Investigating English Language Teachers' Beliefs and Stated Practices Regarding Bottom-up Processing Instruction for Listening in L2 English

Marc Jones, *Tokyo Kasei University*

Abstract

In a survey of teachers' beliefs and stated practices, sourced mainly through Twitter, it was found that instruction in bottom-up processing for L2 listening in English language teaching, as recommended by research literature, is stated as being carried out although not to a very large or regular extent. It also found that most teachers stated that they do not base their listening instruction upon L1-L2 phonological differences. Additionally it was found that teachers stating they taught at the single-sound level also correlated strongly with stating that they taught at the single-word level.

Keywords: *bottom-up; listening; questionnaire; teacher beliefs*

Introduction

For those without disabilities, how we listen to our first language is much the same: acoustic signals are received, decoded as phonemic information and parsed as lexicogrammatical items. Second language learners face considerable difficulties when parsing auditory signals into meaningful messages, and in turn there are various text factors that pose difficulties for teachers in educating our students to do this:

> passage length, speech rate, linguistic complexity, and text content; variables related to task procedures, such as the nature of the task instructions and the number of times listening; and task response characteristics such as the item type, or the length and complexity of the required response
> (Brunfaut & Révész, 2015. p. 142)

With regard to text content, a bottom-up approach, or what Flowerdew & Miller (2005) refer to as a "discrete item approach", (p. 10), focusing on phonemes, lexical items, utterances and prosody, may benefit learners. This contrasts with a top-down approach, which is the reliance on knowledge about texts, genre, schema and metacognition. It is my hypothesis that teachers neglect bottom-up instruction.

With this in mind, I investigated English language teachers' reported practices and beliefs regarding listening instruction. A paucity of research has been carried out in this area. Graham et al's (2014) study of Modern Foreign Language (MFL) teachers in the secondary sector in England and Siegel's (2014) study of English as a Foreign Language (EFL)

teachers in Japanese universities are standout studies both in the quality of the research yet also the mere fact of their existence. Regarding bottom-up instruction, there is a clear gap in the literature. In this article, I focus on the reported beliefs and stated practices regarding bottom-up processes.

Literature Review

Listening pedagogy in English Language Teaching (ELT) appears to be unchanged since Field (2008) stated the dominance of "the Comprehension Approach (CA)" (Field, 2008: ch. 2, p. 2/17), where learners are exposed to listening texts and asked questions but not taught how to decode auditory signals in order to parse listening texts. In Field's (ibid) words, "the underlying supposition is that testing for understanding is the most appropriate form for the listening class to take. This supposition has rarely been questioned" (ibid).

Field's claim was still supported six years on, at least in the Japanese university ELT setting, by Siegel (2014), who found that of the ten teachers he surveyed and received recordings from, the majority primarily employed comprehension-based activities in their classrooms. Bearing in mind that most teachers in Japanese universities have Master's level qualifications, it may be said that these teachers are expert practitioners of ELT. However, given the small sample size, it may be the case that these teachers are not representative of university ELT practitioners in Japan; more research is needed. Is it the case that these teachers are neglecting the development of their listening pedagogy? One reason for such neglect is that listening pedagogy was until recently rarely given attention by either practitioners or researchers. One reason proffered for this is that "The inherent difficulty with assessing listening, of course, is that because listening is primarily a cognitive activity listening performance is not directly observable." (Rost, 2016. ch. 10, p. 2/30.) It is therefore much easier to observe the comprehensibility of standardised input through reading.

Phoneme acquisition

Salus & Salus (1974) posited an order of phonological acquisition for L1 English, rather in the same way that Brown's (1973) morpheme study showed L1 English morpheme acquisition. In ordinary cases of adult L2 learners of English, a full acquisition of L1 phonology may be assumed. Unfortunately, there are often wide discrepancies between L1 and L2 phonology.

According to O'Grady (2015) what is most easily acquired would appear to be influenced by the level of perceptibility, that is, sounds that are more distinct and therefore more easily perceived as different to other sounds (i.e. of great interest to us, other sounds could be L1

sounds and other, different sounds of the L2). The evidence supporting this may be seen in data supporting Flege's Speech Learning Model (1995; 2007) (SLM) and Best's (1995) Perceptual Assimilation Model (PAM).

The two models are markedly different in their background theoretical constructs: Flege's work uses more recorded data for phonetic analysis (see Flege, 2004) and Best uses more data regarding perceptual ability. However, both reach similar conclusions regarding the acquisition of L2 phonology. While Best (1995) states that L2 sounds are categorised as either native, non-native or non-speech sounds, Flege (1995, 2007) states that L2 users develop categories for sounds in relation to the L1, with L2 phonemes that are close to L1 phonemes initially perceived/produced as L1 equivalents, while "contrasts between sounds in the L2 that do not exist in the L1 will not be honored" (Flege, 1995. p.235); According to Best (1995), in extreme cases distant phonemes are more problematic and "may instead be heard as nonspeech sounds such as other vocal tract events (e.g., choking) or even as other humanly or even nonhuman events (e.g., fingers snapping or a cork popping respectively)." (p. 194). Flege (2007) observes that over time, such L1/L2 categories can become blurred and "suggests that bi-directional phonetic interference effects are likely to be evident in the great majority of bilinguals." (p. 365).

It would be advisable to educate learners to discern the difference between sounds that form part of the L2 but which do not form part of the L1, and provide adequate ongoing practice in order to develop an L2 template for the new sounds. As with other areas of language teaching, recycling is both important and also natural if the teacher continues to draw learners' attention to the phonological items. An approach such as this would also allow the development of prototypes of phonological items. Rost (2016) states that "Proficient listeners hold prototypes of particular sounds in a language in memory, though they seldom expect to hear a pure prototype in actual speech. Rather the prototype serves as a basis from which allophonic variations can be interpreted." (ch. 2, p. 15/39.) Therefore with greater recycling of phonological items from different speakers, a wider range of possible interpretations of phonological prototypes may be developed by learners.

Lexicogrammar

When learners acquire language, one way it is thought to be retained in memory is as lexical primings (Hoey, 2005), where words that typically appear together would cue the expectation of another, and "Primings can be transitory or (semi-)permanent. Speakers or writers may combine certain words repeatedly in a discourse and this repeated combination becomes a cohesive feature of the text. The listener or reader will grow to expect these words together

in the text in question, but unless subsequent texts reinforce the combination it will not become part of the permanent priming of either of the words." (p.12) This seems to assist in cueing readiness for input, including listening. It is not always the case that such primings are simple; unusual or novel lexical combinations can be learnt over time according to Ellis (2006). Such combinations are learned through frequent access to input with recency, frequency and psychological cueing being factors. He states that "The driving forces of language learning are frequency, conditioned by contingency, conditioned by selection." (p.15) However, it is also therefore obvious that unusual collocations, or those specific to a particular domain that learners will rarely be exposed to, will be more difficult to process through their lack of priming and therefore, may cause specific problems in processing.

Ellis (2006) states that evidence from case studies of individuals in naturalistic L2 acquisition settings suggests that what was easily acquired by those subjects is also common in pidgins. This is due to the saliency of linguistic items, with more salient items having greater probability and less salient items having a lower probability of being acquired. Ellis posits that this is similar to L1 acquisition, with the example of children's L1 acquisition of the form 'goed'* in English; he posits that this may be due to the morpheme 'go' cueing a gerund phrase or location, due to it being more common than 'went'. The 'ed' morpheme is appended in error in order to ensure 'go' is marked as past, due to the 'ed' morpheme also being more common than 'went'. Therefore, if we wish to facilitate learners' acquisition of a greater set of cues or primings for receptive processing, saliency is key. While this is mere theory due to the inability to process what actually happens in the mind during language production, it appears to be robust, with Brown's (1973) L1 English longitudinal morpheme study and work by Pienemann (2003, 2005) providing evidence to support Ellis' (2006) probabilistic contrast model (PCM), with the lexical mapping of morphological items occurring due to input received. As Rost (2016) comments "Before certain syntactic forms and certain lexical items are noticeable, these features may be heard by the L2 listener simply as a blur of sound surrounded by other more comprehensible parts of discourse that they are able to pick out." (ch. 7, p. 8-9/22).

One way to improve saliency is to draw attention to target items prior to listening that one wishes learners to understand. Pre-teaching vocabulary is one way to do this and it can mitigate effects that may deplete attention (Chaudron cited in Rost, 2016, ch 8. p. 10/29) although this is not always advisable according to Field (2008) who states that:

> There are a number of reasons for not pre-teaching all the unknown vocabulary in a recording. It takes time - time which is better spent listening. Very importantly, it also

> leaves students unprepared for what happens in a real-life listening encounter where, inevitably, there will be words which they do not know and have to work out for themselves.
> (Field, 2008. ch. 1, p. 9/25).

An alternative that Field (2008) suggests later in his book is “a microlistening task” (ch. 5, p.19/33) where learners may practice decoding problematic items such as weak forms.

A bottom-up approach may be more appropriate to lower proficiency listeners. Wilson et al (2011) found that the ability to decode English consonants correlates to better overall listening proficiency (comprehension) as well as reading. They also found that the ability to decode vowel sounds also correlated with this yet was more difficult for the low-intermediate level learners who were their subjects. At the next linguistic level, vocabulary acquisition is thought to play a part in listening skills, according to Vandergrift & Baker (2015), who state their “result suggests a (provisional) model where more general skills like auditory discrimination and working memory are important to the development of more specific language skills leading to L2 listening comprehension.” (p. 406.) In addition, Bonk (2000) found evidence that vocabulary contributes toward L2 listening ability but observed of his research subjects “Nearly a quarter of the 59 students tested were not able to make sense of connected L2 speech even when they knew all the words used in the text.” (p. 27.) This is accounted for by Field (2013), who states that variation between speakers and spoken forms must be considered. However, Joyce (2013) found that the L2 word recognition efficiency task used to test lexical knowledge does not have a strong correlation to L2 listening ability among his subjects. He hypothesizes that the reason is:

> Given that word recognition efficiency is still considered important to L2 listening, the findings suggest the importance of employing naturally occurring language in the classroom. However, it has been found that “textbook dialogues do not reflect the ways in which real talk is produced in actual interactions” (Jones & Ono, 2000, p. 12). Furthermore, it has been argued that the study of reduced forms is neglected (e.g., Brown & Hilferty, 1986; Field, 1997; Rosa, 2002). This study implies that teachers need to help students efficiently understand connected speech.
> (Joyce, 2013, p.21)

One particular feature of the L2 word recognition efficiency task used by Joyce (2013) is that each of the words tested is a CVC word. This may provide greater challenge for learners in decoding items in much the same way as the nonsense syllable test used by Wilson et al

(2011), with co-text providing scaffolding to guess likely ways to decode words, or in other words semantic cueing through lexical primings, that may be known to learners in written form but not phonologically. Field (2003) advocates the use of instruction of identifying primary stress in words in order to provide learners with greater ability to identify word boundaries (Grosjean & Gee, 1987) and thus be able to understand more. He also recommends direct instruction of function words that have weak forms, using their weak form as the common or citation form.

Bearing the above in mind, the factors involved in bottom-up decoding of a listening text are myriad, and it is possible that without explicit instruction in how to use bottom-up strategies effectively, learners may face insurmountable difficulty in developing listening skills.

Teacher Beliefs

A key problem in using teacher beliefs for research data is that they are highly subjective and therefore unreliable on an individual basis, though they "are used by individuals as a filtering mechanism through which new encounters and experiences are screened, interpreted, understood, and absorbed." (Kumaravadivelu, 2012. p.62). However, as Garton (2008) states "If, as experienced teachers, we are to exploit the range of opportunities that classroom interaction offers for learning, then we need to become aware of our beliefs and the effect that these have on this aspect of our classroom practice." (p.83) With this tension between the illogical and the intuitive it is clear that the complexity of opinion regarding teacher belief - and it ought to be made clear that both Kumaravadivelu and Garton are both expressing mere opinions, albeit opinions based upon observational evidence - does not always lend itself easily to analysis.

In spite of the challenges outlined above, collectively, teacher beliefs may be used to gain insight into what at least part of the teaching community believes. With this in mind, it is possible to apply Woods' (1996) thoughts that "The assumptions about learning affect the way we assume we should teach the material; and the assumptions about language determine what the material is." (p.189). Taking this further still, if teachers do not have sufficient subject knowledge, they may have a negative view of the content to teach (Lucas et al., 2015). The problem here for ELT is that teachers may have beliefs that could negatively affect their classroom practice.

By examining teacher beliefs about their own stated practices and beliefs, it is possible to make assumptions about teachers' likely praxis and how their knowledge and/or assumptions inform this. The reported practices from Modern Foreign Language (MFL)

teachers surveyed in Graham et al (2014) found that teachers tended toward top-down processes in their instruction. However, the paradox here is that in the same survey "there is evidence of an apparent mismatch between teachers' stated beliefs in the importance/possibility of teaching learners how to listen more effectively… and their stated practices. This mismatch can be explained, however, if one considers that for these respondents, 'listening effectively' equates with successful task completion, obtaining correct answers, and learners broadly doing what is expected of them, in a heavily product-oriented manner." (Graham et al, 2014. p. 52). This illustrates the need to not simply take such complex constructs as beliefs at face value but that deeper probing to verify meaning must take place in order to understand how teacher beliefs and stated practices interact upon one another.

For this study, teacher beliefs are operationalised in the form of beliefs or philosophy regarding teaching culture, theory and practice that interact to produce an opinion (reported in the survey instrument) based upon classroom experience. Therefore both researcher and readers must be aware of the different factors at play when teachers subconsciously construct such beliefs as this projects collates.

Research Questions

It is a provident time to assess, based on the above literature, how much has changed since Field's (2008) book was published. Therefore my research questions relate to the perceived lack of bottom-up instruction:

- Do teachers report teaching learners to decode single words and phrases?
- Do teachers report teaching learners to decode connected speech?

After the work by Flege (1995, 2007) and Best (1995):

- Do teachers report that they consider L1 and L2 phonological differences when teaching?

Methodology

The study was conducted using a questionnaire designed for mixed methods, specifically a concurrent triangulation design as outlined in Creswell et al. (2008). The benefits of questionnaires are the convenience for the researcher and also the respondents. This questionnaire study made use of both 5-point Likert scales and also narrative frames for open responses which "can yield graphic examples, illustrative quotes, and can also lead us to identify issues not previously anticipated." (Dörnyei & Taguchi, 2009. p. 36). Multiple items

were scored to provide aggregate scores for constructs and these are detailed in Appendix 1.

To reduce the risk of shoehorning qualitative data into a category I may have hastily considered in the questionnaire design I carried out post-hoc coding of the qualitative data. This incurs a different risk: the data interpretation is my own yet others may interpret the quantitative data another way. Due to resource limitations, data was not checked with a second coder. However, coding information and raw data are provided as additional materials in order to provide transparency.

A pilot questionnaire was constructed and administered to a group of five acquaintances. This small sample data was then analysed for internal validity using Cronbach's alpha in JASP (JASP Team, 2017). The Cronbach's alpha for the whole pilot sample was found to be 0.85 for the entire questionnaire, suggesting it was internally valid. Based upon initial feedback, the questionnaire was redrafted and sent out to the research population on Twitter (Twitter, 2017), with participants encouraged to share it with their colleagues.

The research population sample was taken from social media respondents and is therefore a convenience sample. Wagner (2015) argues that convenience sampling may not produce results that are transferable to the whole population at large. However, the size of the potential sample and differences in teaching settings that may be found within the sample should allow for greater generalisation than a sample taken, for example, within only one country. It is not feasible to conduct post-hoc sampling by selecting every nth subject due to the effect of a small sample size providing low validity, particularly for the optional qualitative data in the survey.

By examining teacher beliefs about their own stated practices and beliefs, it is possible to make assumptions about teachers' likely praxis and how their knowledge and/or assumptions inform this. The reported practices from Modern Foreign Language (MFL) teachers surveyed in Graham et al (2014) found that teachers tended toward top-down processes in their instruction. However, the paradox here is that in the same survey "there is evidence of an apparent mismatch between teachers' stated beliefs in the importance/possibility of teaching learners how to listen more effectively… and their stated practices. This mismatch can be explained, however, if one considers that for these respondents, 'listening effectively' equates with successful task completion, obtaining correct answers, and learners broadly doing what is expected of them, in a heavily product-oriented manner." (Graham et al, 2014. p. 52). This illustrates the need to not simply take such

complex constructs as beliefs at face value but that deeper probing to verify meaning must take place in order to understand how teacher beliefs and stated practices interact upon one another.

For this study, teacher beliefs are operationalised in the form of beliefs or philosophy regarding the culture, theory and practice of teaching that interact to produce an opinion (reported in the survey instrument) based upon classroom experience. Therefore both researcher and readers must be aware of the different factors at play when teachers subconsciously construct such beliefs as this projects collates.

After data collection ended Cronbach's alpha was run on the final questionnaire's quantitative data to assess reliability and was found to be 7.85, which confirms its structural validity. Means, modes and standard deviations (SD) were calculated for all items and combined items. Constructs for quantitative analysis were analysed by constructing a correlation matrix in JASP (JASP Team, 2017).

Results

Quantitative Data

The scores for the individual constructs generally come out as slightly negative or neutral. In particular, L1 phonological knowledge has a very low median and also the highest standard deviation.

Table1: *Scores for data constructs*

Construct	**Mean**	**Median**	**SD**	**% sample with scores > 3.0**
Single sounds	2.52	2.33	0.822	19.0
Single words	3.21	3.00	0.887	47.6
L1 interference	2.97	3.00	0.95	31.7
Stress	3.27	3.25	0.90	58.7
Connected speech	3.44	4.00	0.98	52.4
L1 phonological knowledge	2.73	2	1.17	33.3
Variations of sounds	3.30	3	0.96	38.1
Pre-teach vocabulary	3.48	4	1.09	44.4
BU Score	3.15	3.14	0.52	68.3

Due to the sample size N=63, 1 respondent's quantitative data < 2% of the total quantitative data; therefore p values of approximately 0.01 provide more compelling evidence than other acceptable data with p value of 0.05. As Riazi (2016) states, "[t]he level of significance (usually set at 0.05 or less in social sciences) indicates that the relationship between the two variables is systematic and not by chance." (Riazi, 2016: p.235). Because different variables are run through a correlation matrix, it is unnecessary to apply adjustments or corrections to them

The correlations between the different constructs for which quantitative data were taken can be used to answer the research questions for the sample, and to see what types of activities correlate with one another, which should provide some understanding of the stated practices of English teachers during listening instruction.

.

Table 2 *Summary of key correlations of constructs*

Correlated data	***Pearson's r***	***p-value***
Connected speech - L1 phonological knowledge	0.248	0.050
Connected speech - Stress	0.376	0.002
L1 phonological knowledge - L1 interference	0.314	0.012
L1 phonological knowledge - Single Sounds	0.318	0.011
Variation of sounds - Stress	0.367	0.003
Variation of sounds - Single Sounds	0.293	0.020

Triangulation with Qualitative Data

The CA versus bottom up

There is not a total absence of bottom-up methods in the sample of teachers' quantitative reports of their practices, though the narrative frame does not explicitly show bottom-up process instruction. Only 13 respondents stated that they never teach single sounds and only 5 stated that they never teach single words. This suggests that it is not a matter of

teacher skill but one of teacher judgement, if the majority of teachers do occasionally teach bottom-up processing skills.

There is a strong correlation between both BU Score and use of stressed words and/or syllables. This suggests that stresses may be used more in instruction by teachers who are instructing bottom-up listening processes rather than teachers using the stresses as a way to listen selectively using, for example, dictogloss strategies.

It appears that instruction of variations of sounds within a word correlates with teaching stress and teaching of single sounds. However, variations of sounds was scored close to neutral, with a mean of 3.30 and median value of 3. This suggests that respondents either answered with a neutral answer because they were unsure of the meaning of the question, or that it simply is done sometimes, perhaps irregularly. More research is required in order to clarify this.

Do teachers report that they consider L1 and L2 phonological differences when teaching?

The mean value of teachers reported use of the phonology of learners' L1 was 2.73, under the neutral value, with a high SD of 1.17. It therefore appears that teachers generally do not consider phonological differences between their learners' L1s and English. However, there is a moderate significant correlation between teachers' reported use of knowledge of their learners' L1 and learners' L1 causing interference in their L2 listening. There is also a moderate significant correlation between teachers' reported use of knowledge of their learners' L1 and reports of instruction of single sounds, and a weak correlation between teachers' reported use of knowledge of their learners' L1 and reports of connected speech instruction. Therefore it may be assumed that those who take L1-L2 differences into account are also those who are more drawn toward providing bottom-up instruction.

However, the teachers regularly using their knowledge of learners' L1 are a minority in the sample. This may be due to a variety of factors: a lack of phonological knowledge, a lack of ability in their learners' L1 or L1s, a lack of resources to gain knowledge about learners' L1s other than from the learners themselves, or a lack of confidence in applying phonology to listening instruction could all play a part in lack of targeted phonology to learners with particular L1s.

Moderate correlations between reports of instruction of stress and connected speech (0.376), and stress and variations of sounds (0.367) suggest that teachers who teach

variations of sounds may do so within the context of connected speech. This lends itself to further interpretation that teachers instructing variation of sounds within words may be teaching the difference between citation forms and weak forms of words used in the context of connected speech. However, this information cannot be confirmed due to insufficient qualitative data from respondents.

Do teachers report teaching learners to decode single words and phrases?

It appears that teachers are reluctant to teach listening for single sounds and single words, with both of these being said to be taught at around 3 in response to the Likert-scaled questions about stated practices, with means below the medians and modes. In the questions about opinions, teachers still had relatively non-committal answers regarding listening to single sounds, with similar answers to the questions about the stated practice of listening to single words. It also appears on the basis of their reports that teachers who instruct at the single-sound level are more likely to instruct at the single-word level also, with a moderate-to-strong correlation of high significance.

Decoding instruction is happening within a large minority of the sample of teachers surveyed. What this means is that at least some of the teachers surveyed understand the difficulties involved in listening to sound and processing it at the micro rather than the macro level. From the qualitative data, five respondents reported that instructing decoding was easy while seven respondents stated that it was difficult. While this does not state any level of efficacy in the teaching either positive or negative, the fact that approximately 22% of respondents to the qualitative section of the questionnaire mentioned decoding and its difficulty or ease would appear to confirm that it is being carried out and teachers are reflecting upon the ease of this in their classroom practice. Only four respondents reported teaching connected speech being difficult or easy (two in each criteria); however in the narrative frame “A representative way I teach listening is…”, no respondents provided answers that could be interpreted to include either decoding or connected speech instruction.

Do teachers report teaching learners to decode connected speech?

It appears that teachers teach connected speech more often than not, with the mean answer falling at 3.44 (3 s.f.), the median being four and the mode also being four. However, there is a SD from the mean of 0.84 (3 s.f.). Bearing this deviation in mind, it may appear that learners are taught strategies for successful decoding of connected speech but that this is not consistent across different TESOL listening settings.

Regarding the difference in sounds from a prototype, the mean is 3.30 (3.s.f) with median at 3 and a SD of 0.98 (3.s.f.). However, there is no significant correlation between this and connected speech, though there are correlations between both the connected speech and variations in sound items and the stress item (connected speech 0.376 with p-value = 0.002; variations in sound 0.367, p-value = 0.003). This suggests use of stress in words and connected speech with changing phonemes for weak forms instructed by some teachers but not all.

Discussion

Do teachers report that they consider L1 and L2 phonological differences when teaching?

Based on values in the data, it appears that teachers generally do not consider phonological differences between their learners' L1 and English. However, there is a moderate significant correlation between teachers' reported use of knowledge of their learners' L1 and the report of learners' L1 causing interference in their L2 listening. There is also a moderate significant correlation between teachers' reported use of knowledge of their learners' L1 and reports of instruction of single sounds, and a weak correlation between teachers' reported use of knowledge of their learners' L1 and reports of connected speech instruction. Therefore it may be assumed that those who take L1-L2 differences into account are also those who are more drawn toward providing bottom-up instruction.

Do teachers report teaching learners taught to decode single words and phrases?

It appears that teachers are reluctant to teach listening for single sounds and single words, with both of these being said to be taught at around 3 in response to the Likert-scaled questions about stated practices, with means below the medians and modes. In the questions about opinions, teachers still had relatively non-committal answers regarding listening to single sounds, with similar answers to the questions about the stated practice of listening to single words. It also appears on the basis of their reports that teachers who instruct at the single-sound level are more likely to instruct at the single-word level also, with a moderate-to-strong correlation with high significance.

Do teachers report teaching learners to decode connected speech?

Superficially, based upon teachers' stated practices, it appears that teachers teach connected speech slightly more often than not. However, the SD (0.84) could take mean and median values almost one point down or up. Bearing this deviation in mind, the results are inconclusive.

Again, regarding the difference in sounds from a prototype, the mean is approximately neutral with a SD value of approximately one point, which could take the mean either way. However, there is no significant correlation between variation in sounds and connected speech, though there are correlations between both the connected speech and variations in sound items and the stress item (connected speech 0.376 with p-value = 0.002; variations in sound 0.367, p-value = 0.003). This may suggest use of stress in words and connected speech with changing phonemes for weak forms is being instructed by some teachers but not all.

Upon exploring the data it is clear that the respondents can be broadly separated into those who implement BU skills teaching and those who do not. While those who teach BU skills are a minority, it appears that teaching connected speech is relatively widespread according to the self-reports. This suggests that teachers are aware of the particular challenges that connected speech poses for learners. However, the stated frequency of teaching connected speech being at an approximately neutral value, suggests that it may only be taught in passing. More research into this would be a welcome addition to the literature.

While BU skills are taught across a large minority of the sample, use of L1 knowledge is only used by 22% of the sample and therefore only approximately half of the teachers who claim to teach BU skills regularly. This is important to know because L1 phonological templates dictate the perception of L2 phonemes for naive listeners (Best, 1995) and learners (Best & Tyler, 2007). If teachers are ignorant of this, they may have inefficient lessons where attempts to provide listening instruction may be hindered due to a scattershot approach and not fully understanding what particularly causes learners difficulties at the phonemic and/or phonotactic level. Additionally, errors in decoding texts at the phonemic level has knock-on effects for word-level decoding due to insufficient power in cues (Ellis, 2006) and any possible lexical primings (Hoey, 2005).

Although the frequency of BU instruction that is carried out within the population of English language teachers worldwide cannot be ascertained from this study, it is clear that while BU is only carried out by a minority, albeit a somewhat large minority, there needs to be more focus upon BU instruction in continuing professional development (CPD) for both in-service and pre-service teachers. Additionally, with many teachers taking pedagogical cues from teaching materials it would be useful for coursebooks to include more bottom-up decoding activities and labelling them as listening, as opposed to an audiolingual method of pronunciation practice (see Richards & Rogers, 2001. p.64-5 for description of the audiolingual method procedure).

Beyond materials and teaching practices, it would be prudent for administrators to invest in supplementary materials that address the difference between L1 and English phonology. This may be more difficult in multilingual contexts than in monolingual contexts, though use of short authentic texts and teacher talk it is by no means impossible.

Due to the inconclusive results regarding connected speech, more research into whether differences between the citation forms and weak forms used in connected speech are being carried out, how it is done, and what types of materials are being exploited in order to do this is necessary. However, it would be prudent to err on the side of caution and incorporate BU activities with shortened authentic texts to provide a focus upon how language is used and to provide greater salience for aspects of connected speech and divergence from citation forms of lexical items in utterance-length and conversational contexts. This would address the unfamiliarity with connected speech as evidenced by Bonk (2000) and Joyce (2013), which has been brought about by overuse of simplified recordings by English Language Teaching publishers.

Limitations

Some limitations of the study are that some respondents did not provide qualitative data. Additionally, many items had means around the neutral value, which could simply be due to respondents believing that if they provide an answer to a Likert-scaled item that assumptions may be made regarding the minutiae of their classroom practices. Additionally, because all data is based upon self-report, and not verified, it should be seen as a preliminary exploration of teachers' practices and further empirical research using classroom observations would be welcome additions to the field.

Acknowledgements

I would like to thank the anonymous reviewer for their constructive advice which has helped to make the article clearer.

Biodata

Marc Jones is a teacher at universities in the Tokyo area. He has previously worked in secondary schools, English conversation schools and taught on-site at businesses. His interests are listening, phonology, pronunciation, task-based language teaching, and materials design. He can be contacted by email at marc@getgreatenglish.com.

References

Ableeva, R., & Stranks, J. “Listening in another language - research and materials” in Tomlinson, B. (ed.) (2013) *Applied Linguistics and Materials Development*. London: Bloomsbury.

Best, C. T. (1995) A direct realist view of cross-language speech perception, in Strange, W. (ed.) *Speech Perception and Linguistic Experience* (pp. 171-206). Timonium, MD: York Press.

Best, C. T., & Tyler, M. D. (2007). Nonnative and second-language speech perception: Commonalities and complementarities. In O.-S. Bohn & M. J. Munro (Eds.), *Language Learning & Language Teaching* (Vol. 17, pp. 13–34). https://doi.org/10.1075/lllt.17.07bes

Bonk, W. J. (2000) Second Language Lexical Knowledge and Listening Comprehension, International Journal of Listening, 14:1, 14-31, DOI:10.1080/10904018.2000.10499033

Creswell, J. W., Plano Clark, V. L. & Garrett, A. L. (2008) Methodological issues in conducting mixed methods research designs. In Bergman, M. M. (ed.): *Advances in Mixed Methods Research* (electronic resource). Retrieved March 20 2017 from http://methods.sagepub.com/book/advances-in-mixed-methods-research

Dörnyei, Z., & Taguchi, T. (2009). *Second Language Acquisition Research Series : Questionnaires in Second Language Research : Construction, Administration, and Processing (2nd Ed)*. Florence, US: Routledge. Retrieved from http://www.ebrary.com

Ellis, N. (2006) Language acquisition as rational contingency learning. *Applied Linguistics* 27, 1-24.

Field, J. (2003) Promoting perception: lexical segmentation in L2 listening, *ELT Journal*, 57 (4) 325–334, https://doi.org/10.1093/elt/57.4.325

Field, J. (2008) *Listening in the Language Classroom* (ebook). Cambridge: CUP.

Field, J. (2013) Cognitive Validity. In Geranpayeh, A., & Taylor, L. (Eds.) *Studies in Language Testing 35: Examining Listening.* (pp. 77-151) Cambridge: CUP.

Flege, J. (1995) Second-language Speech Learning: Theory, Findings, and Problems. In Strange, W. (Ed) *Speech Perception and Linguistic Experience: Issues in Cross-language research.* (pp. 229-273) Timonium, MD: York Press,.

Flege, J. (2007) Language contact in bilingualism: Phonetic system interactions. In Cole, J. & Hualde, J. I. (Eds.), *Laboratory Phonology 9 (*pp. 353-380). Berlin: Mouton de Gruyter.

Flowerdew, J., & Miller, L. (2005). *Second language listening: theory and practice*. Cambridge: CUP.

Garton, S. (2008) Teacher Beliefs and Interaction in the Language Classroom. In Garton, S., & Richards, K. (Eds.). *Professional Encounters in TESOL: Discourses of Teachers in Teaching*. (pp. 67-86). London: Palgrave Macmillan.

Graham, S., Santos, D. & Francis-Brophy, E. (2014) Teacher beliefs about listening in a foreign language. Teaching and Teacher Education 40 (2014) 44-60. https://doi.org/10.1016/j.tate.2014.01.007

Grosjean, F. and J. P. Gee. 1987. Prosodic structure and spoken word recognition. *Cognition* 25: 135–55.

Hoey, M. (2005). *Lexical Priming*. London: Routledge.

JASP Team (2017). JASP (Version 0.8.1.2)[Computer software]. Retrieved June 25th 2017 from https://jasp-stats.org/download/

Joyce, P. (2013) Word Recognition Processing Efficiency as a Component of Second Language Listening, *International Journal of Listening*, 27:1, 13-24, DOI:10.1080/10904018.2013.732407

Kumaravadivelu, B. (2012) *Language Teacher Education for a Global Society: A Modular Model for Knowing, Analyzing, Recognizing, Doing, and Seeing*. London: Routledge.

O'Grady, W. (2015) Processing Determinism. *Language Learning*, 65: 6–32. doi:10.1111/lang.12091

Pienemann, M. (2003) Processability Theory. In Doughty, C. J. & Long, M. H. (ed.) (2003) *The Handbook of Second Language Acquisition.* Oxford: Blackwell.

Pienemann, M. (2005). Cross-Linguistic Aspects of Processability Theory. Amsterdam: John Benjamins Publishing Company. Retrieved from https://ebookcentral.proquest.com/lib/portsmouth-ebooks/detail.action?docID=622406

Riazi, A.M. (2016) *The Routledge Encyclopedia of Research Methods In Applied Linguistics: Quantitative, Qualitative, And Mixed-methods Research*. Abingdon, Routledge.

Richards, J.C., & Rodgers, T. S. (2001) *Approaches & Methods in Language Teaching (2nd ed)*. Cambridge: CUP.

Rost, M. (2016). *Teaching and Researching Listening. (3rd Ed) (ebook)* London: Routledge.

Salus, P., & Salus, M. (1974). Developmental Neurophysiology and Phonological Acquisition Order. *Language*, 50(1), 151-160. doi:10.2307/412016

Siegel, J. (2014) Exploring L2 listening instruction: examinations of practice. *ELT J* 2014; 68 (1): 22-30. doi:10.1093/elt/cct058

Twitter (2017) Twitter. Available from http://www.twitter.com/

Vandergrift, L. (1997) The Cinderella of Communication Strategies: Reception Strategies in Interactive Listening. *The Modern Language Journal*, 81 (iv) 1997. 494-505

Vandergrift, L., & Baker, S. (2015) Learner Variables in Second Language Listening Comprehension: An Exploratory Path Analysis. *Language Learning* 65(2), June 2015, 390–416. DOI: 10.1111/lang.12105

Wagner, E. (2015) Survey Research, in Paltridge, B. & Phakiti, A. (ed.) (2015) *Research Methods in Applied Linguistics: A Practical Resource*. London: Bloomsbury. pp. 83-100.

Wilson, I., Kaneko, E., Lyddon, P., Okamoto, K. & Ginsburg, J. (2011) Nonsense-syllable Sound Discrimination Ability Correlates With Second Language (L2) Proficiency. (Conference Paper). *ICPhS XVII*, Hong Kong, August 17-21 2011. Retrieved November 19th 2016 from https://www.researchgate.net/publication/254559213

Woods, D. (1996) *Teacher Cognition in Language Teaching: Beliefs, Decision-Making and Classroom Practice.* Cambridge: CUP.

Appendix 1

The scoring of the Likert-scaled items of the questionnaire was taken as follows:

L1 interference:

The mean of the following two questions.

When you teach listening how often do your students' first languages interfere with their ability to listen? Never 1 - Always 5

My students' first language interferes with their listening. Strongly disagree 1 - Strongly agree 5

Single sounds:

The mean score of the following questions.

When you teach listening how often do you teach listening for single sounds? Never 1 - Always 5

I teach students to listen by decoding at the single sound level. Strongly disagree 1 - Strongly agree 5

Listening for selected single sounds. Completely useless 1 - Very useful 5

Single words:

The mean score of the following questions.

When you teach listening how often do you teach listening for single words? Never 1 - Always 5

Listening for selected words. Completely useless 1 - Very useful 5

Bottom-up instruction (BU Score):

The mean score of the following items.

When you teach listening how often do you teach listening for connected speech? Never 1 - Always 5

When you teach listening how often do you use your knowledge of students' first language sounds? Never 1 - Always 5

Listening for selected clauses: Completely useless 1 - Very useful 5

Providing variations of sounds within words: Completely useless 1 - Very useful 5

Single sounds (see above)

Single words: (see above)

L1 interference: (see above)

Stress

The mean score of the following items.

When you teach listening how often do you teach listening for stressed words? Never 1 – Always 5

I teach students to listen using stressed syllables. Strongly disagree 1 - Strongly agree 5

Listening to and noting stressed words to build overall meaning. Completely useless 1 - Very useful 5