

Bottom-up Processing to Help Learners with Decoding: Planning, Implementing, and Reflecting on a Lesson

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Abstract

The researcher carried out the action research to experiment and experience the effectiveness of applying the theoretical aspects of bottom-up processing to help learners with decoding in listening lessons. The experimental lesson included six adult intermediate students ($n = 6$) from different backgrounds at an English language teaching professional development training undertaken at International House, Bangkok, Thailand in July 2021. The researcher planned the lessons after the literature review on bottom-up processing and surveying students' needs and interests. The pre-lesson preparation included collecting the group profile, setting lesson aims and learning outcomes, analyzing the target language assuming learners' existing knowledge, anticipating problems and solutions, planning the lesson procedures with appropriate teaching, and learning materials. and considering the timetable fit. The study aimed to find out the effectiveness of a listening lesson focused on bottom-up processing through self-reflection, and feedback from the observer, co-teachers, and students. The study was largely based on the collection of qualitative data through means of the researcher's post-lesson reflection, and feedback from the observation, co-teachers, and students, which functioned as research tools in the study. The data analysis found that bottom-up processing was learner-engaging and beneficial to students' positive perception of improving their listening skills. In addition, they provided the researcher with insights into the steps of planning and administering a listening lesson focused on bottom-up processing identifying areas of achievement and improvement.

Keywords: Bottom-up processing, decoding, lesson plan, listening, planning, implementing, reflecting

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Introduction

The literature review and the researcher's observation and experience have prompted this study to identify the gap in the teaching and learning process of listening skills in terms of bottom-up processing for decoding. Though learners are made aware of the cognitive aspects of top-down processing for facilitating listening, they are less aware of or unaware of the importance of Bottom-up Processing (BUP). In addition, the researcher and his colleagues have not conducted a lesson fully dedicated to making learners aware of the importance of bottom-up processing in listening comprehension. MacDonald (2020) and Roberts (2012) argue that the conventional listening lesson emphasizes much on the product rather than the process; while both top-down and bottom-up processing work in real-life listening, traditional listening lessons attend the former, and unattend the latter. Generally, scholars perceive that listening skills are given less importance than other skills in terms of classroom instructions because they think teaching different listening strategies including bottom-up processing which requires more strenuous efforts (Fachriza, Mafruudloh, Dipta, Virgiyanti, Nuraini & Nadifa, 2022; Al-Nafisah, 2019). Therefore, the limited focus on bottom-up processing in conventional listening lessons, as perceived by the researcher, hampered learners' listening proficiency (Jose, 2022).

Furthermore, the lack of learner training in bottom-up processing for decoding, some learners' inability to decode word boundaries in fast speech, the less emphasis on colloquial fast speech expression in textbooks, and students' limited exposure to English spelling and pronunciation are often considered as linguistic and learning challenges related to bottom-up processing (Jose, 2022). The lack of effective practical application of BUP for decoding in listening skills, and its implication, as found by the researcher, therefore, caused a research gap in the area. The researcher, hence, designed this study to earn first-hand experience and insights in designing, implementing and reflecting on a lesson focusing on BUP for decoding in listening. In this context along with the researcher's practical learning and the information derived from the review of the literature confirmed that the strategy of bottom-up processing is less emphasized in ELT, and this gap led to this study of planning, implementing and reflecting on the lesson to create awareness of bottom-up processing for decoding promoting listening comprehension among EFL/ESL teachers and students, and this aims to find out the important elements of the researcher's reflection on the lesson and the perceptions of the lesson observer, the co-teachers, and students.

The objective of this experimental research is to understand the effectiveness of BUP in an ESL/EFL lesson in terms of planning, designing, and implementing it. This realization of the objective is based on the researcher's self-reflection and evaluation, the observer's feedback, and co-teachers' and students' perceptions of the lesson

Based on the objective, the following research questions were formed.

1. What are the researcher's reflections on the practical lesson?
2. What are the lesson observers, the co-teachers, and the student's perceptions of the lesson?

Literature Review

The cognitive process of listening analyses and organizes phonemes into patterns that learners interpret and understand through inferences through bottom-up and top-down processing ("Listening Skills", n.d.). Top-down processing, commonly practiced in listening skills, can be defined as cognitive processing in which learners predict or guess meanings of new information or words using their previous or background knowledge (Morley, n.d.). For instance, learners use the knowledge of their native country to understand spoken explanations about others' countries;

this demonstrates their ability to recall previous information, that is collected and stored from their experiences, to decode the meaning of what they listen to (Utomo & Sulistyowati, 2022).

Bottom-up Processing

In contrast to top-down processing, bottom-up processing is defined as learners' mental ability to know information by processing and identifying linguistic phonemes without the help of schemata or background knowledge (Field, 1999). According to Utomo and Sulistyowati (2022), bottom-up processes refer to learners' lexical awareness and knowledge of grammatical and syntactical aspects of the language. Studies reveal that students have difficulties in listening because they do not understand some words or phrases spoken and cannot make meanings; bottom-up processing is considered an effective strategy for addressing these listening challenges (Fachriza, et al., 2022). The researcher's experience and observation inform him that BUP for decoding in teaching listening skills is less emphasized than top-down processing by ELT professionals. Moreover, listeners better comprehend the meaning if they apply their linguistic knowledge to the text or audio that they are listening to, and learners "gain understanding following an order that is available from sounds to word grammatical relations to linguistic meaning" (Fachriza, et al., 2022, p.273). Consequently, students rely on bottom-up processing to focus on the grammatical structure of the speech, word stress and sentences (Brown, 2004).

Richards (2016) mentions that when learners listen, they exploit the pronunciation, the grammatical structure of sentences, and keywords to decode the meaning of the content they listen to. To illustrate, learners understand spoken content referring to their knowledge of verb forms, and the store of vocabulary, and phrases (Bartram, 2016). Regarding learners, compared to L1 learners of English, L2 learners should be acquainted with sounds, stress patterns, and grammatical features that are different from their L1. Siegal and Siegal (2013) wrote that L2 learners required explicit practice for bottom-up processing, while L1 learners can subconsciously accomplish bottom-up cognitive decoding. Roberts (2012) suggested five processes of decoding while listening to fast speech; they are a) identification of phonemes, b) recognizing word boundaries, c) comprehending new words, d) recognizing meaning from sentence stresses, and e) understanding linguistic chunks. In addition, learners in a listening lesson can be provided with the audio transcript to compare their mishearing (MacDonald, 2020).

Regarding the accuracy of learners' listening comprehension, Nation, and Newton (2009) comment that BUP is vital to decide the accuracy of learners' linguistically accurate production of speeches and their grasp. In addition, Lynch (2009) reports that weak bottom-up processing encourages learners to depend too much on top-down processing, which may result in wrong guesses affecting their listening skills adversely. Another crucial area of fast speech that calls for BUP is features of connected speech as the pronunciation of a word in fast speech is determined by the sounds of words around it (Roberts, 2012). These connected speech features affect changes in sounds and the production of new phonemes or sounds ("Connected Speech", n.d.). Furthermore, to practice bottom-up processing, Vargas, and González (2009) suggest three steps of implementation: a) identifying the vocabulary, b) preparing to take notes on a paper and) the audio, and they also encourage teachers to play the audio more than once enabling learners to listen to details, which is the main strategy of bottom-up processing. As reported by Jose (2022), the focal point of bottom-up processing is to make students aware of different features of the connected speech in fast speech such as catenation, intrusion, elision, and assimilation in addition to the pattern of stress and intonation in speeches.

Methodology

An online lesson, in the background of Covid 19 lockdown, was planned, scheduled, and implemented with an aim to facilitate bottom-up processing techniques for listening as part of the researcher's continued efforts toward professional development training (See Appendix A). The lesson was designed after a satisfactory literature review on BUP. The students, participants in the training program, were intimated about the time of the lesson. Previously, the researcher collected their profile, and learning needs to plan the class to meet their level and requirements (See Appendix B). The observer (a senior Delta course tutor) was intimated and invited to the class, and co-teachers were requested to observe the lesson and give their feedback after the lesson. The observer and the teachers were given the lesson plan. At the end of the lesson, students were given a questionnaire to express their perception of the lesson on different items.

Lesson Planning and Procedures

To answer the research questions, the lesson was planned, and the lesson procedures (See Appendix A) were designed. Various elements of the lesson plan are discussed below.

Overview

An overview of the course, learners, and course focus are summarized below.

Course Overview

The course is run once a week for a month and a half. The learners meet on Saturdays from 4 pm to 5 pm, and three teachers are teaching different skills and language systems. The course covers other areas of language systems and skills. Though course participation is not mandatory for learners, most adult participants with diverse professional experience and academic qualifications attend lessons regularly with a keenness to study English.

Learner Overview

The group consists of a group of 15 learners who can be considered as a mixture of young adults, adults, and middle-aged (eight females and seven males) in the age range of 22 – 48. From the collected data, it is learned that most of them are professionals in different fields except for one, who is a university student. The common feature of the group is that they want to converse in English as much as possible, and they like to work in groups. Generally, all of them like to learn English, and they perceive that listening and speaking in English are paramount for advancing their career and profession. As a teacher, the researcher has felt that most of them need to review and practice various systems and skills to effectively meet their listening and speaking needs. Regarding their L1, learners are natives of Afghanistan, Pakistan, Palestine, Russia, Thailand, Turkey, and Vietnam; their being bilingual is another common feature of the group. The study included only 6 learners who attended every lesson regularly.

Course Focus

Learners are not pursuing any course or examinations specific to English, but all of them want to improve their English proficiency to enhance their careers. On the one hand, some learners wish to travel to English-speaking countries and work with English speakers. On the other hand, some other participants want to read books, watch and play video games in English. The youngest one said that he wanted to learn English to complete his university studies, and the eldest mentioned that she might want to use English for research. Accordingly, the course focuses on

learners' advancing their general English emphasizing specific areas of language systems and skills that they need more support in the study.

Individual Profiles and Need Analysis

Understanding learners and their perceived needs for learning English are essential for the effective planning and delivery of an English language lesson. Teachers can use surveys using a questionnaire, one-on-one interviews, observations, and some formal or informal assessments (Nsouly, 2022, "Getting Started With", n.d.) to analyse and find learners' needs. Here the researcher surveyed the participants to collect data to analyse their needs and plan the lesson. Appendix B illustrates learners' individual profiles and their specific learning needs.

Lesson Aim

1. All learners will be made aware of the importance of decoding reduced speech expressions in proficient speakers' rapid speech in the context of listening to and watching a movie trailer. Meanwhile, some learners may be able to decode fast speech more effectively than others.

Learning Outcome

2. Most learners will listen to and decode reduced speech expressions in the movie speech analysis reinforced by some decontextualized examples.

Language Analysis

The following summarises the general definition of the language items, and tables one and two illustrate the specific language items and their analysis.

Reduction

Reduction or reduced speech refers to the sounds articulated less clearly, deleted or syllables merged into each other, making it difficult for unseasoned English speakers to understand proficient speakers in rapid speech (Warner, n.d.). Moreover, function words in speech are often reduced to a stream of speech.

Table 2. *Language Analysis 1*

Sentence	Phonetic Transcription	Fast speech - Reduction focus
Pirates had infected the seas for generations.	/pɪrəts hædɪnfæktəðə ðə si:z fə dʒənəreɪʃns/	Schwa /ə/ Catenation / hædɪn fæktəðə/ Elision of /d/ Weak /ðə/ /fə/
So I vowed to eliminate them all.	/səʊ w ɪl/ vɔʊ tə w əlɪmənəɪ ðəmə:l/	Intrusive /w/ Intrusive /w/ Eluding /d/ Catenation /ðəmə:l/
But then there was this boy follow him in	/bət ðən/ ðə wəz ðəz bɔɪ/ /fəʊləʊ hɪmən/	Eluding /t/ Reduced and weak forms / ðə wəz / Catenation / hɪmən/
He took everything from me And filled me with	hɪ tʊkəvrəðɪŋ frəmə/ /ən fɪld mə wɪð/	Catenation / hɪmən/ Weak / ən/

Table two describes the first set of language items which would be used to teach schwa / ə / reduction, elision, catenation and weak /en/, and Table three lists the second set of language items which would be exploited to make learners aware of, and practice fast speech reduction focus introduced in Table one.

Table 3. *Language Analysis 2*

Sentence	Phonetic Transcription	Fast speech - Reduction focus
The dead have taken command of the sea.	/dədəv/ / kʌmændəʌ ðə /	Assimilation /h/ to /ə/ Catenation // kʌmændəʌ ðə /
They are searching for Pearl, a girl, and a Sparrow	/ðeə/ /fə/ /əndə/	Reduced form /ðeə/ Weak form /fə/ Catenation
I have heard stories of a mighty killed thousands of men...	/aɪv/ /stɔːri:zəfə/ kɪld θaʊzənsəʌ mən/	Reduced / aɪv/ Catenation /stɔːri:zəfə/ Eluding /d/ Catenation / θaʊzənsəʌ/

Timetable Fit

In previous lessons, teachers delivered lessons on grammar, reading, speaking, and vocabulary. Learners were taught reported speech features, especially back-shifting, in the first class, followed by reading and speaking by respective teachers. While the speaking lesson was focused on turn-taking, the reading lesson emphasized the reading strategies. Also, the form and meaning of causatives in the English language system were taught to the learners. Moreover, the class just before this one dealt with form, meaning, and the use of specific intermediate-level vocabulary as part of the lexis system. In brief, some areas of language system and language skills such as speaking, and reading are covered in previous lessons. The one area that has not been covered yet is listening and writing skills, and this lesson on listening skills fits well in the series meeting learners' needs to improve listening skills. Furthermore, the need analysis and the observation of learners' classroom participation demonstrated that they have some difficulty in listening to each other and the teacher in English in discussions. Thus, the timing of the lesson matches well at this point of the course. This lesson, therefore, agrees with the overall course scheme of training intermediate learners of English from receptive skills to productive skills in an integrated framework.

General Lesson Commentary

As stated in the aims, the lesson was generally focused on raising learners' awareness of the importance of decoding various speech features (stress, intonation, change of sounds, etc.) while listening to proficient speakers' fast speech. The rationale of teaching the lesson is that decoding skills are seldom given much attention in listening skills, and the literature review has also informed the researcher about the importance of BUP for promoting decoding skills in listening. As for the approach, a Test-Teach-Test (TTT) approach exploiting guided discovery principles (Monroe, 2020) of setting tasks, giving feedback and monitoring was incorporated into the procedure to achieve the lesson aim of making learners aware of the significance of bottom-up processing in listening skills for decoding. TTT provides adult learners (Knowles, 1984) with frequent chances to interact with their peers and teachers, and learn from each other (Garside, 2019). The authentic context of listening to a movie trailer exposed learner to ungraded proficient

speakers' fast speech, and sourcing such real-life materials are appropriate to facilitate language learning for higher-level learners (Lansford, 2014). In addition, the materials were carefully selected in the context, enabling learners to deal with real-life use of English. In the lesson, the researcher selected a movie trailer from an adventurous English 'movie to expose learners to fast speech which they mostly lack in the scripted listening situations in textbooks. Regarding learners' motivation, they were self-motivated to attend, and benefit from English lessons as evidenced by their need analysis. Luke and Justice (2016) report that motivation plays a major role in adult learners' learning, and it enhances and mediates learning during instructions resulting in further motivation to pursue lifelong learning.

Assumed Knowledge

Based on the familiarity with learners, the researcher assumed the following points which would influence the lesson directly or indirectly.

1. The learners appeared intrinsically motivated to learn and wanted to improve their listening and speaking skills. Hence the lesson focus would be received well by the learners.
2. Regarding listening skills, the researcher strongly felt that the learners had all the necessary general listening skills to understand the genre and content of what they heard due to their age and experience. They had good gist and detailed listening skills.
3. Regarding learners, they were of distinct types influenced by their L1 and culture. Also, some learners were more proficient in English than others. Involving them in groups could facilitate knowledge and skill sharing, enhancing learning in line with the lesson aims.
4. About the present lesson, since learners were intermediate and upper intermediate level, they had a satisfactory level of English listening skills. Focusing on bottom-up processing might motivate them to engage further in lessons.
5. The original YouTube video of movie clips and other documentaries would also help them connect to the real-life natural fluent use of English. Some of them might have watched or heard about those videos, enabling easy top-down processing in preparation for bottom-up processing for decoding.
6. The contextual knowledge of learners was assumed to be high because they had been exposed to watching English movies and other English documentaries.
7. The presentation of proficient speakers' accents through movie clips would raise learners' particular interest in the lesson as most learners aimed to listen and speak proficient English.
8. Despite learners' general listening skills, the researcher assumed that decoding was a comparatively newer concept for them. While this newness raised their interest in the lesson, this would also challenge them.
9. Learners might not be familiar with some vocabulary that they are going to listen to in the lesson, and this would affect their general comprehension.
10. Regarding the interaction pattern, the learners were familiar with student-to-student interaction through pair work and group work; however, the interaction pattern in this lesson on creating awareness of decoding for listening skills followed more of a teacher-to-student and student-to-teacher pattern. This change in interaction patterns could affect class dynamics.
11. Some learners might know the elision of /t/ and /d/ in fast speech, while others might not. This would present a win-win situation for the lesson where the knowledgeable could share

their knowledge with others and build on it; the novice would get an opportunity to construct knowledge.

12.

Anticipated Problems and Solutions

Anticipating problems and possible solutions to problems at the planning stage better equip teachers in implementing their lessons, and achieving learning outcomes (Katherine, 2015). The followings are some such expected problems and possible solutions specific to the lesson.

The anticipated problems can be summarised as i) students might not hear the audio played, ii) learners might not be comfortable with the researcher's pronunciation as this lesson was about proficient speakers' fast speech features, iii) all students might not understand the researcher's instructions, iv) some learners might not find it beneficial as they think that they are not going to speak or listen to experienced speakers anyway; they might feel that even proficient speakers in different places talk differently, v) the researcher might finish the lesson early or fail to finish the lesson on time, and vi) learners might think fast speech means speaking speedily.

The researcher was prepared with solutions to each problem mentioned and they address the listed problems, respectively. They are: i) the researcher would read the script aloud and fast, incorporating targeted reduced features of connected speech for learners to decode, ii) the researcher used a record of a proficient speaker's speech throughout the lesson to limit his prompts, iii) the researcher would display his instructions on PPTs in addition to stating them. Strong learners might help others to understand the instructions better. The researcher would interfere in group work (breakout rooms) if they struggled with instructions, iv) the investigator would explain to them that it was not about the production (speaking), but about the recognition of certain features of colloquial or natural English speech for better listening comprehension, so it was essential to acquire enough decoding skills, v) if the lesson was finished early, the researcher prepared extra audio for decoding. If he took more time than planned, he would skip some training tasks, or give some as homework announcing to learners that the lessons would continue in the following class, and vi) the researcher would explain that fast English speech meant speaking English naturally, fluently, and correctly like a proficient speaker using words together. Roberts (2012) remarked that fast speech was not about the mere speed of one's utterance.

Findings

The findings are analyzed and summarised below in terms of self-reflection and evaluation, feedback from co-teachers and the students in response to the researcher's questions.

The Researcher's Self-reflection and Evaluation

The researcher's self-reflection and evaluation (See Appendix C) focused on the general achievement of learning outcomes, a few important strengths, and weaknesses in terms of planning and teaching. Regarding planning, the researcher reflected that the lesson was staged well, and it was contextualized. While the former allowed learners to measure their learning through different stages of the class, the latter helped learners to participate in the lesson purposefully and meaningfully by listening to real-life fast speech. By contrast, the weaknesses of the planning were poor timing and inclusion of too much content letting the researcher hurry through the lesson and giving learners insufficient time to finish tasks. Moreover, the clarity of the audio was not good enough, and the number of micro-audios could have been fewer.

The significant teaching strengths were achieving the learning outcomes and paying individual attention to the learners. Most students could effectively review and practice the selected elided sounds and reduced forms, and the researcher could elicit the target language items from the learners individually. In contrast, the weaknesses were teacher-centeredness and limited learner interaction. The teacher-centeredness could not provide learners with enough time to practice reduced forms and elided sounds among themselves, and it affected group work or pair work in which students could discuss their answers through peer teaching benefiting from each other. As part of the reflection and the action plan to strengthen weakness, the researcher has suggested extra practice tasks focused on elision and reduction in fast speech.

The Observer's Feedback

The observer, despite many positive comments (See Appendix D), remarked that though the lesson was contextualized, all tasks were not related to the chosen context. The observer noted further that better organizing micro audios might impact the time the researcher spent making things happen in the class. Regarding students' engagement, the observed said that the engagement level was high, and it was one of the strengths of the class. About the learner-to-learner interaction, the senior teacher or the observer mentioned that the researcher could have made better use of the breakout rooms and let students speak about how they did things. With reference to the positive feedback on achieving the lesson aim, the observer agreed with the researcher's reflection that "Some learners could successfully review, and others could identify the reduced forms and elided sounds in English fast speech thus achieving the learning outcome".

Generally, the observer commented that though the lesson was quite an engaging one, it was not fully an effective listening lesson. The observer said that the lesson planning showed the researcher's comprehension of language and language learning and methodology. Both the planning and the implementation of the lesson reflected the researcher's awareness of learners as individuals, and as a group; however, the execution of the lesson could have been more effective, resulting in better learning. A good range of relevant and realistic assumptions, convincing commentary, increased levels of mostly purposeful student participation, good use of feedback, attentive and supportive monitoring, and a focused class were some of the strengths of the lesson. On the other hand, the observer felt that lesson aims, and outcomes were less challenging, and the number of anticipated problems and solutions were limited. Moreover, there was a limited variety of teacher roles in the teacher-led class in addition to less effective teaching techniques and procedures, which are considered weaknesses of the lesson for improvement.

Co-teachers' Feedback and Students' Feedback

Separate Google survey links were shared among the researchers' co-teachers and students after the lesson to collect their responses regarding the lesson. They were requested to mention at least some weaknesses and strengths of the lesson, and how they would like to see the class improved in the future.

A co-teacher remarked that the lesson outcomes were effectively achieved, and learners were engaged well throughout the course. Another teacher found 'stressing on the form of the word and the pronunciation of the word' quite interesting and caught her attention. In addition, the third teacher mentioned "practice to hear the words which are not easy to hear for a foreigner who is not a native speaker" is the strength of the lesson to the benefit of learners. On the drawbacks, one of the teachers responded that "instructions could be more effective to achieve an

effective interaction pattern” among students. Another teacher opined that “more time for participation, especially at the production stage” was required.

From the students’ point of view, one of the learners remarked that “I learned more about the native speaker tongue,” while another student stated that “the video from the PowerPoint not showing the proper video was not clear,” and this informs the researcher that he needs to pay more attention at the planning stage. Most students commented that the lesson helped them contribute to improving their listening skills.

Discussion

This study has yielded much-required insights into the process of planning and implementing a lesson for promoting decoding skills in listening through the process of bottom-up processing. The findings helped the researcher to find answers to the research questions: a) What are the researcher’s reflections on the practical lesson? and b) What are the lesson observer’s, the co-teachers’, and the student’s perceptions of the lesson?

Regarding the first question, the researcher could reflect on his lesson and find some negative and positive aspects of the process. The strengths of the planning were: a) the lesson stages and b) setting the lesson delivery in the context. Though the bottom-up processing focuses on linguistic elements, setting up a lesson in the right context is important. While the context helps learners to engage themselves meaningfully, carefully set stages of the lesson help them measure their progress. This also conveys the need for balancing top-down processing and bottom-up processing while the lesson focuses on the latter. The weak aspects of the planning were too many micro audios and failure on the part of the researcher to visualize the lesson time. Siegal and Siegal (2013) mention that learners especially L2 ones require careful and explicit practice of bottom-up processing in listening; to achieve this, teachers need to plan and implement each task thoughtfully assuming every possible challenge in the lesson. This apprises the researcher that bottom-up processing activities are time-consuming at times, and fewer achievable activities may be set giving learners enough time to comprehend, interact and practice the target items. Regarding teaching, it is important to involve learners in pair or group work so that they can peer teach and correct the pronunciation features emphasized in the study. The connected speech features such as elision and reduction may be teacher-taught and peer-practised as highlighted by Jose (2022). Moreover, the study found that there is a tendency towards teacher-centredness in lessons delivering bottom-up processing skills. In addition, it is important to analyse student needs before planning the lesson.

To answer research question two, the feedback from the observer highlighted the strengths such as a good range of assumptions, purposeful student engagement, supportive monitoring, and good feedback. The areas of improvement were the need for setting challenging aims, anticipating a wider range of problems, limiting teacher-centredness and using more effective teaching techniques. Similarly, the mixed responses from co-teachers found that students require more time for practice, and students’ focusing on linguistic items such as word stress and pronunciation in the lesson underlined the importance of engaging learners in bottom-up processing in English classrooms. The learner’s linguistic focus resembles what Nation and Newton (2009) stated in their study that BUP provides an opportunity for learners to enhance their awareness of different linguistic features. Finally, the students’ positive responses illustrate that lessons on bottom-up processing help promote their decoding skills in listening, and this agrees with the findings of other previous studies (Utomo & Sulistyowati, 2022; McDonald, 2020 Vargas & González, 2009).

Limitations of the Study

The study was carried out among 6 adult learners who were not regular EFL or ESL learners; therefore, the findings and conclusion may vary if the study was conducted among an increased number of learners with a higher volume of data. In addition, the lesson was administered online (Zoom) due to Covid 19 lockdown, whereas a similar face-to-face lesson may result in different dynamics and findings. The online playing of micro audios and grouping in break-out rooms, Internet connectivity of learners and the researchers, camera monitoring and so on caused an unfamiliar learning atmosphere in general. The lesson focused on BUP was the first of this kind in the series of lessons presented to learners, and the learners' first-time exposure to the lesson may not have helped form a mature perception. Another follow-up lesson would have helped the researcher gain better insights.

Conclusion

Overall, the aim of understanding the effectiveness of bottom-up processing in an ESL/EFL lesson in terms of planning, designing, and implementing the lesson was satisfactorily achieved in the study. The experimental lesson on the bottom-up processing for decoding to promote listening skills has been professionally enriching. The detailed planning of the lesson enabled the researcher to consider different aspects of planning that are usually ignored before regular lessons. For example, in addition to the target language analysis in line with the aims and the lesson structure, the detailed group profile, the assumed knowledge, anticipated problems and solutions along with others gave a clear background insight about the lesson. In addition, the selection of authentic listening materials helped invite learners' extraordinary attention to real-life fast speech appealing to their learning needs. The Test-Teach-Test structuring of the lesson enabled the researcher to measure and understand learners' learning and levels before teaching TL to them, and this also helped the researcher to facilitate group work and peer teaching among slow and robust learners. Finally, the researcher's self-reflection and evaluation generally matched with the input from the observer, co-teachers, and students, and all these, especially the feedback, equipped the researcher to implement similar lessons better, or follow-up sessions in the future.

Recommendations

On the grounds of the analysis, the findings and the conclusion, the following recommendations are made.

- Teachers and stakeholders in ELT should emphasize bottom-up processing in listening lessons.
- Activities for teaching bottom-up processing in listening lessons should be carefully set and implemented aimed at addressing learners' specific listening issues such as word boundaries – intrusion and catenation, graded textbook listening versus listening to everyday speech, spoken grammar, and written grammar, and strong and weak forms.
- A thorough lesson planning, including learners' needs and anticipating problems, can enhance the effectiveness of lessons.
- Experimental or practical lessons incorporating colleagues and an experienced observer can effectively contribute to professional development in specific areas of interest.
- An experimental lesson should be followed by a thorough self-reflection and evaluation focusing on the strengths and weaknesses of the lesson to reflect on the possible reasons and action plans for improvement.

- Teachers should incorporate diverse teaching techniques to ensure effective learner participation in listening classes focusing on bottom-up processing.
- Further studies on teaching bottom-up processing in diverse groups of learners from different backgrounds and teaching modes (online, face-to-face) may be conducted for an increased understanding of the application of principles of bottom-up processing for enhancing EFL/ESL learners' listening skills.

About the author

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Appendices
Appendix A
Lesson Procedure

Lesson Procedure				
Time	Stages & stage aims	Procedure	Interaction	Materials
3 – 5 min.	Warmer & Introduction To raise learners' interest in the lesson and attract their attention.	Warmer - Students watch and listen to a movie trailer. (2.25 min.) <i>Teacher: Here is a video. What is the main idea of the video?</i> https://www.youtube.com/watch?v=KrGyD4kHTSE	SS – Video	YouTube Video (Handout)
5 – 6 min.	Listening for gist (TEST) To further engage learners in the context. To diagnose learners' difficulty and	After the video (Warm-up), teacher plays the audio and instruct learners to try to understand the topic. <i>Listen to the audio again, and answer the following questions</i> 1. <i>What is the main idea of the video?</i> 2. <i>What problem are discussed in the video?</i> 3. <i>Does any aspects of conversation interest you? Why?</i> Teacher plays the audio. <u>TRAILER AUDIO</u> (1-2 min.) Learners are divided into discussion groups to compare what they listened to and discuss. BOR – 3 m. Monitoring and Feedback session: Teacher will take turns in joining groups to understand their difficulty. After the discussion, random group members share their group answers. Teacher elicits learners' responses highlighting decoding challenges related to the lesson aim if any.	TT - SS SS -SS TT - SS	Audio of the same video. (Handout 1)
5 - 6	Listening for details (TEST). To further engage learners in the context	Teacher plays the micro recording twice matching the transcript (part 1) displayed on PPTs. Learners see the cloze text and write their answers in the chat box/ on paper. Teacher displays the answers.	TT - SS	PPTs Handout 2
8 – 10 min.	Decoding while listening To create awareness	<i>Teacher: Now let us consider some features of the conversation that you have listened to.</i> <i>Are speakers speaking in fluent English?</i> <i>Do you find any differences between classroom listening?</i>	TT -TT - SS	Handout 3 PPTs

	<p>about decoding in the fast speech.</p> <p>To train learners in decoding.</p> <p>TEACH</p>	<p><i>and listening to the video?</i></p> <p>Teacher plays the phonemes in context for learners to better recognize the words in decoding process, and how they relate to each other.</p> <p>Learners drill the sounds.</p> <p>Teacher explains the targeted pronunciation features eliciting from learners, and highlighting linking, reduced forms (Analysis: Table 1).</p> <p>Monitoring and Feedback: Teacher drills correct pronunciation and plays the words in context.</p> <p>T. How do we pronounce 'for' and 'the' in spoken English?</p>	SS - SS	Handout 4 (Audios 1 – 8)
8 - 10 min.	<p>Intensive Decoding training (TEST)</p> <p>To create awareness, train and reinforce decoding skill. (TEACH).</p>	<p>Teacher plays extra micro-audios for learners to decode (All micro audios are from the same audio track played in stage 2)</p> <p>Learners type their answers in the chat box.</p> <p>Learners drills the pronunciation of reduced forms.</p> <p>Monitoring and feedback: Teacher</p>		Handout 5 (Audios 9 – 13)
8 - 12	<p>Consolidation (TEST)</p> <p>To recognize language chunks in fast speech.</p> <p>To reinforce learners' understanding of selected reduced forms.</p>	<p>Teacher plays chunks of words (selected from stages 3 & 4) in fast speech for decoding along with a few common chunks.</p> <p>Teacher asks learners to identify them in writing.</p> <p>Monitoring: Open Feedback and Discussion.</p> <p>Make sentences using those language chunks 3 – 4 min.</p>	TT – SS	Handout 6
5 - 8	<p>Evaluation & Feedback</p>	<p>Teachers divides learners into groups and ask them to practice their sentence in fast speech.</p> <p>Teacher monitors group discussion.</p> <p>Feedback: Some sample sentences are elicited after the discussion.</p> <p>Additionally, teacher some points practised in the lesson.</p> <p>Teacher: <i>In fast speech, what happens when a word ends with a consonant and the following word starts with a vowel?</i></p> <p><i>E.g., from every place</i></p>	SS - SS	Handout 7

		<p><i>Ss: 'they are joined/linked'</i> <i>Teacher: What happens to /t/ /d/ in most English fast speech?</i> <i>Ss: 'not pronounced clearly'- elided</i> <i>T. Do you have any questions or comments?</i> <i>SS</i></p>		
1 - 2	Conclusion	Teacher thanks learners for their participation and concludes the lesson.	<i>TT - SS</i>	

Appendix B
Individual profiles and Need Analysis

Students (S)	Interests	Learning style & Difficulties	Reasons for studying English	Appropriateness to the lesson
S1	Watching cartoon,	S1 is a bit shy, but attentive and interested in learning. He is the youngest, pursuing his university degree, and participates in lessons purposefully. He finds some difficulty in pronunciation and needs to improve his fluency.	He studies English for his learning and career while pursuing his bachelor's degree. He also wants to make more friends who speak English.	As a student, he is eager to learn from his teachers. Also, his enthusiasm to improve his English listening and speaking skills will help him benefit from this listening skill lesson.
S2	Reading and watching comedies.	An active participant in the discussion. Though he dominates discussions at times, he can keep the discussion busy. He is eager to attend lessons, and present in all classes. His English pronunciation is influenced by L1. However, he has a satisfactory level of English proficiency to accomplish challenging listening and speaking tasks.	S2 wants to improve his English-speaking skills. He is interested in getting to know English-speaking people and interacting with them. Also, he comes across English-speaking people in his workplace.	He can help others in group discussions. Decoding awareness tasks in the lesson can improve his pronunciation and comprehension. Moreover, since he is interested in watching movies and shows in English decoding awareness will help him listen, manage, and understand the content.
S3	watching films and TV series	S2 is attentive and willing to participate in group discussions. Though she attempts and succeeds in constructing	S2 studies English for professional development as an English teacher. Her attending classes is	S2 wants to improve communication with others, and this lesson on decoding listening will help

	<p>grammatically proper sentences, she has some difficulty in fluent speaking with the correct pronunciation. She attends all lessons and demonstrates good comprehension.</p>	<p>also a part of her ongoing education, and the course allows her communicating with people from other countries in English. And she thinks it is a funny and exciting way to use English in real-life.</p>	<p>her better understand what the speaker says and respond to them correctly. Also, being an English teacher, this lesson will help her advance her knowledge and skills, preparing her better teach her learners.</p>
S4	<p>Listening to English programs, doing sports.</p> <p>S3 is an active participant in the class. She is positively talkative and involved with group members. She pronounces some words with difficulty. Her English pronunciation also needs improvement. She was absent from one of the lessons.</p>	<p>S3 understands English is significant in her life. She understood it from working as an interpreter for some organizations in 2016. Therefore, she wanted to improve her listening and speaking skills to communicate with English-speaking people effectively</p>	<p>Her experience of working as an interpreter will attract her extra interest in this listening lesson, for interpreters require good listening skills to understand and interpret messages in spoken English. This lesson addresses her need to improve English listening skills, especially her English pronunciation, which needs improvement. She can motivate others in the group through her active participation in making the best of the lesson.</p>
S5	<p>traveling, theatres</p> <p>S4 actively participates in group discussions, and her level of English is above the class average. She helps other members to understand concepts well. She communicates in fluent English with some pronunciation difficulties. More exposure to natural English can advance her English proficiency. She has missed one lesson so far.</p>	<p>S4 wanted to speak English fluently with her English-speaking colleagues. Moreover, she wanted to develop her overall English proficiency.</p>	<p>She takes a leading role in group discussions, and her input can help others understand the class well. The lesson will help develop her in listening to audios, especially to native speakers' accent, and making meaning out of their talk.</p>

S6	<p>Doing exercises with the weight and modeling toys from clay</p>	<p>S5 is yet another pleasant and positive participant in the course. She listens to others and actively participates in group interactions. Her English fluency and pronunciation require improvement. She is present in all lessons.</p>	<p>S5 is learning English because she is interested in meeting English speaking people. In addition, she wanted to work with English-speaking clients and converse with them fluently.</p>	<p>Practical listening skill is crucial to her ambition of working with English-speaking clients, and the lesson will address her need to decode what English speakers speak. She is also a keen and robust learner who can support others in discussions.</p>
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Appendix C
Post lesson reflection and Evaluation

<p>Overall comment: The lesson was focused on making learners aware of the importance of decoding in listening skills especially listening to fast speech in off-the class situations. Overall, the lesson could achieve its learning outcome of making learners’ aware of reduction, linking and despite its drawback of less learner centredness, and the researchers felt that it was challenging enough to learners.</p>	
Planning	
Key strengths	Key weaknesses
<ol style="list-style-type: none"> 1. Staging the lesson 2. Planning the lesson focus in the context. 	<ol style="list-style-type: none"> 1. Failure to effectively visualise lesson time and the content to be covered. 2. Poor organizing, and inclusion of too many micro audio files on PPT causing confusing while administering.
How did this impact on learners’ progress in the lesson?	How did this impact on learners’ progress in the lesson?
<ol style="list-style-type: none"> 1. Learners could progressively and logically engage in the lesson from lesson introduction, gist listening, focused decoding awareness activity to feedback and consolidation. And learners could measure the progress of their learning in the lesson. 2. Selecting the context of an English movie trailer gave learners an opportunity to engage themselves with native speakers’ fast speech meaningfully and purposefully 	<ol style="list-style-type: none"> 1. More content makes me hurry from one stage to another not giving much time for learner interaction. For example, the feedback session after slide 4 was planned as a group activity but changed to a teacher-student feedback activity to finish the lesson on time. I will cut short the content i.e., shorter listening transcripts and fewer audios. 2. Wrong audios distract learners’ attention. I need to be more selective, and I should include only fewer micro audios on each slide.

especially weak and reduced sounds and elision.	
Teaching	
Key strengths	Key weaknesses
<ol style="list-style-type: none"> 1. Achieving the learning outcome 2. Individual attention – eliciting and giving feedback. 	<ol style="list-style-type: none"> 1. Teacher centredness 2. Poor learner to learner interaction
How did this impact on learners’ progress in the lesson?	How did this impact on learners’ progress in the lesson?
<ol style="list-style-type: none"> 1. Some learners could successfully review and other could identify the reduced forms and elided sounds in English fast speech thus achieving the learning outcome. 2. Since there were only five students, I could elicit answers from each student, and give everyone a part in T-S . 	<ol style="list-style-type: none"> 1. This gives less time for learners to discuss elided items and reduced forms in the sentences among themselves. To address it, I will ask learners to do the practice task in group first, and then I will take their feedback. 2. I need to pair and group learners after the testing stage for peer correction and feedback before the open feedback. Stronger and weak learners will benefit from each other. Need to improve breakout rooms management.

Suggestions for follow-up and consolidation

I would continue the lesson exploiting the second part of the audio script which I skipped in this lesson for decoding training and feedback. Learners will listen, and complete the cloze text, and compare and discuss their answers in groups or pairs. This is followed by their listening to speech chunks with reduced and elided sounds, writing them down and making sentences about themselves with those phrases. Finally. They will practice speaking and listening to those sentences in groups. This helps them personalise and practice fast speech in a learner-led manner.

<https://www.youtube.com/watch?v=KrGyD4kHTSE> –

Appendix D

The Observer's Feedback

Overall comment

This was quite an engaging but not fully effective listening lesson. You have achieved all six assessment categories. There are some criteria within the categories which are not met or met only partially, Your planning shows satisfactory understanding of language and language learning and methodology. Both your planning and execution only partially reflect your awareness of learners as individuals and as a group. The execution demonstrates your ability to provide, and to respond to, learning opportunities on only some occasions in the lesson. As a result, your preparation and delivery resulted in slightly less effective learning. In your evaluation, you were able to identify some key strengths and weaknesses of the lesson and the plan and outlined how the learning could be taken further.

The key strengths of the lesson were:

- a good range of relevant and realistic assumptions
- mostly clear and convincing commentary supported by your research (5k);
- high levels of mostly purposeful engagement
- good use of feedback
- attentive and supportive monitoring
- clearly focused lesson

The key weaknesses of the lesson were:

- less challenging aims and outcomes;
- limited range of anticipated problems and solutions
- very limited variety of teacher roles – a rather teacher-led class
- slightly less effective teaching techniques and procedures
- some issues with the platform and materials delaying the class