese (NJs) learning English. NJs were involved with a series of form-focused tasks whereby they were guided to notice and practice one of two pronunciation features (either the alveolar approximant /r/ or the low front vowel /æ/), and teachers consistently provided recasts in response to their pronunciation errors. Saito and Lyster report the results of the former group (focusing on /r/), revealing that pronunciation-focused recasts can be facilitative of L2 pronunciation development with medium-to-large effects, particularly within familiar lexical items that appeared during the instructional treatment. The current study reports the results of the latter group (focusing on /æ/) and further examines the pedagogical potential and limitations of pronunciation-focused recasts from various perspectives.

METHOD

Design

For recruitment purposes, we created ads that advertised free English conversation lessons and were distributed at many language institutes in Montreal. After taking pretests, interested NJs were randomly assigned to the experimental and control groups. Student

participants in the experimental group received four 1-hour meaning-oriented lessons that lasted more than 2 weeks (1 hour lesson \times 2 times per week \times 2 weeks = 4 hours). The first 15 minutes of every class were devoted to form-focused tasks that encouraged students to notice and practice the target pronunciation form (i.e., discriminating /æ/ from adjacent vowels /ɛ/, /ɑ/, /ɔ/, and /ʌ/). During these activities, the instructor also provided recasts following students' mispronunciation of /æ/. The control group, which served as the experimental group in Saito and Lyster (2011), also received similar instruction with a focus on /r/. For all participating students, posttest sessions took place 2 weeks after the end of the lessons. For the instructor who taught the experimental groups, an individual interview session took place a day after the end of her teaching assignment.

All classes were videotaped and observed by the first author, who always sat at the back of the classroom to ensure the consistency of the instructional treatment. The classroom was located at an English-speaking university in Montreal.

Participants

Students. Among 42 participants who initially participated in the current study, 40 NJs who completed both pre- and posttests were included in the final analysis (35 females and 5 males). Their mean age was 29.8 years (ranging from 20 to 54 years). They had stayed in Montreal for an average of 12.5 months (ranging from 1 month to 14 years). The 40 NJs were assigned to classes with a maximum of 6 students per class as follows: (a) the experimental group (2 classes, $n = 11$) and (b) the control group (5 classes, $n = 29$).

Instructors. Two experienced native-English-speaking English as a second language (ESL) instructors participated. The first instructor taught two experimental and two control classes, and the other instructor taught three control classes. They received 4 hours of teacher training with the first author in order to familiarize them with instructional materials and the recast treatment.

NE baseline. Six native speakers of English (NEs; three males and three females) also participated to complete the same pre- and posttests and provided NE baseline data. All of them were undergraduate students at an English-speaking university. They reported having grown up in northeastern regions of Canada and the United States.

Form-Focused Instructional Treatment

Target of instruction. Whereas Japanese has five monophthongal vowels (/i/, /e/, /a/, /o/, /^u/) that contrast short and long vowel quantity, General American (GA) English has 14 or 15 vowels that consist of (a) 10–11 nonrhotic vowels (/i/, /ɪ/, /e^ɪ/, /ɛ/, /æ/, /ɑ/, /ʌ/, /ɔ/, /o^ʊ/, /ʊ/, /u/), (b) one rhotic vowel /ɜ˞/, and (c) three diphthongs (/aɪ/, /aʊ/, /ɔɪ/). According to cross-linguistic perception studies, whereas NJs tend to assimilate English /ɑ/, /ɔ/, and /ʌ/ to the Japanese counterpart /a/, NJs are likely to perceive /æ/ as a novel sound, because it is perceptually and acoustically distinguishable from any other sound in the Japanese vowel inventory (Nishi, Strange, Akane-Yamada, Kubo, & Trent-Brown, 2008; Strange et al., 1998). In fact, Lambacher, Martens, Kakehi, Marasinghe, and Molholt (2005) showed that intensive perceptual training led NJs to demonstrate more improvement in perception and production of /æ/ than /ɑ/, /ɔ/, and /ʌ/ (cf. Nishi & Kewley-Port, 2007). Given that Lambacher et al. (2005) and Nishi and Kewley-Port (2007) demonstrated the teachability of /æ/ via perceptual training in lab settings, the current study is designed to test the role of pronunciation-focused recasts in the context of form-focused instruction whereby NJs are exposed to a number of words including /æ/ both in a receptive and productive mode during meaningful classroom discourse.

Target words. Form-focused instructional (FFI) materials used 38 target words in which /æ/ was embedded at various positions. Twenty-eight of them were minimally paired words whose counterparts included adjacent vowels, /ɛ/, /ɑ/, /ɔ/, and /ʌ/ (see Table 1).

Instructional treatment. Students received 4 hours of regular ESL lessons during which the first 15 minutes of each class was devoted to playing the following language-focused communicative games (i.e., form-focused tasks):

1. *English Karuta*: Thirty-six cards are placed on a table. Each card represents one lexical item and displays an illustration of the item as well as the first letter of the word. As the teacher reads a list of words, students try to find and pick up the corresponding card as soon as possible. In order to get many cards, the students have to pay attention to perceptual differences between /æ/ and its adjacent vowels (/ɛ/, /ɑ/, /ɔ/, and /ʌ/).
2. *English Card Game*: Each card has two sentences that are identical except for one minimally paired word (e.g., “Her *ankle* was injured” vs. “Her *uncle* was injured”). In pairs, students take

TABLE 1
Thirty-Eight Target Words in FFI Treatment

1. <i>Monosyllabic minimally paired words</i> (<i>n</i> = 20)
ad (odd), bag (bug), bank (bunk), bass (bus), Dan (done), dad (dead), fan (fun), fat (fought), gas (guess), ham (hem), lab (lob), man (men), map (mop), nap (nope), pan (pun), rag (rug), rat (rot), sad (sod), tan (tongue), tax (tucks)
2. <i>Disyllabic minimally paired words</i> (<i>n</i> = 8)
adapt (adopt), ankle (uncle), batter (butter), battle (bottle), campus (compass), crash (crush), racket (rocket), packet (pocket)
3. <i>Nonminimally paired words</i> (<i>n</i> = 10)
apple, black, camera, dance, gamble, happy, Japan, mansion, salmon, salad

Note. Words in parentheses are counterparts with different vowels (/ɛ/, /ɑ/, /ɔ/, and /ʌ/).

turns reading one of the sentences while their partner has to guess which one was read. In order to obtain many cards, the students have to differentiate their production of /æ/ and its adjacent vowels (there were 36 cards in total); the purpose of this activity is to promote students' awareness of their production of /æ/ but not their perceptual abilities (note that both students are NJs).

3. *Guessing Game.* Each card concerns one vocabulary item that is orthographically written on the right-hand corner of the card. In pairs, learners take turns explaining what the word is without saying the word and guessing the vocabulary item that their partner is trying to describe (26 cards in total).

Each game was played twice in accordance with the following schedule: Karuta 1 (Day 1) → Card Game 1 + Guessing Game 1 (Day 2) → Card Game 2 + Guessing Game 2 (Day 3) → Karuta 2 (Day 4).

Recast treatment. The instructor was given a list of 38 target words that were to be recast in a way that isolated only the word in the student's utterance that contained a mispronunciation of /æ/. An example of a pronunciation-focused recast in the current study follows:

Student: He needs a map /mæp/

Teacher: map /mæp/ ← Recast

Student: map /mæp/ ← Repair

Control group. As reported in Saito and Lyster (2011), 29 NJs participated in the same three form-focused activities and received pronunciation-focused recasts targeting /r/.

Outcome Measures

All students read a list of 25 words, of which 3 were test tokens for the current study: *map*, *man*, and *ram*. Although pronunciation teaching studies targeting consonant sounds generally ask students to read 10 to 15 words both at the pre- and posttest sessions, it needs to be emphasized here that L2 vowel production tends to be significantly influenced by (a) phonetic conditions such as preceding and following consonants (Ladefoged, 2005) and (b) lexical factors such as frequency, familiarity, and density (for discussion, see Flege, Frieda, Wally, & Randazza, 1998). Thus, following the research standard in L2 vowel research of this kind, a decision was made to carefully choose three target words in order to ensure the quality of acoustic analyses of /æ/ without conflating these contextual factors.¹

The first two words—*map* and *man*—were used to measure students' performance of /æ/ in familiar lexical contexts. Given that these two words not only appeared during the instructional treatment but also fall within the most frequent 2,000-word level (Cobb, n.d.), our assumption is that any improvement resulting from instruction would first appear under these relatively easy lexical conditions.

Next, because *ram* did not appear during the instructional treatment at all and is classified within the most frequent 5,000-word level, it was expected that NJs had had negligible opportunities, if any, to produce this lexical item. Therefore, their production of /æ/ in *ram* was analyzed separately to investigate the extent to which NJs could generalize what they had learned in class to a relatively unfamiliar (and supposedly difficult) lexical context.

A recording session was conducted individually with each participant in a quiet room. First, after NJs completed a few oral tasks (which are irrelevant to the current report), they were asked to take a look at a list of 25 words and to read them at a normal speed. Given that the same test material was used at pre- and posttest sessions, the performance of the control group (who did not receive any instruction on /æ/) played a default role to detect any test-retest effects. Finally, six NEs also completed the same task to provide NE baseline data.

Acoustic Analyses

To measure whether and to what degree pronunciation-focused recasts facilitate NJs' accurate production of /æ/, acoustic analyses

¹ Similarly, Lambacher et al. (2005) used four target words (*cad*, *cap*, *tad*, and *tack*) to acoustically measure any instructional gain on NJs' production of /æ/ between pre- and posttest sessions.

were conducted on pre- and posttest data using the *Praat* speech analysis software (Boersma and Weenik, n.d.). To account for talker differences between genders (35 females and 5 males) in the resonance cavities of the vocal tract and the nonlinear relationship between the formant frequencies and the corresponding perceived vowel quality, all raw acoustic values in hertz (Hz) were transformed into Bark values (for the normalization procedure, see Boersma and Weenik, n.d.).

Following the acoustic analysis procedure used by Lambacher et al. (2005, p. 240), the location of the steady state formant frequencies was first estimated according to the spectrographic representations of speech tokens. Second, with the cursor placed at that point, the first and second formant frequencies (F1 and F2) were computed through linear predictive coding spectra.

Endpoint Interview

The 2-hour interview sessions covered a range of questions about the instructor's perceptions of pronunciation-focused recasts on /r/ and /æ/. For the purpose of the present study, we report the instructor's opinions concerning the impact of pronunciation-focused recasts on students' improvement of /æ/ as well as her perception of the feasibility of pronunciation-focused recasts on /æ/ relative to recasts of /r/.

RESULTS

Pretest Performance

This section first reports how NJs ($n = 40$) and NEs ($n = 6$) differently (or similarly) produced F1 and F2 values for /æ/ according to familiar and unfamiliar lexical contexts. For F1 values (related to vowel height, Ladefoged, 2005), a two-way ANOVA (Talker [NJ, NE] \times Lexis [familiar and unfamiliar words]) did not reveal any significant difference, indicating that NJs and NEs produced similar F1 values (6.9–7.1 Bark) for /æ/ in *map*, *man*, and *ram*. For F2 values (related to vowel backness), a two-way ANOVA showed a significant Talker effect, $F(1, 44) = 10.690$, $p = .002$, $d = 1.56$, revealing that NJs produced lower F2 values ($M = 11.1$ Bark) than NEs did ($M = 12.6$ Bark) with large effects. Taken together, these pretest results indicate that NJs needed to make conscious efforts to front their tongue positions (leading to higher F2 values) in order to produce more NE-like production of /æ/.

Effects of Instruction

This section reports how FFI and pronunciation-focused recasts affected NJs' production of /æ/ (F2 values) in familiar and unfamiliar lexical contexts. With respect to familiar lexical contexts (*map* and *man*), a two-way ANOVA (Group [experimental vs. control] × Time [pre vs. post]) found significant interaction effects, $F(1, 38) = 6.670$, $p = .014$. That is, the experimental group produced significantly higher F2 values (more native-like production of /æ/) at posttests ($M = 11.4$ Bark) than pretests ($M = 10.6$ Bark) with small effects, $F(1, 38) = 14.111$, $p = .001$, $d = 0.047$. The results are visually summarized in Figure 1.

With respect to the unfamiliar lexical context (*ram*), a two-way ANOVA (Group × Time) found significant interaction effects, $F(1, 38) = 5.09$, $p = .030$. Again, the experimental group produced significantly higher F2 values at posttests ($M = 11.1$ Bark) than pretests ($M = 10.5$ Bark) with small effects, $F(1, 38) = 11.035$, $p = .002$, $d = 0.048$. The results are visually summarized in Figure 2.

Endpoint Interview

When asked about students' general performance concerning /æ/ during form-focused tasks, the instructor acknowledged their improvement resulting from recasts in class:

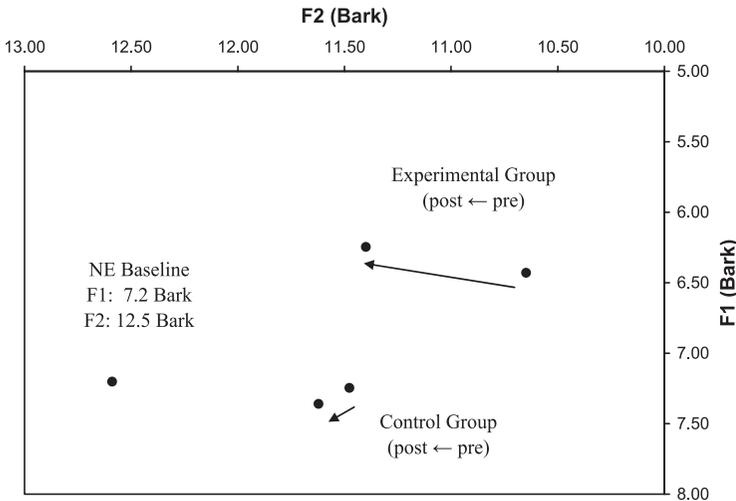


FIGURE 1. F1 and F2 values of the pre- and posttest performance in familiar lexical contexts.

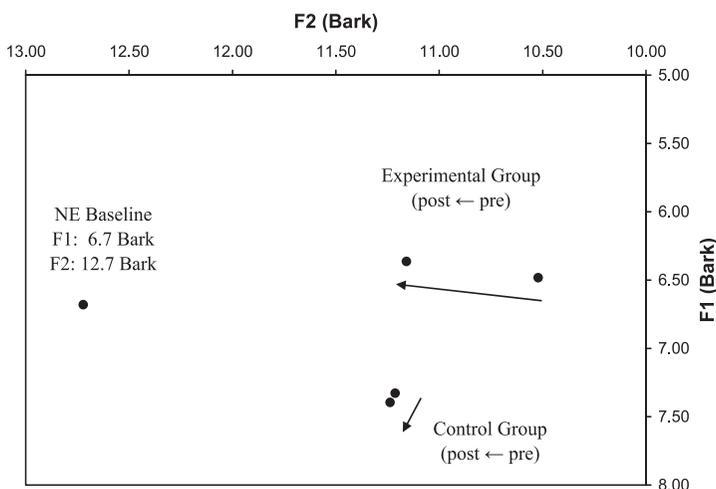


FIGURE 2. F1 and F2 values of the pre- and posttest performance in unfamiliar lexical contexts.

I found some improvement among students. They tried to change their pronunciation. I also think that they became aware of what was actually being targeted.

Yet with respect to the feasibility of pronunciation-focused recasts on /æ/ compared to /r/, the instructor reported difficulty in identifying students' mispronunciation:

Whereas /r/ is something that is salient to me, I could not distinguish the /æ/ sound instantly. It is hard to perceive. English /r/-/l/ interferes with communication more. Native speakers would still understand vowel difference.

She also noted her students' difficulty in perceiving /æ/ as follows:

The /æ/ sound is not as obvious as /r/, because all of the students had studied English and are already aware of /r/ but not so much as /æ/ sound.

Suggestions from the teacher will be further examined in the section that follows.

DISCUSSION AND CONCLUSION

Although previous laboratory studies have revealed some evidence that intensive perception training can be facilitative of L2 vowel acquisition (e.g., Lambacher et al., 2005; Nishi & Kewley-Port, 2007), their

pedagogical relevance still remains unclear, because such training methods are exclusively limited to massive exposure to isolated speech stimuli without any communicative use of language in production (e. g., Lambacher et al., 2005, for 6 weeks; Nishi & Kewley-Port, 2007, for 13.5 hours). Devoting so many hours to listening in order to learn a few sounds is arguably unrealistic in L2 classroom settings. To this end, the current study tested the pedagogical potential of a 1-hour recast treatment as a way to draw students' attention to L2 phonological form (i.e., the American English low front vowel /æ/) both in a receptive and productive mode during meaningful classroom discourse.

First, the comparison of the pretest performance of NJs and NEs showed that NJs produced /æ/ with their tongue positions more backward (i.e., lower F2 values) than the NEs. This indicates that (a) NJs tend to continue to use the Japanese counterpart (the low mid vowel /a/) and (b) NJs need to move their tongue more forward (increasing F2 values) in order to produce more native-like exemplars of /æ/. Second, a set of ANOVAs demonstrated that NJs who received recasts in the context of form-focused tasks significantly improved their production of /æ/ with higher F2 values in both familiar and unfamiliar lexical contexts. In addition, according to the interview with the instructor, she noted students' improvement on /æ/ after they practiced the target sound in response to her recasts.

Along with the similar results of the Saito and Lyster (2011) study that targeted /r/, our research suggests that recasts can play a key role in drawing students' attention to accurate pronunciation in communicative settings, which in turn has a significant impact on their L2 phonological system. The pedagogical advantage of recasts can be due to two factors: Recasts not only enable students to notice that their pronunciation form was not intelligible enough, but also encourage them to practice their pronunciation while listening to teachers' model pronunciation.

Noteworthy, however, is that the instructor pointed out some limitations of recasts according to the nature of the target sound (i.e., /æ/ vs. /r/). That is, the vowel continuum between /æ/, /ɛ/, /ɑ/, /ɔ/, and /ʌ/ is difficult to notice not only for students but also for teachers, especially compared to the /r/-/l/ contrast. Indeed, L2 pronunciation research has shown that vowel inventories dramatically differ between regional dialects of English (Ladefoged, 2005), and mispronunciation in vowel quality tends not to interfere immediately with successful L2 communication (see Jenkins, 2000). This suggests that the target of instruction might play a key role in determining the saliency of pronunciation-focused recasts. To ensure

recast effectiveness, future studies need to either (a) choose target features that clearly affect speech intelligibility or (b) employ clearer signals in response to learners' errors if the target is not perceptually salient.

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Exploring the Relationship Between Language Awareness and Second Language Use

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■ Ever since the publication of Hawkins’s (1984) *Awareness of Language*, researchers have been investigating the language awareness of second language (L2) learners. Language awareness, as defined by the Association for Language Awareness (2010), is “explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching and language use” (para. 1). Few studies, however, have targeted the relationship between classroom learners’ language awareness and L2 production (Lam, 2009; White & Ranta,