

# Phonetic Speech Perception of Short Text and Information Processing Strategy of Continuum

YANG ZhiShang<sup>1, a</sup>

<sup>1</sup>Changsha Medical University, Changsha, Hunan, 413000 China

<sup>a</sup>284204813@qq.com

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**Abstract.** The information processing in listening short text of college English is always difficult for the college students, which has several factors. The paper starts from the internal characteristics “unity” of listening text structure of short passage to discuss the strategy in information processing by text continuum so as to search for the way of avoiding the shortages and exerting the advantages in phonetic speech perception of short passage.

## Introduction

Information processing is a series of continuous encoding and decoding processes in human cognitive psychology. The results show that processing strategy plays an important role in information understanding, memory and information output. Listening is an accepted language activity, so the processing strategy of English interlanguage listening information mainly involves how to deal with input foreign language materials. Although the study of foreign language strategies has been strengthened in recent years, the study of listening comprehension is relatively few, and the study of listening strategies is limited". Listening information processing strategy involves semantic strategy, word order strategy, syntactic strategy, etc. This paper discusses the whole information processing strategy of text perception in College English listening comprehension.

1. The phonological perception of short passages and the analysis of continuous information processing strategy

Perception is an important research field in cognitive psychology. Perception arises from the interaction between human perception of realistic stimuli and the storage of language knowledge and experience in the brain. It is the process of organization and interpretation of sensory information, that is, the process of acquiring auditory information meaning. College English listening course of information processing is mainly speech perception (also called speech decoding) process, namely when the speaker conveys his thoughts into an external form by speech (English phonemes), and the listener will transfer what is in the form of external representation of meaning, that is called the extraction process of proposition of deep structure from surface. The process of speech perception is very complicated. In this process, the listener not only makes the speech stimuli flow through his auditory organ in turn but simply uses the knowledge experience in his own cognitive system to identify, analyze and integrate the information so that the overall processing of information could be completed. Text refers to a meaningful language unit that conveys a complete message, logical continuity, language cohesion, and has certain communicative purposes and functions. A language unit no matter how long it is, as long as the above definition, you can call it discourse. Passages of college English listening consist of a series of sentences that contain their own information, and sentences consist of words of their own meanings. Just as the meaning of a sentence does not equal the sum of the meanings of the words contained in the sentence, the meanings of the short textual discourse are not exactly equal to the superposition of the meanings of the single sentences contained in the discourse. Compared with short sentences and short conversable texts, the understanding of short texts is more dependent on the students' "cognitive organization, cognitive structure and their internal mental schema". Therefore, the

overall information processing strategy is more needed to capture the sequence structure of a series of messages conveyed by a steady flow of eardrums, and the relationship among the sentences in a discourse should be clarified. Select the key meaning or the dominant meaning of the sentence, understand the motivation of discourse and comprehend the meaning of discourse.

### A. Initial Consciousness Confusion Analysis

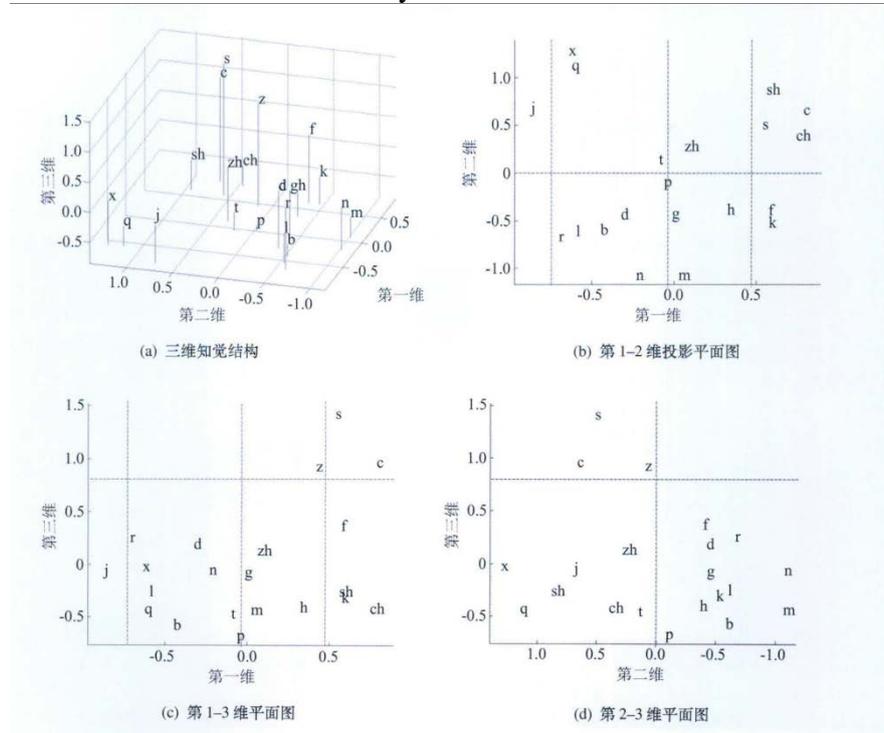


Figure 1 the initial consonant spatial structure of three-dimensional perception and projection of each plane

As can be seen from the figure, the distribution of consonants in the perceptual space is closely related to the phonetic parts of the body and the pronunciation method. The lingual tone (j, q, x), tongue anterior tone (z, e, s) and tongue rear sound (zh, eh, sh) each form a cluster with very close distances within the cluster and far from the rest of the initials. These 3 clusters of initials are exactly 3 sets of neatly matched rasping and fricatives in Mandarin, all of which have frictional characteristics. In addition to the lingual tone and the anterior and posterior tone of tongue tip, the remaining initials according to the time value feature can be divided into longer pronounced phonetic (f, h, k, p, t) and shorter phonetic (m, n, b, l, r, d, g). As the consonants of the sound length is directly related to the air supply status, the length of the air supply sound is much longer, otherwise it is shorter, fricative can be considered as having the nature of the air. Therefore, the remaining initials can also be regarded as both aspirated and non-aspirated. In addition, it is noteworthy that clear initials and voiced consonants did not show obvious estrangement in perceptual space. Only the nasal tone (m, n) in voiced sounds is very close, and the edge sound l and the voiced sound r are closer to the unvoiced tone. The above characteristics reflect that the consonant perception in the reverberation environment seems to be mainly related to the pronunciation part and the sound length characteristics of the tongue (air supply), and the distinguishing effect of the voicing characteristics is not obvious, which is also shown in the consonant cluster relationship shown in Fig. 4.

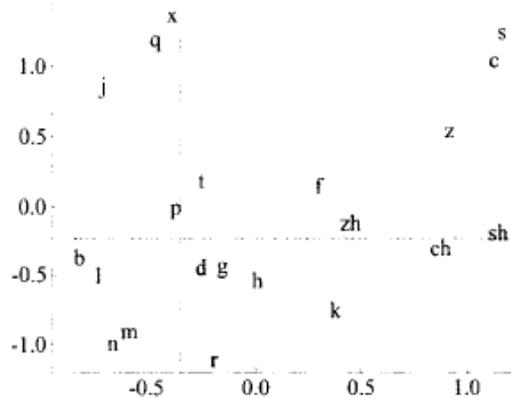


Fig.2 Two-dimensional consonant structure of initials

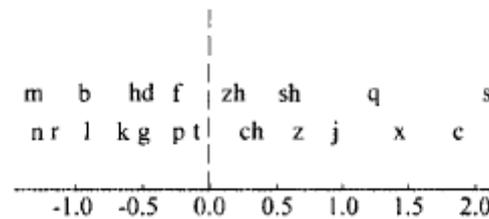


Fig.3 One-dimensional consonant structure of initials

Most of the vowels of the bright segment with l or U of tongue position are mostly distributed on the right, and the vowels of the bright segment of e, O with the tongue position in the middle are mainly distributed in the middle of the horizontal axis. Vowels best one-dimensional perception structure is shown in Figure 5. Although the normalized residuals of this structure are already quite large, the axis of abscissa still reflects the tendency of the vowels to be distributed according to the pronunciation characteristics of the initial vowels. It shows that the vowel of the initial vowel is the main perceptual feature of vowels.

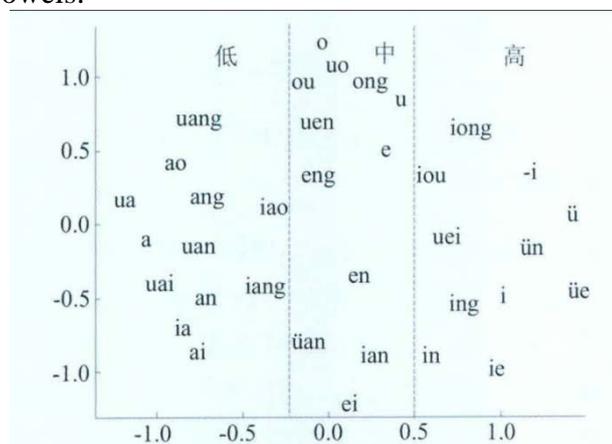


Figure 4 vowel two-dimensional perception structure

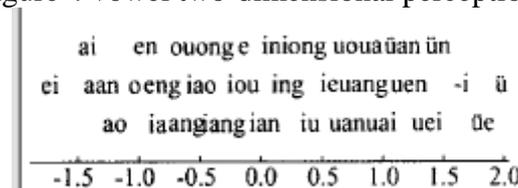


Figure 5 Vowels one-dimensional perception structure

### B. Phrase Discourse Perception and Continuum Information Processing

Experimental results of Chinese phonetic learners' speech acquisition also show that they play an important role in the pronunciation of voiced and unvoiced voices.

As can be seen from Table 1, t-test results show that the VOT values of two pronunciations do not change much, so the  $p$  values are greater than 0.05. In the English part of the voiced Cypriot pitch, the mean value of positive and negative changes, both before training were positive, but after

training its VOT values have become negative; t-test results also show that before and after the two stop pronunciations of that have significant differences, Wherein [b] [d] has a value of  $p < 0.001$  and [g] has a value of  $p < 0.01$ . As for the plosive sound part of the word, all the plosive sound pronunciations have significant changes except [g], in which the VOT value of plosive sound is significantly shorter than that of the first pronunciation, the most significant change is [t],  $t = 10.19$ ,  $p < 0.001$ ; and the voiced stoppit [b] [d] VOT value from positive to negative, and  $p \leq 0.001$ . However, although the VOT values in the [g] sound words changed for the first time, they did not reach significant differences.

Table 1 multilingual English stops VOT value change

p	t	k	b	d	g
42.3	45.6	53.7	8.1	8.8	14.1
43.4	50.6	55.9	-51.2	-49.6	-49.2
$t=0.893$ ; $\rho=0.398$	$t=1.015$ ; $\rho=0.340$	$t=0.402$ ; $\rho=0.967$	$t=-13.69$ ; $\rho=0.000***$	$t=-11.68$ ; $\rho=0.000***$	$t=-8.989$ ; $\rho=0.004**$
41.8	48.9	54.6	6.8	9.8	15.6
14.5	13.8	32.5	-40.5	-32.1	6.69
$t=7.487$ ; $\rho=0.009**$	$t=10.19$ ; $\rho=0.000***$	$t=-3.330$ ; $\rho=0.010*$	$t=-9.997$ ; $\rho=0.000***$	$t=-8.964$ ; $\rho=0.001**$	$t=1.604$ ; $\rho=0.147$

### C. Phonological perception of C. short text and the processing method of continuum information

The advantages of short passages in listening texts come from the internal factors of text formation - integrity and coherence. It has positive effects on listening comprehension:

1) The cohesion of short passages can reduce the dispersion of attention.

Cohesion is the connection of sentences in language and surface structure, which makes the speaker's scattered sentences cross the boundary of the sentence, and attracts the attention of the listener. Cohesion is a semantic concept, which exists in the text, and is an important means to promote the coherence of text. There are anaphora, substitution, ellipsis, transition and repetition in the cohesive devices between sentences.

2) Coherence of textual content in short passages can overcome the small capacity of short-term memory. Coherence refers to the meaning of a discourse or the different parts of a text. Coherence is the core of discourse analysis. Short text is always a series of mutually coherent sentences, extended discussion of an event or topic, coherence is the most basic feature of essay discourse. It is in the speaker's mind and can't find a clue at the discourse level. Cohesion is the tangible network of text, and coherence is the invisible frame of the whole meaning of a text.

3) The passage of the logic of the listener could share the speaker's thought. Any text is a unified language unit, is the unity of the content of thought and the form of thinking. In the description of an event or point of view, the words must have the corresponding proposition, facts or evidence and it accords with human cognitive logic development process or reasoning steps, with the process of the speaker and the listener on implicit dialogue, mutual effect will be come out.

4) The passage provides comprehensive context in order to overcome the difficulties of words and sentence listening convenience. For a short sentence in discourse, discourse is undoubtedly a large context, special language environment provides the general context in discourse on the sentence, paragraph or even the whole discourse and discourse topic provided by the minority provide a basis for listeners to guess who did not understand the words and sentences.

5) The background knowledge in the process of listening comprehension can help the listener to predict the next step of the text according to the overall features of the text. One side can reduce the difficulty of subsequent listening comprehension, and the other can control attention, inhibit the irrelevant Association in the brain, and avoid the phenomenon of wandering.

6) Short discourse test motif can reduce short-term memory pressure. The design of the essay questions is different from that of the short conversational texts. Generally speaking, the essay

examines the listener's understanding of the main content of the essay. In the details, the implicit vague language can replace the precise language in the essay to reduce the memory pressure.

In the advanced stage of English listening teaching, because of the rapid and transient characteristics of the listening process, the material we listen to is oral discourse, and there is not much clue to the coherence of discourse. Therefore, the background knowledge is especially important. The top-down teaching method is more effective.

## **Conclusion**

Cognitive psychology believes that the process of cognitive psychology is the acquisition, processing, storage and usage of information, the "processing" is an important part. After external information is obtained, the human brain needs to transform and process it, and form a whole network system with known information so as to achieve the cognitive effect. "Listening" is the most widely used way for people to obtain information. Nowadays English has become the common language of international political, economic, scientific and cultural exchanges, becoming the main language for information technology and informationization in the information era. The ability to process English listening information naturally becomes the people Cognitive world, international exchange, the most commonly used to build knowledge network important ability. Therefore, to explore strategies to effectively improve the processing power of college students' listening information has become one of the urgent tasks of English educators.

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