

Initiating Cognitive Listening Attributes in Diagnosing EFL Learners' Listening Sub-skills on the Basis of CSE

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Abstract

Bases on Field's mode of cognitive listening attributes(2013), this study proposes a modified cognitive hierarchic of listening attributes and applies it in diagnosing and remedying EFL learner's weak listening sub-skills during the whole process of CSE-based diagnostic listening test. Results show that the modified cognitive hierarchic of listening attributes and the dynamic hierarchic interaction between them play a key role in diagnosing and remedying EFL learner's weakness in listening comprehension. It also proves that the marriage of CSE and cognitive hierarchic listening attributes can serve as a helpful guidance and reference for learners and instructors to get weak listening sub-skills promoted.

Key words: Cognitive listening attributes; Cognitive hierarchic interaction; Diagnosis and remedy of EFL learner's listening sub-skills; CSE(China's Standards of English Language Ability)

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INTRODUCTION

According to China's Standards of English Language Ability (CSE), listening comprehension ability, as a kind of comprehensive cognitive ability, consists of a series of cognitive attributes related to listening activities, from the lower level to the highest, they are recognition, extraction, generalization, analysis, criticism and evaluation. More fortunately, It well agrees with Field's listening attributes of phonetic decoding, lexical search, parsing, meaning representation and discourse reproduction (2013).

In the light of statistical analysis provided by CNKI, **researches on CSE** started and then went up since 2013 when CSE development was initiated by the authority of the Ministry of National Education. But so far, only **few articles concerned**, partially written by the experts of CSE research team, have been published in the most quality and authoritative journals.

Other than to apply CSE, the oven-fresh outcome openly published in 2018, in English teaching, learning, testing and assessing, many researchers merely kept an eye on decoding and validating the sub-scales of CES, excluding few authors who initially took CSE as a reference to facilitate English writing (Pan, et al. 2019; Pan & Wu, 2019; He & Xiao, 2019), interpreting (Wang, 2017; Cao, 2019), speaking (Jie, 2019) and reading (Fan & Zeng, 2019), while **listening was less discussed**. In general, the existing application of CES just lies in facilitating a further design and grain of CSE, as a reference to formative assessment. Utilizing the description of writing abilities defined in CSE, Pan et al.(2019) worked out and validated the learners' self-assessment scale of English writing abilities (test before writing) and writing strategies (test after writing), which set an good example for formulating EFL learners' self-assessment scale of listening sub-skills in this study.

About 65% articles have focused more on the process of the formulation of CSE, including theoretical basis, collection of graded-ability descriptions and sub-scales'

validation in aspects of English writing (Pan, 2017, 2018, 2019; Zhang and Deng, 2019), reading (Zeng, 2017), listening (Min, et Al. 2018; He and Chen, 2017; Zhang and Zhao, 2017; He, 2017), speaking (Jin & Jie, 2017; Jie & Jin, 2017; Zhang & Jin, 2019), interpreting (Chen, 2019; Fang, 2019; etc.) and translating (Feng, 2019; Bai, et al. 2018), other than on an application level.

Another 15% articles involve the relationship between CSE and English learning (Liu, 2017), teaching (Liu, 2019) and testing or assessing (Liu, 2018; Yang and Liu, 2019). Particularly, Wu (2019) first theoretically and scientifically exemplified the interface of fine requirements by CSE scale with content standards of National Curriculum Standards, which might effectively better and benefit English teaching, learning and assessing both in compulsory education and higher education stage.

In short, CSE has been used as an authoritative guidance for English teaching, learning and assessment. But up to now, **few researches apply CSE in English listening study**, in spite of many theoretical researches have tested and proved its validity, feasibility and possible Effects.

Over the years, EFL learners have been trapped in listening section of any large-scale English proficiency test, such as IELTS, TOEFL, CET4 and TEM4 and so on. In order to solve their listening difficulties, scholars at home and abroad have carried out many targeted studies.

Many foreign studies tended to do **more** broad researches on listening strategies to deal with learners' listening difficulties, **than to conduct a systematic classification and assessment of micro-listening skills, and few diagnostic constructs are included.** Buck & Tatsuoka (1998) first ushered the construct of diagnosis into researches on the cognitive interaction process of listening attributes. **Alderson et al. (2014)** officially introduced diagnosis into the theoretical system of SFL assessment. It contains nine diagnostic principles, including diagnostic task, follow-up treatment and self-assessment, as well as three diagnostic steps, involving diagnosis, feedback and remedy. He particularly pointed out that diagnostic testing should focus on **learners' cognitive process and personal characteristics.** **Of few existing researches on diagnostic assessment of language abilities, It was the discussion on diagnosing listening skills (Harding et al., 2015; Sandhu, 2018) lagged behind those diagnosing reading abilities(e.g. Alderson et al. 2011, 2014, 2015; Mansouri, 2017; Pourcin and Cole, 2018).** Thereafter, the combination of diagnostic assessment of listening skills with cognition theory has given birth to a series of studies on diagnostic test of listening skills based on cognitive diagnostic model (CDA) (e.g. Conrad, 1985; Sawaki et al. 2009; Effatpanah, 2018; Aryadoust, 2018). According to **Field (2013)**, listening attributes (or sub-skills), covers two levels of processes: **one** is lower-level processes, including input decoding, lexical search and parsing;

the other is higher-level processes, including meaning-construction, and discourse representations. Up to now, there is still a critical question left to discuss how to initiate diagnostic assessment of EFL listeners' listening attributes to facilitate EFL learners' listening acquisition.

Domestic researches on the cognitive diagnosis and assessment of EFL learners' listening skills were not started until 2005. Thereafter, few existing researches mainly centered on the formulation of cognitive listening attributes (e.g. Fang, 2008), and the application and construction of cognitive diagnostic assessment model (e.g., Meng, 2013; Du & Ma, 2018; Xiao & Luo, 2019), even though Du & Ma (2021) had done the research on the inner relationship of second language reading skills based on hybrid cognitive Diagnostic Model, which provides a valuable reference for further study on inner relationship of EFL learners' listening sub-skills. It is worthy of attention that the existing classification and definition of cognitive listening attributes is not systematic and targeted enough. **Moreover**, above diagnostic analyses are mostly bottom-up, ignoring the top-down effect of cognitive interaction process of listening attributes. Min & Xiong (2019) confirmed the bottom-up and top-down interaction process of listening attributes from the perspective of compensation, but just focused on diagnosis rather than follow-up diagnosis and remedy. Therefore, it is vital to embed **CSE** in optimizing listening attributes, and deciding instant feedback and remedy, which might vice versa contribute to optimizing CSE.

In a nutshell, aiming at improving the rough classification, linear and single diagnosis of listening attributes, this study sets about to **reformulate** the scaled listening attributes based on cognitive diagnosis, and then put it into practice of diagnosing EFL learners' weaknesses in CSE-based listening test.

1. ADAPTING FIELD'S COGNITIVE LISTENING ATTRIBUTES

As depicted in Table 1, a Cognitive Hierarchic of Listening Attributes in comprehensive Listening has been worked out for follow-up diagnosis and remedy of learners' listening weaknesses. In light of Field's model, listening attributes can be included into five levels of listening cognition, among which it involves various interactions, as illustrated in Figure 1. It significantly clarifies how the lower levels of cognitive attributes interact with some higher levels of cognitive ones. For instance, the lower levels of phonetic decoding of homophones and similar sound words have something to do with the higher levels of attributes in terms of parsing and meaning representation.

As detailed in Table 1, the hierarchic framework of listening attributes fall into five categories, from the lowest to highest, they are phonetic decoding, lexical

search, parsing, meaning representation and discourse representation. When it comes to the first level of phonetic decoding, listeners must undergo the cognitive process of identifying the distinctive sounds of the target language, together with identifying the weak voices, homophones, and other similar sounds of words. Meanwhile or subsequently, it is definitely to carry out lexical searching through phonological matching, sense group dividing and spreading activation of their existing word bank. Second to the first two levels of a good matching of sound and form, how to catch on them in grammatical way ought to experience the cognitive process of identifying part of speech, tense, single or plural, inter-sentence pause and sentence structure. The first three levels of cognitive process in comprehensive listening can work together and accelerate the higher level of meaning representation, particularly interact with each other during a series of cognitive activities like extracting meaning in the “meaning construction” phase, detecting meanings expressed in different grammatical forms or sentences, inferring the meaning of new words in context, grasping the main idea, understanding cultural knowledge and etc. The highest level of discourse representation, to a great extent, primarily depends on how well listeners’ working memory works to retain chunks in different lengths; meanwhile catching up the speech at different rates is also required.

Table 1
Cognitive Hierarchic of Listening Attributes in Comprehensive Listening (Adapted from Field, 2013)

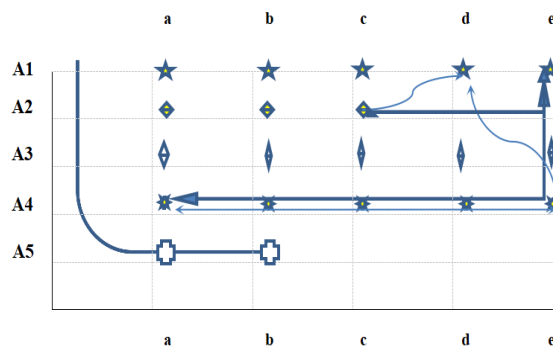
Level of processing	Identification of Listening Attributes	Cognitive Schema
A1. Phonetic decoding	a. Identifying the distinctive sounds of the target language	Bottom-up
	b. Identifying the liaisons	Bottom-up
	c. Identifying the weak voices	Bottom-up
	d. Identifying the homophones	Top-down
	e. Identifying the similar sound words	Top-down
A2. Lexical search	a. Phonological matching	Bottom-up
	b. Identifying sense group segmentation	Bottom-up
	c. Spreading activation	Top-down
A3. Parsing	a. Identifying part of speech	Bottom-up
	b. Distinguishing tense	Bottom-up
	c. Distinguishing single and plural	Bottom-up
	d. Distinguish inner-sentence pause from inter-sentence pause	Bottom-up
	e. Identifying sentence structure	Bottom-up
A4. Meaning representation	a. Extracting meaning in the “meaning construction” phase	Top-down
	b. Detecting meanings expressed in different grammatical forms/sentence	Top-down
	c. Inferring the meaning of new words in context	Top-down
	d. Grasping the main idea	Top-down
	e. Understanding of cultural-knowledge	Top-down
A5. Discourse representation	a. Retaining chunks of different lengths for short periods	Bottom-up
	b. Catching up the speech at different rates	Bottom-up

2. COGNITIVE HIERARCHIC INTERACTION BETWEEN LISTENING ATTRIBUTES

In addition, as clarified in the right column of cognitive schema (Table 1), in the process of listening comprehension, even a small part of lower level of listening attributes might undergone the top-down mental progress, for instance, while identifying homophones and similar-sound words listener’s must activate their existing bank of knowledge, stimulate and invoke their higher cognition of meaning representation, including meaning extracting, detecting, inferring and cultural knowledge. Thus we have got the other initiative findings of cognitive hierarchic interaction between listening attributes, as illustrated in Figure 1 & 2, which distinctively traced out the major four lines of interactive process between listening attributes across the top level and the down or vice versa. A1 to A5 represent the five cognitive hierarchic levels, respectively they are phonetic decoding, lexical search, parsing, meaning representation and discourse representation. While a to e stands for the listening attributes of each cognitive hierarchic level as showed in Table 1. The first line goes through phonetic decoding of homophones (A1 d) to lexical search of spreading activation (A2c) and finally resort to all sub-attributes of meaning representation level (A4 a-b-c-d-e), during which learners’ difficulty in identifying homophones must resort to activating their existing lexical bank with the help of the top level of meaning decision through extracting, detecting or inferring the meaning in the “homophones” phrase, and sometimes taking advantage of relevant cultural knowledge. Same as the first line, the Second line also undergoes the top-down cognitive interaction between listening attributes A1e, A2c, and A4 a-b-c-d-e. In detail, how well listeners can perceive and distinguish the similar sound words greatly depends on how well they can activate their present lexical bank by virtue of good meaning extracting, detecting, inferring, especially main idea’s understanding. Sometimes good command of cultural-knowledge plays a key role in facilitating perception of the similar sound words. While the third line runs through the lexical search of spreading activation and all attributes of meaning representation (A2c, A4 a-b-c-d-e), during which learners’ possible difficulty in lexical spreading activation must seek help from all listening attributes of the top level of meaning decision, The last line starts from the down level of phonetic decoding up to the top of discourse representation step by step (A1, A2, A3, A4, A5), during which the chain of bottom-up process of listening cognition acts as a whole theoretically in listening comprehension.

Above all, **cognitive hierarchic interactions** between listening attributes, **as depicted in Figure 1 & 2**, have been playing a significant role in facilitating listening comprehension. It is important to note that in some cases

listeners may have difficulty at some specific cognitive levels. Therefore any misunderstanding might happen due to inefficient interactions between different levels of attributes. Any break in the chain of cognitive interaction might lead to some mistakes or misunderstandings in listening comprehension. For instance, as showed in Figure1 & 2, within the first representative chain of cognitive hierarchic interactions between listening attributes, if listeners fail to take use of their cultural background to quickly activate their word bank, they might confuse the homophones either in sounds and form or even in meaning recognition. Accordingly, the cognitive hierarchic interactions of listening attributes will help us make a precise cognitive diagnosis of listeners' error and weaknesses in listening comprehension, thus efficiently gives aid to the follow-up treatments and remedy of listeners' cognitive listening weaknesses, such as misspelling of homophones, missing weakly-voiced consonants like -s, -ed and so on, which in turn contributed to incorrect listening comprehension in terms of meaning representation.



Notes:

★	A1	Chain 1: A1 d → (A2c; A4abcde)
◆	A2	Chain 2: A1 e → (A2c; A4abcde)
◇	A3	Chain 3: A2 c → (A4 abcde)
☆	A4	Chain 4: (A1 A2 A3 A4 A5
□	A5	

Figure 1 Cognitive Hierarchic Interaction of Listening Attributes

Lower				a	b	c	d	e
Sounds	A1	Phonetic decoding	sounds	liaison	weak voice&elisi	homophones	similar sounds	
	A2	Lexical search	Phonological matching	Identifying sense group segmentation	Spreading activation			
Grammar	A3	Parsing	Identifying part of speech	Distinguishing tense	Distinguishing single and plural	Distinguish logical connection between sentences	Identifying sentence structure	
	A4	Meaning representation	Extracting meaning in the "meaning construction" phase	Detecting meanings expressed in different grammatical forms/sentence	Inferring the meaning of new words in context	Grasping the main idea	Understanding of cultural-knowledge	
Higher	Memory	A5	Discourse representation	Retaining chunks of different lengths for	Catching up the speech at different rates			

Figure 2 Cognitive Hierarchic Interaction between Listening Attributes

3. IMPLEMENTING COGNITIVE HIERARCHIC OF LISTENING ATTRIBUTES IN DIAGNOSING EFL LEARNER'S LISTENING SUB-SKILLS ON THE BASIS OF CSE

Above cognitive listening attributes as illustrated in Figure 2 can be fully involved in diagnosing EFL learners' listening sub-skills, and helps to interpret the complex mental process of learner's perception of listening material.

3.1 Implementation of CSE-Based Cognitive Listening Test

As elaborated in CSE, listening comprehension ability, as a kind of comprehensive cognitive ability, is composed of cognitive abilities related to listening activities, such as recognition, extraction, generalization, analysis, criticism and evaluation. The listening comprehension scale includes comprehension of oral description, comprehension of oral narration, comprehension of oral explanation, comprehension of oral instruction, Understanding oral discourse and oral interaction in six aspects, upon which Udig listening test has been initiated and applied in facilitating college English learner's listening comprehension.

3.1.1 Udig Listening Test

Udig (college edition) is a kind of online testing system initiated by foreign language teaching and research press, it adopts iWay, an English proficiency level test system of adaptive algorithm, it can automatically distribute question items and match them with EFL test takers' English proficiency. It is committed to providing precise English teaching and self-directed learning for college students. It provides detailed multi-skill diagnostic assessment and class placement test for college teachers and students, and provides instant and rich individual and class feedback reports to promote and facilitate EFL learner's learning development.

By means of the diagnostic testing system (Udig), EFL test takers will be allocated different levels of listening test based on CSE, according to their own language proficiency involved in pilot testing and their English scores in college entrance examination. The test is self-adaptive and time-limited. Its testing items cover **four basic types of listening materials**: news (N), talk(T), monologue(M) and dialogue(D). **Six listening sub-skills on CSE-based three levels (level4, 5, 6) are included in** such as understanding inter-sentence relations (SR), inferring speakers' intention(SI),acquiring detail information (DI),inferring speakers' opinion and attitude (APT), understanding the main idea(MI) and making a general inference (GI).

3.1.2 Test Takers as EFL Learners

In this research, six natural classes of English majors (BE5191, EE5191, EE5192, EE5193, EE5194, EM5191) have been enlisted as the study participants as EFL learners. during two successive school terms, all of them need to take part in Udig listening plus testing (including listening, grammar, writing, reading and vocabulary

test) first and then TEM4 mocks in between to help to test how the cognitive listening attributes work in diagnosing learners' listening sub-skills and how the diagnostic assessment of EFL learner's listening sub-skills contributes to learners' comprehensive listening growth.

Six classes of study participants as EFL learners are second year of college English majors, their English proficiency reach to CSE-4 level, some of them go beyond and are potential to advance to higher level of CSE-5 or CSE-6. Before listening test, all of study participants have been instructed how to use Udig for diagnostic listening test, including the whole procedures of testing, such as examination of necessary computer conditions, register, login-in, filling-up individual information, taking pilot test, taking formal test, read and download diagnostic report.

All preparation is be done before participants' listening test taking. In this study, participants' pretest and interim test would be the focus to explore how cognitive diagnosis attributes scale get involved in and contribute to diagnosing participants' English listening sub-skills diagnosis.

3.2 Test Results

As illustrated in Table 2, a result from pre-Udigtest, learners are strongly weak in such listening sub-skills as **inferring** speakers' intention at the fifth and sixth level of CSE (SI4, SI5), acquiring detail information at the sixth level (DI6), **inferring** speaker's attitudes, views and tone at the fourth and fifth level (APT4, APT5), and making a general inference at the fifth and sixth level(GI5,GI6). While the interim-test result see test takers' progress in acquiring detail information and slight promotion in **general inference** but little progress in **inferring** speaker's intention and attitudes.

Table 2
Pretest Result of Weak Listening Sub-skills

Items	SR6	SI4	SI5*	SI6	DI4	DI5	DI6	APT4	APT5*	GI5↓	GI6↓
BE5191		18.1	16.7		18.4	12		12.9	10.3	12.7	
EE5191	15	19.3	15	15	17.2	19	12	12.9	10.3	16.5	12
EE5192	23	18.6	10	8	16.9	17.5	15	15.6	12.8	14	6
EE5193		13	15		16	19		11.6	11.3	6.3	
EE5194	15	16.5	18.3	15	14.6	23.5	9	13.2	11.7	14	12
EM5191		17.3	8.9		17.4	15.2		13.8	11.1	12.5	
Median	15	17.7	15	15	17.05	18.25	12	13.05	11.2	13.35	12
Mean	17.67	17.13	13.98	12.67	16.75	17.70	12.00	13.33	11.25	12.67	10.00
SD	3.77	2.05	3.41	3.30	1.19	3.55	2.45	1.21	0.86	3.13	2.83
Mean-60%*Total Score	-0.33	-0.87	<u>-4.02</u>	<u>-5.33</u>	-1.25	-0.30	<u>-6.00</u>	<u>-4.67</u>	<u>-6.75</u>	<u>-5.33</u>	<u>-8.00</u>

Table 3
Interim-test Result of Weak Listening Sub-skills

Items	SR4	SR5	SI5*	DI5	APT5	APT6	GI5	GI6	MI 6
Median	<u>17</u>	14	14	18	13	16	14	15	10
Mean	<u>18</u>	15	15	17	15	18	12	15	12
SD	9	8	8	7	7	5	8	8	7
Mean-60%*Total Score	-1	<u>-4</u>	<u>-4</u>	-0.3	<u>-5</u>	-2	<u>-4</u>	<u>-3</u>	<u>-8</u>

3.3 Data Analysis

To discuss and analyze why learners find it so difficult in dealing with **inference**, as the study result reported in **Table 2 and 3**, we need to trace back to the whole process of listening perception and seek for what hinder the way in light of the rules of how listening attributes interact with each other across the lower levels and the higher ones. By means of learners' self-reflection on their own difficulty in conducting inference, we conducted an interview and come to the conclusion that doing inference is a complex process of listening perception, it heavily relies on learners' precise perception of the meaning of each sense group within the context. It concerns a bottom-up or top-down perception interaction between sound, parsing and meaning, during which, the precise diagnosis of weak point may help learners have a clear understanding of the meaning hide behind. However, there might be small step forward in catching on the implied meaning until learners have comprehensive promotion in listening plus items.

3.3.1 Applying Cognitive Listening Attributes Scale in Diagnosing EFL Learners' Weakness

To verify the reliability and validity of above adapted listening attributes, as detailed in Table1, it has been transformed into a listening attributes scale and then experimentally used in learners' self-assessing of their own listening strength and weakness after listening practice. As an important supplement to Udig general listening sub-skills, It also can be used as an important measure to facilitate instructors' precise diagnosis and to-the-weakness follow-up treatment in part 3.3.2. In addition to following cognitive listening attributes scale, learners are required to reflect their listening process and marked down all of the possible reasons for listening perception failure, for example, after they finish the cognitive listening attributes scale as a self-assessing scale, they'd refer to Figure 4, and make clear how other hierarchic level of listening attributes get in the way of their listening perception. This process can be initially named as a deep self-assessment of listening perception.

As showed in Table 4, the cognitive listening attributes can be used as a scale to diagnostically assess students' degrees of difficulty at each level of mental process, they are prone to be top-down, or bottom-up or even interaction-oriented when making an inference.

First, cognitive listening attributes can be used as a tool to find out what factors thwart students' accurate understand of the meaning through inference. With the tool, a survey has been conducted to detect students' weakness in making an inference, the result reports that large part of student's weakness in making a inference stems in part from failure in phonetic decoding of identifying the homophones and similar sound words, it's root reason might come to inaccurate understanding of the meaning in context. Another reasons like inefficient lexical search of spreading activation and poor understanding of

the new words in context also serve as an explanation for students' failure in making an inference.

Apart from being a tool for students' self-diagnosis of their weak listening sub-skills, teachers can also use it as a diagnostic tool when observing students' listening process within class and analyzing students' false in listening exercise off class. The effective use of this tool has been confirmed by students' self-reflection of their mental process of listening comprehension.

Table 4
Cognitive Listening Attributes Scale

Level of processing	Identification of Listening Attributes	Scale of difficulty
A1. Phonetic decoding	a. Identifying the distinctive sounds of the target language	1 2 3 4 5
	b. Identifying the liaisons	1 2 3 4 5
	c. Identifying the weak voices	1 2 3 4 5
	d. Identifying the homophones	1 2 3 4 5
	e. Identifying the similar sound words	1 2 3 4 5
A2. Lexical search	a. Phonological matching	1 2 3 4 5
	b. Identifying sense group segmentation	1 2 3 4 5
	c. Spreading activation	1 2 3 4 5
A3. Parsing	a. Identifying part of speech	1 2 3 4 5
	b. Distinguishing tense	1 2 3 4 5
	c. Distinguishing single and plural	1 2 3 4 5
	d. Distinguish inner-sentence pause from inter-sentence pause	1 2 3 4 5
	e. Identifying sentence structure	1 2 3 4 5
A4. Meaning representation	a. Extracting meaning in the "meaning construction" phase	1 2 3 4 5
	b. Detecting meanings expressed in different grammatical forms/sentence	1 2 3 4 5
	c. Inferring the meaning of new words in context	1 2 3 4 5
	d. Grasping the main idea	1 2 3 4 5
	e. Understanding of cultural-knowledge	1 2 3 4 5
A5. Discourse representation	a. Retaining chunks of different lengths for short periods	1 2 3 4 5
	b. Catching up the speech at different rates	1 2 3 4 5

Learners' self-assessment of their listening strength and weakness based on above assessment scale results in that learners of higher level listening proficiency are more prone to feel difficult in perception of higher level of listening attributes, and then vice versa.

3.3.2 Applying Cognitive Listening Attributes Scale in Remediating EFL Learners' Weakness

According to learners' self-assessment results and the CSE-based Udig test results as showed in table 2&3, the targeted remedy strategies, as showed in **Table 5**, have been worked out to overcome listeners' possible difficulties in each level of cognitive attributes. As for those EFL learners who are weak at level of phonetic decoding of sounds like liaison, homophones, weak voice and similar sounds, they can be grouped in shadowing practice of those sounds they most possibly

frown upon: daily step-by-step practice of shadowing-recording-reflecting-promoting are well-prepared to be conducted progressively from sense groups shadowing to short simple sentence practice and then to long simple sentences and last to complex sentences practice, during which the choice of listening material ought to be decided by learners' particular weaknesses, for instance, the consonant-vowel-liaison-frustrated group prefer to do practice of liaison-intensive listening materials, especially focus on consonant-vowel liaison. Shadowing is a practice of sounds imitating, nearly start as soon as the recording begin, engaging in following the speed, imitating its pause, rising and falling tone, as well as stress. The whole process is suggested to be recorded for later playback to check and reflect if there's still weakness in some place, thus facilitate the follow-up remedy. **If some learners feel difficult in lexical researching, the incidental acquisition of vocabulary can benefit them a lot** through a set of effective ways as listening and speaking mode, listening to translation

mode and read to write mode of incidental acquisition of vocabulary. **When some group of learners are not good at parsing**, the Incidental acquisition of Grammatical knowledge, application-oriented experiential acquisition of grammatical knowledge, do good to improve their skills on grammatical construction. **As for those persons who are poor at meaning representation**, a system of listening plus training will lend them a great hand, they are listening plus interpretation, listening plus intensive reading, listening plus grammar, listening plus writing and so on. **With regard to discourse representation**, daily advanced training of listening dictation, first from simple sentences, then to complex sentences, and last to paragraphs, together with shadowing practice do contribute to great progress. On top of above remedies and strategies, learners are trained to compose their self-reflection and include their growth in each practice in a listening plus portfolio, which might be a highway leading to their listening progress and advanced assessing literacy.

Table 5
Targeted Attributes Remedy Strategy

Attributes	Remedy & Strategy: Graded nurturing, advanced Promotion	Cognition
A1 Phonetic decoding	1. Shadowing Practice: shadowing-recording-reflecting-promoting in Daily Step-by-step practice: sense groups-short simple sentence-long simple sentences-complex sentence	to recognize
A2 Lxical search	2. Incidental acquisition of vocabulary: listening and speaking mode;Listening to translation mode; Read and write mode	to recognize
A3 Parsing	3. Incidental acquisition of Grammatical knowledge: application-oriented experiential acquisition of grammatical knowledge	to recognize
A4 Meaning representation	4.Listening + comprehensive training: listening + interpretation;Listening + intensive reading;Listening + Grammar;Listening + writing	to extract to generalize to
A5 Discourse representation	5.Daily advanced training of listening dictation: Meaning group & simple sentence - complex sentence - sentence group - paragraph	analyze to criticize to assess

3.3.3 Applying Cognitive Hierarchic Interaction of Listening Attributes in Remediating EFL Learners' Weakness

Apart from implementing remedies from single level of cognitive listening attributes, the cognitive hierarchic interaction of listening attributes elaborated in Figure 1 & 2, also helps explain how learners get trapped in making an inference. When we have clear understanding of why and how learners are troubled in better understanding of the meaning in context, we can strive for instant follow-up treatment and remedy for learners' weakness.

For example, as Figure 1&2 depicted, learner's weakness in making an inference (reported in Table 2 & 3) can be explained by the dynamic interaction within listener's mental process of meaning representation, lexical research and phonetic decoding. The lowest level of factors might hobble learners' cognition of inference is learners' difficulty in phonetic decoding of homophones, different words of similar sounds. If only learner's can successfully activate their lexical research and then instantly make a right choice of the meaning in context even though new

words are involved, their obstacle in phonetic identification will soon be cleared up. If learners are unable to activate their previous lexical reserve, and fail in deciding meaning of new words in context, the mental process of making an inference will come to the end halfway, which enlighten us in what way can we make efforts promoting our higher level of listening sub-skills like making an inference: in the first place, single level of weak listening attribute concerned must be taken into account as stated in part 3.1.1; in the second place, how to make an effective dynamic interaction between lower level of listening attributes with the higher ones and then encourage their mutual complementary effects would play an important role in promoting learners' listening ability to make a good inference. For example, if students are weaker in making an inference due to poor decoding of difficult sounds, they can make an instant remedy and improve more by **doing more practice of making inference in reading, acquiring rhetoric devices in context, learning to use indirect ways to express one's own opinion, drawing mind-map to build an overall view of discourse construction.**

Therefore, cognitive hierarchic interaction of listening attributes also serves as a guidance and reference for us to make an accurate diagnosis and instant remedy for learners' weak listening sub-skills.

4. DISCUSSION AND CONCLUSION

In answer to the research questions raised at the preface part, this study adapts and modifies Field's cognitive listening attributes and elaborates the cognitive hierarchic interaction between them according to EFL learner's learning status, and then puts it into practice in diagnosing and remedying EFL learner's weak listening sub-skills through CSE-based diagnostic listening test, and comes to the conclusion that both the modified cognitive listening attributes and the cognitive hierarchic interaction of listening attributes work well in diagnosing and remedying EFL learner's weakness in listening comprehension. It proves that both of them serve as a helpful guidance and reference for learners and instructors to make an accurate diagnosis and instant remedy for learners' weak listening sub-skills. While the validity and reliability of the modified cognitive listening attributes and its cognitive hierarchic interaction mode will be confirmed in further researches of listening practice such as passage dictation.

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