A Cognitive Study on Chinese EFL Learners’ Visual Processing Difference of English Words Written in Capital and Small Letters

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Abstract. See that an English word could be written as the form of small letters and the form of capital letters, this paper, based on the theoretical framework of acquisition process in reference to words, aims at investigating the visual processing differences between English words written in small letters and English words written in capital letters for Chinese EFL learners in accordance with linguistics, psycholinguistics and cognitive psychology.

Introduction

Words are the fundamental elements in language. As Wilkins [1] put it, “Without grammar, little can be conveyed; without words, nothing can be conveyed.”

A writing system, also called a script, is used to visually record a language with symbols. Writing systems are distinguished from other possible symbolic communication systems in that one must usually understand something of the associated spoken language to comprehend the text. [2] The types of writing systems are typically distinguished [3]: a) alphabetic (e.g., English) b) syllabic (e.g., Japanese) c) and logographic (e.g., Chinese).

In English, each letter of the English alphabet may be written as a small letter (a or b or c...) or as a large or capital letter (A or B or C...). Consequently, each word in English language may be written in the form of small letters, the form of capitalizing the first letter and the form of capital letters, e.g. an English word ‘march’ could be written as the form of small letters—‘march’, or as the form of capitalizing the first letter—‘March’, or as the form of capital letters—‘MARCH’.

In English, capital letters are used in words mainly for the first person pronoun ‘I’; for the first letter of a word to begin sentences, names, days of the week, months of the year, holidays, countries, languages & nationalities, and religions; for some abbreviations and acronyms (e.g. APEC for The Asia-Pacific Economic Cooperation); for trade-marks and names of companies and other organizations (e.g. Walkman); for places and monuments (e.g. the White House); for titles of books, poems, songs, plays, films etc. (e.g. Gone With The Wind).

Nevertheless, it is not usual to write whole sentences in capitals. It’s rarely to see an article or a book written completely in capitals. A sentence or paragraph written in capitals is extremely difficult to read. We cannot easily read large amounts of text in capital letters.

But English words written in capital letters for headings, titles of articles, books etc., or newspaper headlines are frequently used in our daily life, e.g. HOW TO WIN AT POKER; TWENTY-FIRST CENTURY COLLEGE ENGLISH; LIFE FOUND ON MARS!; SENSE AND SENSIBILITY. It is a common fact that native speakers make no trouble in recognizing the above capital letters’ English words on the grounds that they acquire capital letters from the outset when they’re exposed to their mother tongue. However, capital letters, especially these English words written in capital letters are a big torment to recognize for EFL learners whose native language is Chinese. In other words, English words written in capital letters are likely to induce a “shock” in Chinese EFL learners.

In the past, the English writing system has attracted a good deal of research from linguists, psychologists, and educators because of its complexity. However, the research realm mainly
concerns the orthography which is defined as a method of mapping the sounds of a language onto a set of written symbols, or the representation of a sound by written or printed symbols [4]. Until recently, almost all the researches on capital and small letters have been done from the perspective of semantic distinctions or writing criteria (for example: there’s an English word ‘march’. When written in small letter, it means “to walk steadily and rhythmically forward in step with others”, whereas if we capitalize the first letter into ‘March’, it refers to the third month of the year in the Gregorian calendar.). Only few are about the recognition difference between English words written in small and capital letters. The present study will then explore the word recognition of English words written in small and capital letters among Chinese EFL learners from the cognitive and psychological angle.

The Interview

The general approach used in this study was to collect interview data from the college EFL learners on their use of visual processing strategies in recognizing English words written in capital letters and its corresponding ones written in small letters. The interview was carried out individually in the No.1 Listening & Speaking English Lab in Xi’an University of Technology.

The subjects were 16 voluntary college undergraduates of Xi’an University of Technology. Among them, 14 are boys (87%) and 2 are girls (13%). The criteria for selection included willingness to participate in the study and commitment to spend a maximum of ten minutes for participating in the subsequent phase of the study.

The data collection instrument used here is an interview guideline with three questions in it, with consulting some related interview guide. Nevertheless, the interview items included here do not correspond to any unified psychological construct in that no relevant studies have been done on this domain. As a consequence, they represent a collection of ideas put together by intuition, suggestions of some experts in psychology and cognitive psychology, and result in the foregoing researches.

Question 1: In the previous word identification task, when you’re presented with two forms of a certain English word: one is the form written in small letters and the other is the form written in capital letters, which form do you think is more difficult to recognize, or they are the same for you to recognize?

Question 2: As far as you’re concerned, what are the possible reasons for the circumstances?

Question 3: How do you deal with the English words written in capital letters while reading?

One-to-one interview was adopted for all the subjects especially for someone who would be easily influenced by others. The interview was carried out in a friendly and informal way to make the subjects relax and result in more free and thorough explanation of their feelings and thoughts during the visual processing. In addition, considering the subjects are just intermediate-level English learners and are not very proficient in organizing and expressing their ideas in English, all the interviews were conducted in Chinese, but English expressions was also welcomed. That is to say, the subjects could speak Chinese when they reported their thoughts, but they were also encouraged to use English if they thought their ideas could be more clearly stated in English. Interviews with each subject required approximately five minutes, a maximum of ten minutes.

All interviews were recorded by a MP3 and rated afterwards by the author. Data were collected over a span of roughly one week.

Results of the Interview

In order to explore what on earth are the possible reasons why it takes a few more seconds for Chinese EFL learners to recognize the English capital–letters’ words than small-letters’ ones, the interview was carried out.

Question 1: In the previous word identification task, when you’re presented with two forms of a certain English word: one is the form written in small letters and the other is the form written in capital letters, which form do you think is more difficult to recognize, or they are the same for you to recognize?
There is no difference at this point. All the subjects hold that English words written in capital letters are more difficult to recognize, when compared with words written in small letters.

Question 2: As far as you’re concerned, what are the possible reasons for the circumstances?
For some subjects (N=9), they stated that English words written in capital letters are less familiar to them than the small-letters’ words in that the latter ones are more frequently used in the daily life. Some (N=6) reported that they are not accustomed to reading the capital-letters’ words on the grounds that they are more exposed to written material of small-letters’ form. Among them, ten subjects mentioned the role of memory. Just as Wu (one subject) said “when I learn a certain English word, the form I remember is the one in small letters instead of capital letters . . .” And there was one subject who spoke of the form of capitalizing the first letter in a word. He said “The word form written in all capital-letters comes into conflict with my acquired knowledge of capitalizing the first letter in some words. . .”

Question 3: How do you deal with the English words written in capital letters when reading?
Almost all the subjects (N=15) reported capital letters in English words had to be switched to the corresponding small letters during the process of word recognition. Among them, two subjects further stated that a word was likely to be accessed well as long as a couple of capital letters in the word were switched. In addition, one subject said that letter-switching depends on the word length. According to her, it’s no necessary to switch capital letters to small ones if a word consists of less than four or five letters.

Findings and Discussion of the Study Results
The results reveal that, it takes more time for Chinese EFL learners to recognize English words written in capital letters than English words written in small letters.

For one thing, English words written in small letters serve as the immediate consequence of active alternative in Chinese EFL learners’ brains.

Memory, as a complex structure, is a system that both organized and active. Wittrock has noted this view: “The brain is not a passive consumer of information. The stored memories and information-processing strategies of our cognitive system interact with the sensory information received from the environment, selectively attend to this information relate it to memory, and actively construct meaning for it [5] [6].

For Chinese EFL learners, English words in small-letters’ form are what they choose to attend at the very beginning of their vocabulary acquisition instead of the words in capital-letters’ form. Once English words in small-letters’ form are attended to, they are encoded as a certain mental representation and subsequently stored from short-term memory to long-term memory via various learning strategies for forthcoming retrieval. The more English words in the form of small-letters are attended, the more they are encoded. The more small-letters’ English words are encoded, the better they are stored. The better English words written in small letters are stored, the more facilitative they are retrieved.

For another, English words in small-letters’ form match the visual representation of Chinese EFL learners’ internal lexicon.

We know that our brain is composed of neurons that are connected at synapses to other neurons and that connections can be either facilitative or inhibitory. Likewise, the organization of our internal lexicon is set up as a network of interconnected elements. These elements are nodes. One node may represent one sense of a word, including concepts (semantic information) and words themselves (formal, morphological, and syntactic information), which are connected to one another by virtue of various relations with one another. The manner in which we store information is related to the ease of retrieval. Some nodes are more accessible than others and that the degree of accessibility is related to factors such as frequency of usage and typicality. The activation attenuates over distance, thus ensuring that closely related nodes are more likely to be activated than distant nodes. As the visual representation in our internal lexicon, the node of a small-letters’ English word is much closer to the nodes of its morphological, syntactic and semantic information, when
compared with its capital-letters one. This could also give evidence of comparative ease of retrieval in English words written in small letters.

Still another, English words written in small-letters conform to Chinese EFL learners’ established schemata.

A schema is a generalized description or a conceptual system for understanding knowledge, how knowledge is represented and how it is used. Schemata exist underlying objects, situations, events, sequences of events and sequences of actions. A word in itself is a schema. Rumelhart [7] pointed out that a schema is an apparatus for recognition and thus in the process of information processing, if people have some psychological representation or template, or prototype in their memory to match the new information, recognition will be accelerated and understanding deepened.

For Chinese EFL learners, an English word in the form of small letters is an established schema as well, which can be called the sight word by Rivers [8]. Rumelhart [7] once defined the sight words as those able to be instantly recognized or retrieved by the readers. Compared with English words written in capital letters, English words written in small letters are supposed to be sight words for Chinese EFL learners in that small-letters’ words are the prototypes of vocabulary in brain.

Conclusions

In the past, almost all the researches on capital and small letters have been done from the perspective of semantic distinctions or writing criteria. Nevertheless, until recently, visual identification of English words, written in the small letters’ form and capital letters’ form for Chinese EFL learners, has rarely been investigated from the angle of psycholinguistics.

This paper finds that there are visual processing differences between English words written in small letters and English words written in capital letters for Chinese EFL learners and proceeds to explore the possible reasons which lead to visual processing differences by interviewing.

Suggestions for Further Study

Research into English word recognition between the small-letters’ form and capital-letters’ form is considerably new phenomenon. The present study is but a preliminary attempt and has some drawbacks and limitations, many avenues remain to be investigated in the further researches on this domain. For instance:

First of all, the study only investigates word recognition between the form of small letters and capital letters among students from one university. If more subjects are sampled in various levels of English proficiency (the beginning, intermediate and advanced levels) in different cities, the researches will be more comprehensive and representative.

Secondly, the major findings out of the experiment of the present research emphasize two different written forms, i.e. the small-letters and capital-letters, in Chinese EFL learners’ recognition of English words. And it is very necessary for us to do more contrastive studies to see whether these two different written forms has the same great influence on other EFL learners’ recognition of English words, such as French or Japanese.

Thirdly, English words written in capital letters in a given context, for instance: public signs, advertisements, newspaper headlines, could be studied for identification differences when compared with their corresponding words written in small letters. And further studies could be carried out to explore the different communicative functions of English words written in small letters and in capital letters from the perspective of sociolinguistics or pragmatics.

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References


