
Empirical and Attitudinal Effects of Bottom-up Listening Activities in the L2 Classroom

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Abstract

Second language listening pedagogy has generally favored the development of top-down processing and suppressed the importance of bottom-up abilities such as phonetic perception and word segmentation. Recently, however, some listening methodologists have started to advocate a shift away from previously accepted listening pedagogy and toward listening activities that aim to improve students' bottom-up processing and decoding skills. This paper reports on a study of bottom-up listening activities used in two Japanese university listening courses, in which a coordinated program of bottom-up activities was implemented over one semester. Results from 100-word pre/post-semester dictation tests were compared to determine what, if any, influence the bottom-up activities had on students' decoding of the speech stream. In addition, a questionnaire was used to ascertain student opinions of these classroom techniques. Results from both the dictation tests and the questionnaire suggest that such listening activities have value in the second language classroom for development of learners' phoneme processing and sentence parsing abilities.

Introduction

Many people may take for granted the complexities of listening in their first language (L1), yet the task of learning to listen in a second language (L2) is onerous. In order to deal with and glean meaning from the incoming speech stream, L2 learners need to become accustomed to sounds, stress patterns, and semantic features that may differ from those in their L1. To become competent L2 listeners, it is necessary for learners to develop abilities to,

for example, segment the speech stream into meaningful chunks and recognize aspects of connected speech (e.g. blends and assimilation). In their L1, most people perform these bottom-up cognitive activities sub-consciously (Vandergrift & Goh, 2012); however, L2 learners may need explicit practice to carry out the same operations in their new language.

Although once considered old-fashioned, teaching techniques and classroom activities that draw students' attention to bottom-up processing (BUP) and the acoustic particularities of the speech stream are once again becoming popular. Commentators (e.g., Field, 2008a; Vandergrift & Goh, 2012) have recently promoted a return to the development of students' perception and parsing abilities. This shift comes after a period in the 1980's and 1990's, when some teachers believed that students' background knowledge, coupled with contextual information, could solve most listening problems (Field, 2008b). However, although context and background knowledge are helpful in many cases, they can mislead listeners as well; for example, if listeners fail to modify their predictions based on actual aural input, background knowledge can interfere with listening competence (e.g., Lynch, 2009). Thus, current thinking (e.g., Al-jasser, 2008; Field, 2008a) suggests that L2 educators may need to place more emphasis on the acoustic signal.

In response to the need for better aural perception and segmentation abilities, listening methodologists (e.g., Field, 2008a; Vandergrift & Goh, 2012) have recommended BUP activities that include specific and detailed attention to the incoming speech stream through activities such as pointing out blended speech, using dictation exercises, and focusing on prefixes and suffixes (e.g., Field, 2008a). While these types of BUP activities in the L2 classroom do seem to emphasize the importance of the "perceptual processing" and "parsing" stages of listening (Anderson, 2005), the effects of such activities on language learners have not been fully investigated.

Therefore, the authors planned a project in which they introduced BUP teaching techniques over one semester at two universities in Japan. The study focused on Anderson's (2005) constructs of the "perceptual processing" and "parsing" stages of listening, in which spoken messages are first phonetically decoded and then segmented into meaningful units. Effects of BUP activities were measured via pre/post-semester dictation tests and a post-semester questionnaire. The purpose of this study was to investigate the effectiveness of such

classroom activities that focus on the speech stream and to determine student opinions of such practices.

Background

Key concepts from the literature

Two key concepts frequently appear in theoretical descriptions of listening: BUP and top-down processing (TDP). Although alternative terminology relating to these processes, such as decoding and meaning-building (Field, 2008a), have been suggested, BUP and TDP are the most widely recognized nomenclature in the literature and thus will be used in this paper. In addition, while distinctions may be made between BUP and TDP, most listeners likely employ a combination of the two (e.g., Lynch & Mendelsohn, 2002).

Bottom-up processing

BUP begins with individual pieces of information and attempts to combine them into a meaningful whole. It involves perception and parsing of the speech stream at increasingly larger levels. Starting with the phoneme, meaning is constructed through word level, up to a broader discourse level (Vandergrift, 2004). Field (2003) identifies some of these stages as “auditory-phonetic, phonemic, syllabic, lexical, syntactic, semantic, propositional, pragmatic [and] interpretive” (p. 326). Essentially, BUP begins with smaller units of meaning and builds them into a larger message, which is the sum of the combined parts. A listener’s BUP operates on the actual acoustic input they hear.

In this paper, we focus the investigation mainly on development of auditory-phonetic, phonemic, syllabic, and lexical boundary aspects of listening because we believe these are among the most important, yet most underdeveloped aspects of BUP in the L2 classroom.

Top-down processing

Whereas BUP combines units of meaning to create a complete message, TDP operates in the opposite direction. This approach moves from the whole of aural input to the individual parts (Lynch & Mendelsohn, 2002). In TDP, overall meaning, rather than identification of discrete linguistic items, is the objective. TDP relies on idiosyncratic elements that each listener brings to the listening task, such as world knowledge and life experience. Elements of TDP include knowledge of “topic, genre, culture, and other schema knowledge in long-term

memory...[which help] to build a conceptual framework for comprehension” (Vandergrift, 2004, p. 4).

Teaching trends

While commentators agree that a combination of TDP and BUP is required for listeners to comprehend aural input, the former often receives more attention in L2 classrooms than the latter. Despite the view of some that “[BUP] is indispensable” (Lynch & Mendelsohn, 2002, p. 197), perception and parsing skills are often overlooked during L2 listening instruction (e.g., Field, 2008a).

Teachers aiming to develop their students’ L2 listening competence have traditionally overemphasized comprehension questions or TDP at the expense of the “nuts and bolts that enable the [listening] operation to take place” (Field, 2008a, p. 30). In addition, Vandergrift (2004) observes that much literature on listening instruction has identified a general overemphasis on TDP. The thinking behind the prominence given to TDP seems to be that TDP can fill in the gaps or non-comprehensions in a listener’s mind; therefore, spending valuable class time on BUP skills is unnecessary.

Trends in the literature, however, are recognizing the important role BUP plays in listening and ways in which L2 educators can address it in their classrooms (e.g., Vandergrift, 2010). Still, many teachers may be reluctant to help learners with their speech perception and parsing abilities, as they believe TDP to be sufficient to fill in the gaps (Field, 2008a). Several recent works (e.g., Field, 2003; Vandergrift & Goh, 2012) encourage language teachers to incorporate BUP activities in their pedagogic sequences. This shift in the literature has potential to change the way listening is taught and practiced in L2 classrooms, but the gulf between the literature and everyday listening instruction in the classroom needs to be bridged.

Learners’ listening difficulties

The incorporation of more BUP attention in L2 listening may be warranted based on students’ perceived difficulties when listening, as the bulk of listening problems likely originate at the perception and/or parsing stages (e.g., Vandergrift, 2004; Field, 2008a). Among the ten problems cited in Goh’s (2000) study of listening difficulties, eight were related to BUP,

including an inability to recognize spoken forms of words they know and difficulty in separating the speech stream into manageable chunks. Other obstacles L2 listeners face are the speed of L2 input and the phonological combinations in connected speech (Vandergrift & Goh, 2012), as well as interference from L1 phonotactic and parsing conventions when trying to listen in the L2 (Al-jasser, 2008).

Addressing the situation

Based on the difficulties mentioned above, which relate to BUP, coupled with the limitations of listening pedagogy that overemphasizes either comprehension questions, TDP, or both, it would appear that BUP deserves direct attention in L2 listening lessons. Initial acoustic cues are themselves the catalysts that initiate the entire listening operation, and all listeners must attend to some low-level input in order to activate relevant TDP (Lynch & Mendelsohn, 2002). Due to the role of BUP in starting the listening process and the potential benefits for learners who can accurately perceive and parse the speech stream, it would seem logical for teachers to include at least some explicit BUP practice in their classes. Yet, as Vandergrift and Goh (2012) point out, “there is very little research on the impact of activities designed to help L2 learners become aware of the phonetic and phonological properties of the target language” (p. 163). The present study aims to contribute to this area of underdeveloped research on BUP activities in the L2 classroom.

By including BUP activities in their classrooms, L2 teachers can help students overcome the previously mentioned phoneme, word recognition, and segmentation problems (Goh, 2000) that many low-level learners experience. In addition, learners need accurate BUP abilities in order to compare incoming input with the hypotheses and expectations they develop using TDP (Lynch & Mendelsohn, 2002). Moreover, perception and parsing activities can “help L2 listeners make sound-form connections and become more aware of phonological modifications...[and can make] learners aware of the variations and irregularities of spoken language” (Vandergrift & Goh, 2012, p. 157-58). Likewise, improving learners’ ability to analyze the speech stream brings them closer to being skilled listeners who can accurately and automatically decode incoming speech, understand and utilize co-text (what has been said previously in a text), and free up valuable cognitive resources (Field, 2008a). The fundamental nature of listening involves proficiency in perceiving and parsing the speech

stream; therefore, the important benefits mentioned above warrant exploration of direct BUP instruction techniques in L2 classrooms.

The current study

Overview

While BUP activities have been promoted in recent listening literature, their effects have yet to be investigated in classroom practice; therefore, the current project aimed to address this gap by considering the following research questions:

1. Do direct BUP activities help students with perception and parsing as demonstrated on dictation tests?
2. What are student perceptions of direct BUP activities?

Participants

The study involved two teacher-researchers (the authors), each teaching one class of Japanese learners of English at separate universities in Eastern Japan. The courses, held during the Spring 2012 semester, both included a listening component. Both classes met for 90 minutes, twice a week. However, the overall course goals were somewhat different. The purpose of Class A was development of conversational listening and speaking skills, while Class B focused on lecture listening.

Students in both classes had all completed six years of compulsory English education at the junior high and high school levels in Japan. They were placed in each class according to placement exams determined by their respective institutions; therefore, students in each class were of roughly similar ability as measured by these tests. During the study, learners had access to English listening materials for their courses via online teaching platforms (e.g., Moodle). However, the extent to which they used these was not tracked as part of this study.

Table 1. Overview of classes.

	Purpose	Number of students	Number of class meetings	Dictation test theme
Class A	Conversational listening / speaking	19	30	Morning routine
Class B	Lecture listening	14	28	Sample lecture introduction

Methodology

The implementation of the project can be divided into five stages: (a) pre-semester planning, (b) pre-semester dictation test, (c) implementation of the BUP activities, (d) post-semester dictation test, and (e) post-semester questionnaire.

Pre-semester planning

Prior to the Spring 2012 academic semester, the two teachers created a BUP activity schedule based on teaching techniques in the listening literature (e.g. Field 2008a) as well as original activities. The schedule featured six BUP activities that can be used with any listening text as source material. Therefore, although the course materials were different for each class, the BUP activities were the same. Each activity was used for approximately 5-8 minutes in three classes during the semester (e.g. 5-8 minutes for the counting words activity in three separate classes). The following are brief descriptions of the BUP activities:

- **Counting words:** The teacher reads sentences from the source text one by one at natural speed. Students listen and count the number of words they hear. The teacher then repeats the sentence more slowly and counts out the words for students. Some latitude is necessary because of contractions and connected speech, and this activity is a practical way to formally introduce various aspects of connected speech.
- **Identifying lexical differences:** The teacher selects sentences from the source text. The original sentence is designated “Sentence A.” The teacher makes a variation to the sentence and labels the second sentence “Sentence B.” The teacher reads the two sentences and students identify any lexical differences. For example, the teacher says: “A: The wind was blowing very hard. B: The wind was hardly blowing.” Students report on the lexical difference. A similar activity can be done varying verb forms. This activity can be an effective way to reinforce or review any recent grammar points covered in class.
- **Syntactic predicting:** The teacher breaks up sentences from the source text. Students hear or see (written on a blackboard) one or two words at a time. The teacher encourages students to predict upcoming words through sentence syntax or semantic meaning. For example, students hear or see “They _____” and call out word candidates for the subsequent space. Possibilities in this case should be limited to adverbs or verbs. The teacher can give feedback on student ideas. The activity continues with the teacher adding the next word: “They go _____.” Repeat the

process of eliciting student ideas, and continue: “They go to _____”, “They go to the beach _____”, “They go to the beach on weekends.” This activity helps to activate the grammatical and syntactic knowledge that students likely developed during their previous English learning experience.

- Highlighting connected speech: Using the source text, the teacher points out common sets of connected speech and helps learners become familiar with the differences between written and spoken language.
- Listening and filling in blanks: Using textbook or original exercises created by the teacher, students listen to a text and write missing words in the blanks provided. This is a rather traditional way of focusing on specific words in a text. The written support provided, along with the listeners’ syntactic and semantic knowledge, should help them complete the task.
- Short transcriptions: The teacher reads out a short section of material, either from a source text or an original, and students transcribe it. Afterward, the teacher shares the correct transcription and highlights any problem areas.

In order to meet ethical teaching standards important to these authors, no control group was included in the project. The teacher-researchers considered the learning opportunities provided by BUP instruction to be valuable and so they were offered equally to all students. Moreover, it can be challenging in language education research to strictly control all variables in authentic classroom situations involving multiple classes and human subjects (Bailey, 1998); thus, laboratory-type experimental designs are often impractical for real life teaching and learning contexts like the one in which this study occurred.

Pre-semester dictation

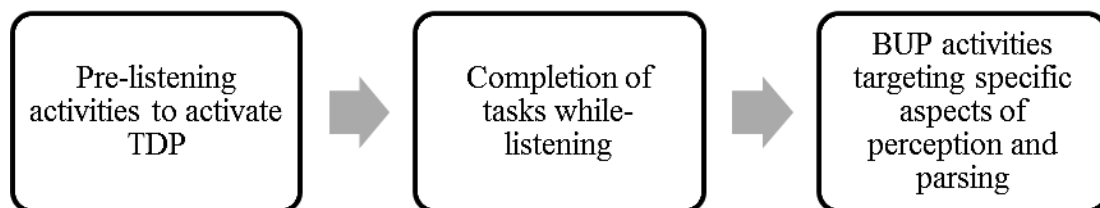
This study was concerned with how BUP instruction affected listeners’ ability to perform on an instrument that explicitly demonstrated BUP; thus, dictation tests were used, as they are a form of evaluation that specifically targets the bottom-up processes of “perception processing” and “parsing” (Anderson, 2005). Dictation tests match the BUP instructional focus more closely than global tests of listening comprehension. General listening comprehension tests do not address BUP in the ways a dictation test can; rather, general listening comprehension tests assume BUP takes place but provide little specific evidence thereof. Thus, dictation tests were used to assess the particular BUP aspects that were focused on during instruction.

The dictation tests for Classes A and B were on different topics in order to more closely match their course contents. Class A completed a dictation from a speech on a typical morning routine. Class B completed a dictation using a sample lecture introduction about English as a global language. Both dictation texts consisted of 100 words and were delivered via digital recordings made by the same speaker at approximately the same rate of speech. Students were instructed to write down as many words as they could. Dictation texts were played twice.

BUP activity implementation

There is general theoretical agreement that explicit attention to BUP skills should come late in pedagogic listening sequences as outlined in Figure 1 (e.g., Field, 2008a; Vandergrift & Goh, 2012). Students should first activate their relevant background knowledge and form hypotheses during pre-listening activities. Then, after completing more global listening tasks (e.g., identifying a main idea or the number of speakers), BUP activities should be used. The present study focused on BUP listening instruction that occurred in the third phase of this pedagogic sequence.

Figure 1. Pedagogic sequence for listening.



The BUP activities were introduced across 14 weeks. Although minor variations occurred due to individual class needs, materials, and time, the teachers followed the schedule as closely as possible during the course of the semester. Similar BUP teaching techniques were used during the same class meetings, and each activity was used the same number of times throughout the semester. However, as the BUP activity treatment was delivered by two different teachers at separate institutions, the authors acknowledge some variation in the classroom activities.

Post-semester dictation

Following the BUP treatment, students completed a post-semester dictation. The procedures and texts for the post-semester dictation were the same as those used in the pre-semester dictation. As there was a 14-week time gap between the pre- and post-semester dictations, the likelihood of any memory effects was low. Scores on the post-semester dictation were compared to the pre-semester scores to determine any effects of the BUP activities as measured by dictation.

Post-semester questionnaire

A post-semester questionnaire (see Appendix 1) was used to measure student perceptions relating to the direct BUP instruction techniques. The questionnaire was presented in a bilingual format (i.e., Japanese and English) in order to negate any language difficulties. A majority of the questionnaire items featured statements and a four-point Likert scale ranging from Disagree (1 point) to Agree (4 points). Other items asked about student confidence levels and other potentially beneficial listening activities.

Results

Dictation

19 students in Class A and 14 students in Class B took both the pre- and post- dictation tests and answered the questionnaire. Dictation answers were compared to the original scripts, and the number of written words was counted. When scoring the dictations, each word was regarded as one point; therefore, the highest possible score was 100. Minor spelling mistakes were accepted when it was clear that the student had recognized the word but had difficulty transcribing it correctly (e.g. “tost” instead of “toast”). At times, students wrote words that were not included in the dictation text. These erroneous words were not tallied in the final scores.

The two researchers scored both sets of dictation tests, and the inter-rater reliability was $r=0.976$ using Spearman Correlation on SPSS version 19. The mean difference of the pre-post-tests was then calculated using the averaged score of the two raters. Using the paired t-test with the alpha set at 0.01, there was a significant difference between the pre- and post-dictation test results for both Class A and Class B, respectively, as well as when the results of the two classes were combined (Tables 2 and 3). In Table 3 under “Sig,” the numbers are all

0.00, indicating that the group mean differences between the pre- and post-semester dictation tests shown under “Mean” were not by chance; rather, the results were achieved due to intervention at a 99% confidence level.

Table 2. Pre-Post Dictation Results.

		N	Mean	Std. Deviation (SD)	Std. Error Mean (SEM)
Class A	Pre	19	23.24	7.50	1.72
	Post	19	34.34	12.76	2.93
Class B	Pre	14	17.93	4.00	1.07
	Post	14	26.64	5.95	1.59
Combined	Pre	33	20.99	6.73	1.17
	Post	33	31.08	11.00	1.91

Table 3. Paired Sample t-test Results.

		Paired Differences			99% Confidence Interval of the Difference				
		Mean	SD	SEM	Lower	Upper	t	df	Sig. (2-tailed)
Class A	Pre - Post	-11.11*	10.61	2.43	-18.11	-4.10	-4.56	18	0.00
Class B	Pre - Post	-8.71*	5.72	1.53	-13.32	-4.11	-5.70	13	0.00
Combined	Pre - Post	-10.09*	8.84	1.54	-14.30	-5.88	-6.56	32	0.00

* $p < 0.01$

Although dictation tests cannot fully measure one’s aural BUP abilities, it could be said that during the span of one semester, a majority of these students improved their ability to identify acoustic signals and reproduce them in writing. The average score increases on the dictation tests demonstrated learners’ improved abilities to discriminate and recognize phonemes, parse the speech stream in real time, and record oral speech through writing.

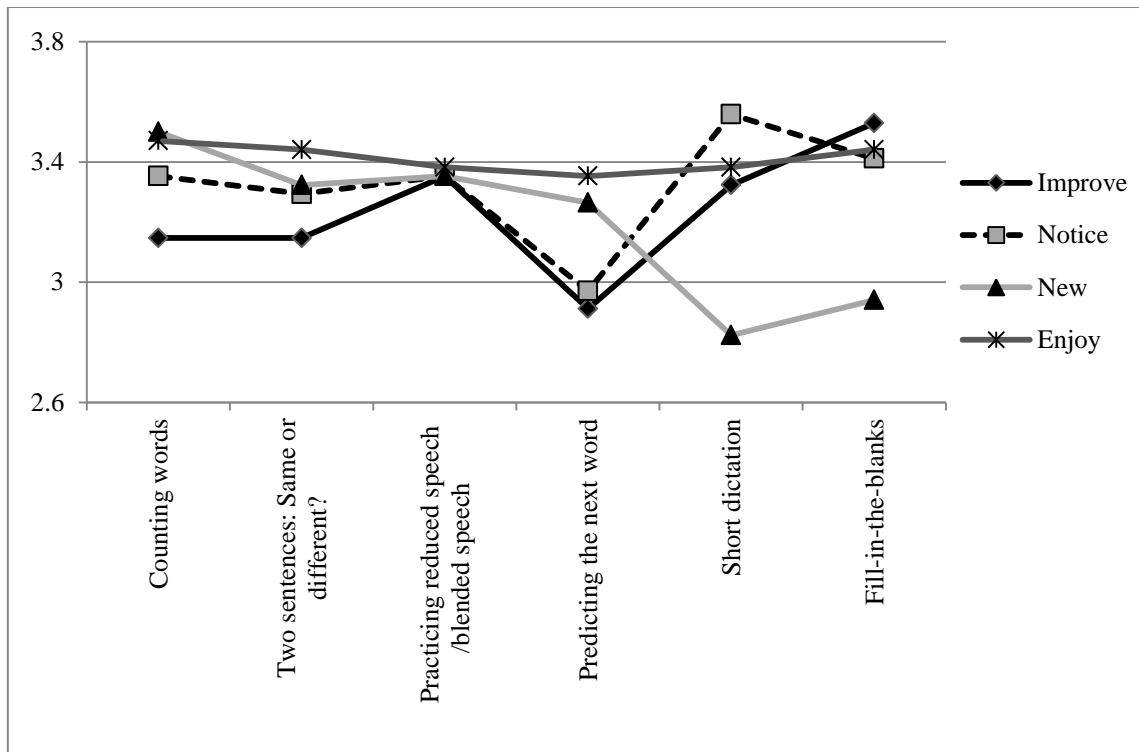
Questionnaire

The responses for the questionnaire were similar between the two classes, and thus were combined and analyzed as one group (n=33). Student perceptions of the individual BUP activities were positive overall. Each activity received an average rating of more than 3.2 out of a possible 4 for each of the following characteristics (see Figure 2):

- helping to improve English listening ability
- helping to notice English listening ability
- newness

- enjoyment.

Figure 2. Perception of BUP activities.



A majority of the students also reported that through one semester of BUP listening instruction, their confidence level and English listening ability had improved (Figures 3 and 4). Details and interpretation of these results will be discussed in the following section.

Figure 3. Change in confidence toward English listening.

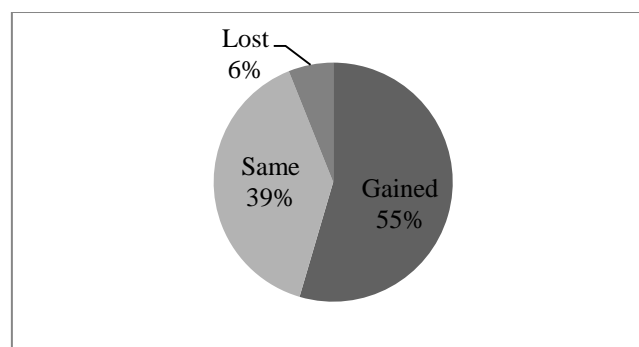
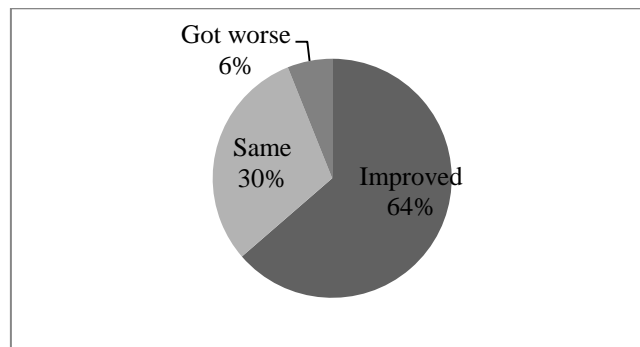


Figure 4. Change in self-perception of English listening ability.



Discussion

Research question one: Dictation results

Dictation can be defined as a “synthesis of the speech perception process at the phonological, syntactic, and semantic levels” (Flowerdew & Miller, 2005, p. 199). As such, it is a testing technique that integrates and focuses on a variety of bottom-up aural processes, several of which correspond to Field’s (2003) description of BUP stages, among them the auditory-phonetic, phonemic, and syntactic elements. Due to its capacity for integrating various bottom-up processes, dictation was selected as a testing technique over other forms of listening assessment such as multiple choice or matching tests.

Results from the post-semester dictation test demonstrate a statistically significant improvement following the BUP activity treatment in two different classes at two different universities in Japan. The increase in dictation test scores also corroborates student claims of improvement of their listening ability on the questionnaire and provides empirical evidence that students’ BUP ability improved over the course of the semester. Specifically, improvements on the dictation test suggest that students’ perceptual processing and parsing skills were strengthened as a result of the BUP treatment.

As no control group was used in this study, external variables including exposure to English outside of class and individual student motivation may have affected results. Then again, as Lynch (1992) argues, in quantitative studies related to language instruction, the experimental group outperforming a control group is really only showing that the treatment in question is “better than nothing” (p. 90). As this was classroom research over the course of one semester, it was not possible to control for outside of class contact with oral English. Any exposure to

oral English outside the classroom, however, would likely not have focused explicitly on BUP aspects, as in the classroom instruction involved in this study. Instead, it would likely have been more holistic and comprehension-oriented interaction. As such, it is unlikely that BU processes were explicitly developed outside the classroom.

Some limitations of the use of dictation to assess listening ability also need to be acknowledged. First, listening is not tested in isolation during dictation. Other skills are needed to score well on this form of assessment, including memory, writing, spelling, and grammatical and lexical knowledge (Brindley, 1998). Secondly, students must have the fine motor skills to write quickly under time pressure. In addition, practical problems such as time spent erasing mistakes or a dropped pencil can affect outcomes. Finally, a dictation test such as the one used in this study places the same importance on every word, something that is distinct from real world listening.

Despite these drawbacks, the researchers sought tangible, visible, and empirical evidence that focused on BUP elements of listening in particular. Therefore, the dictation test was used due to its capacity to put BUP at the forefront, something not possible with other types of meaning- or comprehension-oriented assessments. Specifically in this study to assess BUP, the dictation test results suggest that direct attention to BUP in classrooms can help students with perception and parsing of incoming input.

Research question two: Student perceptions of BUP activities

Student perceptions of listening methodology are gradually getting more attention from researchers (e.g., Chen 2007; Siegel, 2012). Such perceptions are important for bettering understanding of those listening methodologies and teaching techniques students view as helpful to their listening development. Learner opinions and viewpoints are valuable due to the internal nature of listening. In contrast, test scores have a weakness in that they only provide products of listening in the form of correct or incorrect answers; these tests provide little insight into listening processes or progressive listening skill growth. In other words, it can be helpful for teachers to know what, if any, listening development is taking place within their learners and one way to access that information is for the learners themselves to report it.

Confidence

Regarding learner perception of this BUP treatment, a majority of students (18 out of 33) reported that they were more confident when listening to English compared to at the beginning of the semester. The type of explicit bottom-up activities used in this study can help students feel that they have more control over the incoming speech stream, which is often intimidating, especially to lower level learners. As Vandergrift & Goh (2012) point out, learners often feel that “listening is the most difficult skill and largely beyond their control” (p. 271). Explicit BUP activities in the classroom can help increase students’ confidence when listening by helping them to deconstruct the acoustic signals they hear. As they become more comfortable in cognitively controlling incoming speech, their confidence likely increases as well.

There were, however, 14 students who felt that their confidence when listening remained the same even after the BUP treatment. While their perceived confidence may have stayed consistent, the increased dictation test scores suggest that some improvement was made. It is possible that these students were affected by the newness of some BUP activities and that this unfamiliarity affected their confidence levels. It is also possible that these students are preferential to more meaning-based or product-oriented listening pedagogy. Another possibility is that the BUP activities provided them a realistic (perhaps disappointing) self-assessment of their current listening ability.

Noticing listening ability

For the purposes of this study, “noticing” refers to the learners’ ability to recognize when their listening comprehension is successful and when it is not, a concept that differs by individual. The idea of noticing one’s listening ability also relates to metacognition in listening. Metacognition includes elements of monitoring comprehension while listening and evaluating the success of comprehension after listening (Vandergrift & Goh, 2012). If these BUP activities help learners to notice their listening ability, especially if they help learners to locate mis-comprehensions or places where their understanding breaks down, this can be useful to the learners themselves and to their teachers. When learners are able to identify the aspects of BUP that they struggle with, they will subsequently be able to focus more cognitive attention on those areas during future listening events. When teachers are aware of

points that cause learners difficulty when listening, they can plan specific listening activities to target the trouble areas (Field, 2008a).

Not surprisingly, short dictation and fill-in-the-blanks were the two highest-rated activities for helping students to notice their listening ability. The tangible and visual evidence generated during dictation likely gives students a sense of accomplishment. It also provides them with something to check vis-à-vis classmates' transcriptions and complete transcriptions provided by the teacher. Through comparing their versions with those of others, students can observe their level of task achievement. Fill-in-the-blanks also rated relatively high, with an average rating of 3.4. Like dictations, fill-in-the-blanks activities provide visual evidence of the extent of listening achievement, and students can easily compare answers. This tangible evidence likely contributes to the perception that these activities help learners notice their listening ability, particularly at the evaluation stage of metacognition.

Prediction received the lowest score for noticing listening ability. This may be related to the teaching technique used to practice this skill. For this study, teachers either said or showed students the first word or words of a sentence and then encouraged students to guess the next word or group of words, and so on. This design of a prediction-building activity operates only at the sentence level and relies heavily on syntactic and semantic knowledge. It is possible that the connection between syntactic and semantic knowledge and the ability to predict upcoming aural input was not clear to students.

Newness of BUP activities

According to the students' ratings, the BUP activities seem to fall into two groups. One set, namely short dictations and fill-in-the-blanks, could intuitively be classified as more traditional activities, and their average ratings for newness are lower than the other activities, at 2.8 and 2.9, respectively. The other four activities received average ratings between 3.2 and 3.5, suggesting that these are activities students had not encountered during their previous L2 education. This second group can be viewed as more progressive activities.

Based on the findings in this study, it seems that BUP is not a priority in pre-tertiary English education in Japan. This is somewhat curious because standardized university entrance and placement exams, such as the Center Shiken and the TOEFL, contain significant listening

sections. Thus, one might expect listening practice to be a priority at the secondary level. However, this study suggests that auditory BUP instruction is underdeveloped in many English classrooms.

This interpretation is in line with recent literature, which asserts that development of BUP is often neglected in favor of time spent on TDP and/or comprehension questions (Field, 2008a). For example, commercial listening materials sometimes designate large amounts of time for pre-listening TDP and only allot a small percentage of time to actually listening. Vandergrift (2004) points out that a majority of commentators have identified similar discrepancies between the amounts of attention given to BUP and TDP. Findings from this study suggest that situations comparable to those described in the literature are present in Japan pre-university language education.

Listening improvement

In terms of listening improvement, learners reported that the more traditional activities of short dictation (3.3) and fill-in-the-blank (3.5), contributed more to their listening improvement than the other BUP activities. It is possible, however, that students' notions of "improvement" are limited to getting correct transcriptions or answers. Having tangible evidence of successful listening may lead to a feeling of improvement, regardless of whether the activity itself actually caused any improvement. Practicing reduced speech (3.3) was also found to contribute significantly to listening improvement. These three activities have more of a direct connection to the dictation tests than do the other exercises, and these perceptions of improvement are indeed supported by the significant increases in the post-dictation test scores.

It is interesting to note that the other three activities (counting words, deciding if two sentences are the same or different, and predicting upcoming words) all received lower scores for contributing to listening improvement but had high ratings for newness. Perhaps the absence of tangible evidence of listening achievement led students to perceive these activities as less useful for improvement. In addition, students may feel these activities are limited in scope and that listening to discrete sentences in this way does not help to foster any generalizable listening abilities. Predicting upcoming words received the noticeably low rating of 2.9, which suggests that students find this activity the least valuable of the six. As

stated above, this low rating may be due to the specific classroom technique employed for this study. Other methods for developing prediction skills may be perceived as more successful.

While it may not be possible to determine precisely which BUP activity contributed the most to learner improvement, the increase from the average pre- to post-semester dictation scores suggests that some, if not all, activities contributed to the development of students' BUP. In the case of listening improvement, the dictation results support the questionnaire findings that the BUP treatment was effective.

Enjoyment of activities

On the questionnaire, students reported that they enjoyed all of the BUP activities, with the rating averages for each activity at approximately 3.4. The rating average of 3.4 for the enjoyment of all six activities is greater than that for the other questionnaire items (i.e. newness, improvement, and noticing). From this observation, it could be interpreted that the students enjoyed these classroom activities regardless of whether they believed the activity led to listening improvement or whether it helped them to notice their listening ability. The rating for prediction is particularly interesting in this regard. Students reported that they enjoyed the prediction activity (3.3) despite the fact that they felt the prediction activity was less likely to lead to listening improvement (2.9). This seems to suggest that while students believe the prediction activities may not improve their listening abilities in a causal fashion, the activities are still stimulating and engaging.

Student enjoyment of listening instruction in general, and of BUP activities specifically, should be viewed as an important feedback on listening pedagogy. Learning to listen in an L2 can be a daunting task, and learners often report that listening is the most challenging of the four main language skills to master in another language (e.g., Field, 2008a). Therefore, any pedagogic steps that teachers can take to make their listening lessons enjoyable, engaging, and varied would be welcome. In addition, since BUP has traditionally been neglected in listening lessons, these findings suggest that the six BUP activities used in this study are viable for the L2 classroom in Japan. Students reported that the activities were enjoyable, which likely also means that they were motivating for students. Along with fostering within

students a sense of control over incoming input, these activities likely also added to student motivation, a by-product of enjoyment.

Pedagogic implications

Overall, the six BUP exercises were perceived to help improve BUP listening ability, and post-semester dictation scores support the claims of improvement. The activities also raised students' awareness of their present listening capabilities. Most of the activities were reported as being new to students, although some learners reported more familiarity with short dictations and fill-in-the-blanks than with the other activities, and all six activities were described as enjoyable.

These positive findings suggest that BUP should receive more attention in listening lessons. BUP activities can be included systematically in listening lessons, as described in this study, or they can be used to target specific trouble spots where student comprehension breaks down (Field, 2008a). The activities used in this study can be used in conjunction with any listening text (e.g., textbook or authentic) as source material. The fact that this study involved the same activities applied to two different sets of texts is evidence of the functionality and flexibility of these teaching techniques. Moreover, the activities themselves do not require abundant preparation and can be inserted into classes either as part of a plan or spontaneously to respond to student needs. They can also occupy as much or as little class time as the teacher chooses to designate.

While this study sought to investigate how more progressive BUP activities operate in the classroom, more traditional forms of practice like short dictations and fill-in-the-blanks were viewed positively by learners. It is possible that students were already familiar with these activities from previous educational experiences and therefore felt more comfortable completing them in class. In addition, it should be noted that these activities integrate other skills and do not isolate the listening skill. Dictation, as mentioned previously, includes listening along with short-term memory, writing, and spelling skills. Fill-in-the-blank exercises are integrated as well, as they incorporate reading, writing, and syntactic knowledge. In fact, learners may be able to complete a gap-fill by disregarding a listening text and using only syntactic and semantic guesses. Due to the integrated nature of dictation and gap-fills,

which do engage aural BUP to an extent but also depend on other skills, teachers may wish to augment standard dictation and gap-fills with a wider variety of BUP practice.

There are, however, some caveats of BUP activities that should be considered. When focusing on discrete phonemes, words, word combinations, or sentences, there is a danger of decontextualizing learning (Goh, 2008). In other words, the context of a sentence or situation contains important information, and isolating individual sounds or words may detract from the overall meaning of an utterance. Therefore, in order for learners to understand phonemes and words in context, a BUP focus is recommended after a text has been heard in its entirety (as shown previously in Figure 1). Furthermore, lack of contextual support during listening can disadvantage learners (Vandergrift & Goh, 2012). A second caveat comes from BUP activities such as dictation, which places equal prominence on each word and encourages word-for-word processing (Vandergrift & Goh, 2012), neither of which are characteristic of listening in the real world.

If teachers are aware of these caveats, and aim to supply attention to both TDP and BUP in their listening lessons, they will provide theoretically-based listening instruction. By expanding the range of BUP activities used in class, educators will help to develop listening at a more holistic level. For example, the activities of practicing blended speech and recognizing two sentences as the same or different specifically target the bottom-up aspect of phoneme recognition. The activity for counting words forces learners to develop their real-time sentence parsing ability, while predicting upcoming words connects syntactic knowledge to listening and also activates cognitive knowledge relating to collocations and common word groupings. Learners can be benefited by receiving explicit practice and instruction regarding these distinct and often overlooked facets of BUP. Holistic listening competency, however, encompasses more than phonetic processing and parsing of the speech stream. It includes additional higher-level aspects such as contextual understanding, inference, and comprehension, aspects that were not included in this study. Therefore, this paper supports the suggestions made by Field (2008a) and Vandergrift and Goh (2012) that BUP activities should be used to supplement practice that focuses on other aspects of listening.

Conclusion

This study investigated the effects of six explicit BUP listening activities. Dictation tests were used to determine any empirical gains stemming from the BUP exercises, while a post-semester questionnaire provided qualitative insight on student perceptions of these activities. Results of the dictation tests showed a significant increase in the number of words students transcribed following the BUP treatment, suggesting that explicit BUP attention in the L2 classroom is worthwhile. In addition, students generally perceived that the activities helped them notice and improve their listening ability, were enjoyable, and were new to many learners. These attitudinal findings further support the endorsement for more BUP listening activities in listening lessons.

However, more needs to be learned about how BUP skills can be taught in L2 listening lessons. This project involved only a small number of Japanese university students. For that reason, future research should investigate the effects of BUP activities with larger student samples as well as in other educational contexts. Additionally, this study grouped all six activities as something of a BUP package. It would be beneficial for future studies to isolate and compare individual BUP activities to determine which ones are the most effective for developing bottom-up elements such as phoneme discrimination, perceptual processing, parsing of the speech stream, and organizing input into meaningful chunks. Further insights on learner motivations for listening development could also be investigated. For example, a questionnaire item could investigate if learners value BU listening abilities or if their focus is more comprehension-based. Furthermore, the current study could be improved by incorporating post-semester student interviews to qualitatively augment dictation test and questionnaire results.

Although listening lessons may typically promote TDP and the answering of comprehension questions as keys to successful listening, this study suggests that BUP activities deserve recognition as well. Teacher education programs may wish to devote more time and resources to listening instruction and to BUP in particular in order to support language teachers in their goal of helping learners to develop holistic listening abilities.

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Appendix. Questionnaire.

Please select the answer that most closely reflects your views. Put a ✓ in the boxes that apply. Please answer all the questions.

1. How is your confidence toward English listening now, compared to the beginning of the semester?

Gained confidence	The same	Lost confidence
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How do you evaluate your English listening compared to at the beginning of the semester?

Improved	The same	Got worse
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. The following activities helped improve my English listening ability.

	Agree	Slightly Agree	Slightly Disagree	Disagree
Counting words	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening to 2 sentences and decide if they are same or different	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Practicing reduced speech /blended speech (e.g. gonna, wanna, n')	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Predicting the next word	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dictation (Listening and writing down the sentences)				
Listening and filling in blanks				

4. What were other activities that improved your listening (Please specify):

5. The activity helped me notice my English listening ability.

	Agree	Slightly Agree	Slightly Disagree	Disagree
Counting words				
Listening to 2 sentences and decide if they are same or different				
Practicing reduced speech /blended speech (e.g. gonna, wanna, n')				
Predicting the next word				
Dictation (Listening and writing down the sentences)				
Listening and filling in blanks				

6. The activity was new to me.

	Agree	Slightly Agree	Slightly Disagree	Disagree
Counting words				
Listening to 2 sentences and decide if they are same or different				
Practicing reduced speech /blended speech (e.g. gonna, wanna, n')				
Predicting the next word				
Dictation (Listening and writing down the sentences)				
Listening and filling in blanks				

7. I enjoyed the activity.

	Agree	Slightly Agree	Slightly Disagree	Disagree
Counting words				
Listening to 2 sentences and decide if they are same or different				
Practicing reduced speech /blended speech (e.g. gonna, wanna, n')				
Predicting the next word				
Dictation (Listening and writing down the sentences)				

Listening and filling in blanks				
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8. Other comments about listening activities or practice in class:

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