

## **Beginning students' perceptions of effective activities for Chinese character recognition**

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### **Abstract**

This study investigates what beginning learners of Chinese perceive as helpful in learning to recognize characters. Thirteen English-speaking participants in a beginning Chinese class answered journal questions and completed a survey over one semester at a large Midwestern university. Findings suggest that participants perceived the usefulness of different ways of learning: (a) Studying characters individually strongly facilitated the learning of Chinese orthography and also helped with meaning and pronunciation; (b) using characters in context strongly supported the learning of meaning and pronunciation; (c) practicing characters through cooperative learning created a good learning environment, provided support and facilitated meaningful interaction for learners. Participants thought it was helpful to focus on individual characters for orthography and use characters in context for meaning.

**Keywords:** character recognition, beginning learners of Chinese, orthography, meaning, pronunciation

Professionals in the field of teaching Chinese as a foreign language (CFL) strive to find optimal ways to teach characters to beginning learners. For English-speaking learners, Chinese character recognition is a major hurdle because of the great differences between English and Chinese words and the intrinsic features of Chinese characters. Also, there is a question about whether to teach simplified or traditional (full form) characters. Some colleges and universities teach simplified characters, some teach traditional ones, and a few teach both versions of characters. While Chinese language instructors have explored different methods of introducing characters to beginning CFL learners, they have not reached a consensus on the best way to do this.

One area of disagreement regarding character instruction is whether to focus on characters or words. The character-centered teaching method focuses on teaching characters (introducing strokes and radicals) and expanding characters into words (Zhao, 2004). The word-centered method, however, focuses on teaching words. Another topic of disagreement is whether to instruct students to write or type characters.

Students' perceptions may provide insights to help resolve these disputes over the learning of

characters. Between character recognition and production, character recognition is easier for beginning CFL learners to master. To simplify the study, the purpose of the present paper is to identify the perceptions of beginning CFL learners on effective learning and instructional activities for the recognition of simplified characters.

## Literature Review

Because this study focuses on character recognition, it is important to review the research on this subject. Also, since students' perceptions are related to their stages of vocabulary learning, it is relevant to review the literature in this area as well. In addition, it is important to include a theoretical framework for how social interaction might impact character recognition.

### *Character Recognition*

In English, word recognition has been frequently studied “because words can be analyzed at many different levels, e.g., features, letters, graphemes, phonemes, morphemes, semantics, among others” (Balota, Yap, & Cortese, 2006, p. 286). Researchers have created different models to account for how meaning and pronunciation are accessed through orthography. According to the dual-route theory for word comprehension, word meaning can be either accessed directly from orthography (“print”) or indirectly from “phonological representations ... derived from the orthographic level” (Jackson & Coltheart, 2001, p. 67). Although there are theoretical differences between word recognition and word comprehension (Jackson & Coltheart, 2001), in this paper the two terms are used interchangeably. Specifically, single word recognition means accessing meaning through either phonological or orthographic routes. That is, word orthography, meaning, and pronunciation are all related to single word recognition. In addition, word recognition is further aided by context when readers do not immediately recognize words in the reading process (Grabe, 2009).

Chinese characters are not equivalent to words. A Chinese word may be composed of one or multiple characters. Almost all Chinese words are single- or double-character words, and double-character words far outnumber single-character words (Language Research Institute, 1986).

*Orthography.* Grabe (2009) summarized that orthographic processing refers to “the visual recognition of word forms from the text” (p. 24). Chinese orthography means the characters' written forms including stroke, component and shape. Chinese characters are composed of strokes, and clusters of strokes may form components (i.e., radicals). A small percentage of characters are single entities and cannot be further decomposed into components, while most characters are compounds and can be further broken down into components. Compound characters have the following structures: enclosure, horizontal, and vertical. These three major categories can be further divided into seven subcategories (Zhao, 2004). In the following section, structure and shape are used interchangeably.

*Pronunciation.* The relationship between orthography and pronunciation in Chinese characters is weak. Generally speaking, the pronunciation of English words is based on grapheme-phoneme rules while the pronunciation of Chinese characters is signaled by phonetic components. There

are many phonetic components and learners need to remember their pronunciations separately. Furthermore, knowledge of the pronunciation of phonetic components does not guarantee knowledge of pronunciation for most of the semantic-phonetic characters. Zhou (1978) studied around 8,000 characters and calculated that about 39% of phonetic components effectively represent pronunciation for semantic-phonetic characters (without considering tones). For frequently used characters, the effectiveness of phonetic components to represent pronunciation is even lower. Yang (1986) studied a list of 3,755 frequently used characters promulgated in 1981 and found that when tones are taken into consideration, only 7% of phonetic components accurately represent pronunciation.

Knowledge of character pronunciation is important for CFL learners. For example, Everson (1998) found a high correlation between beginning students' pronunciation of a character and their recognition of its meaning. At the same time, however, the nature of Chinese characters makes it difficult to learn to pronounce characters based on orthography. "Teaching and learning the use of the phonetic element to pronounce novel compound characters may be difficult when CFL students are very limited in their knowledge of both oral and written Chinese" (Jackson, Everson, & Ke, 2003, p. 151). CFL learners gradually build their knowledge of phonetic components as their proficiency levels increase (Jiang, 2001).

*Meaning.* Character orthography gives some indication to meaning. In modern Chinese, a small percentage of characters are called pictographs, showing a resemblance between characters and the objects they denote. And more than 90% of characters are semantic-phonetic (Wang, 2000), with semantic radicals denoting meaning and phonetic radicals denoting pronunciation. The meaning represented by semantic radicals, however, may not appear obvious. As summarized by Li (2002), for ancient Chinese characters, meaning and orthography were obviously associated with each other, but for modern Chinese characters, the relationship between orthography and meaning is less obvious. Shen (2010) similarly pointed out that in modern Chinese characters, the relationship between radical and meaning is not apparent.

Semantic radicals are easier to learn than phonetic components. Shen (2010) summarized that semantic radicals give a better indication of meaning than phonetic components with pronunciation. Everson (2002) summarized Ke's model of orthographic awareness by saying that CFL learners "at the high end" of the first stage are far better at using semantic radicals to guess the meanings of unknown characters than using phonetic components to pronounce unknown characters (p. 7). "Our classroom-observation records suggest that the role of semantic radicals in character meaning was relatively easy to teach to adult CFL learners" (Jackson, Everson, & Ke, 2003, p. 152).

*Context.* In English, context is conducive to the learning of words. According to Freeman and Freeman (2004), learning a word in context involves morphological, syntactic and pragmatic knowledge in addition to the word's meaning. Nation (2001) pointed out that in learning vocabulary, "well chosen contexts can provide information about grammatical features of the word, typical collocates, situation of use and finer aspects of meaning" (pp. 241–242). In learning Chinese, there is the added importance of using context to discern word boundaries, which are not marked in written texts.

Two-character words provide context for the composite characters. Character meaning is related to and is yet different from word meaning. In modern Chinese, most words are composed of two characters, and as summarized by Liu (2000), characters are put together to form words with different structures. Although word meanings are related to the meanings of the characters that compose them, this relationship is not simple and straightforward. Hence, it is not sufficient to know only the meanings of individual characters. In order to read texts proficiently, CFL learners also need to have a good knowledge of word meaning.

### *Developmental Stages for Vocabulary Learning*

Researchers in second language acquisition tend to agree that, regardless of first language influences, language learners follow similar stages in learning a second language even though they differ in the speed of progress. Knowledge of students' developmental stages in general might provide useful information on how to instruct them. Students' perceptions about their own learning may help to illuminate their developmental stages.

In learning vocabulary, Hatch and Brown (1995) provided a diagram indicating a "hierarchy of difficulty" for second language learners (p. 134). According to the diagram, the difficulty of new words in a second language is influenced by two main factors—first, if there are corresponding words in both languages; second, how closely the meanings match. In other words, meaning is the key determinant in deciding the degree of difficulty in learning vocabulary in a second language.

For Chinese, Ke (as cited in Jackson, Everson, & Ke, 2003) created a model describing different stages in acquiring character orthography by CFL learners. According to this model, CFL learners experience three stages. During the first stage, learners "have [a] higher level of awareness for semantic components than phonetic ones" (p. 143). During the second stage, CFL learners are able to apply the knowledge of semantic and phonetic components to process characters. And at the last stage, CFL learners reach native proficiency in processing components.

### *Social Interaction*

According to Vygotsky (1978), "human learning presupposes a specific social nature" (p. 88). This theory has had a profound influence on education and has shaped many instructional practices. According to Vygotsky's notion of the zone of proximal development (ZPD), learners are able to complete challenging tasks within the range of their next-step of development when they have support from more knowledgeable others. Wood, Bruner and Ross (1976) introduced the concept of scaffolding as supporting learners in accomplishing challenging tasks. On the basis of this theoretical framework, Braunger and Lewis (2008) summarized that "social interaction is essential in learning to read" (p. 65).

Because characters and words are difficult for CFL learners, it is important to explore the role that scaffolding might play in the learning process. Also, CFL learners need to have opportunities for social interaction when they work on learning to recognize characters. In this study, social interaction was implemented through group work in the classroom setting.

### *Gap in the Literature*

While researchers have found that character recognition is influenced by different factors (Ke & Shen, 2003) and have identified character learning strategies for beginners (McGinnis, 1999), we know little about what beginning learners themselves perceive as effective in learning to recognize characters. Understanding students' perceptions is important for the following reasons. Students' perceptions will reveal what does not work for them. Constrained by limited abilities at the beginning stage, they may not be able to benefit from what instructors perceive to be carefully prepared instructions and pedagogically valid activities. More importantly, students' perceptions will differentiate which activities work for them from which aspects of character learning (e.g., orthography, meaning, and pronunciation). Furthermore, because of the importance of social interaction in teaching reading (Braunger & Lewis, 2008), students' perceptions will enable professionals to explore the application of social interaction theories into the teaching of character recognition. Finally, students' perceptions may help us understand more about their developmental stages. It is the lack of research related to students' perceptions that the current study seeks to address.

## **Method**

### *Participants*

The present study gathered data from a first-semester Chinese course. As part of this class, students were instructed to use words, phrases, and sentences to express meaning and communicate with each other. Pinyin was taught as a tool to facilitate pronunciation, and simplified characters were introduced and taught at the beginning.

Among the fourteen students in this class, one was a heritage Chinese learner and the data from that student was not used. Hence, the following analyses used the data from the remaining thirteen participants. All of the participants were native English speakers or had reached native proficiency in English. Pseudonyms are used throughout the report.

Students' self reports revealed their information in detail. Five participants had some previous contacts with characters (e.g., at Japanese classes), yet generally speaking, their knowledge of characters was limited. At the beginning, eight participants showed an interest in characters, and seven expressed that they were somewhat intimidated by the prospect of learning characters. Some participants said they used a combination of strategies in the learning process. Being able to select more than one category, eleven participants reported seeing themselves as visual learners, seven said they were kinesthetic learners, and six perceived themselves as having auditory strengths.

### *Grounded Theory Methodology*

The present study used a grounded theory methodology which was described as "the discovery of theory from data" by Glaser and Strauss (1967, p. 1). Grounded theory is a qualitative research method used to find rather than to validate theories. The main steps of this method are

to “systematically” collect evidence (p. 2), create “conceptual categories or their properties from evidence,” and then use evidence to “illustrate the concept” (p. 23). Grounded theory is an appropriate methodology for this study because the research problem was not well-defined at the beginning but was “situationally discovered and focused through the researcher’s sensitivity and openness to the emerging theory” (Tan, 2010, p. 97).

The two authors worked closely to plan and collect data systematically. One author has years of experience in Chinese language instruction and was the instructor of the class under study. The other author has years of experience teaching literacy in English and was in the process of learning Chinese. She was not a member of the class being studied but visited the class several times during the semester.

The central question for the present study was very broad: “For Chinese character recognition, what activities do English-speaking students perceive as helpful in learning character orthography, meaning and pronunciation?” Additional questions were formulated as data collection proceeded. The authors shaped additional questions according to students’ answers.

#### *Procedure for Data Collection*

Questions were posted on the university’s course management system every one or two weeks throughout one semester and students were asked to write reflective journal responses to those questions. The questions fit into two broad categories: general background information about the participants and their perceptions of the usefulness of different activities for character recognition.

Before students were asked the questions about group work, they were often asked to work in pairs or small groups. In addition, during one class session students were put into groups of three or four and were given the tasks of reading dialogues from a handout and writing characters provided with pinyin or English translation. Eleven participants attended the special session on the group work activities, and were later asked to comment on group activities. The two who did not participate in the special session answered the questions based on group work experience of the course. All 13 participants answered the questions concerning group work.

Besides writing journal entries, participants were also asked to fill out a survey (Appendix) with nineteen statements focusing on character recognition. The general assumption was that if participants memorized a character, they could also recognize it. For each statement, participants checked one of the five possible choices of “strongly agree,” “agree,” “undecided,” “disagree,” and “strongly disagree.” In the statistical analysis, “strongly agree” equals five points, “agree” four, “undecided” three, “disagree” two, and “strongly disagree” one point.

#### *Procedure for Data Analysis*

The two authors used comparative analysis (Strauss & Corbin, 1998) during the process of data analysis. They coded the journal entries independently, discussed their results to identify categories (Creswell, 1998), and then reached consensus on the analysis. In addition, the non-

parametric method of a one-sample Kolmogorov-Smirnov test was carried out among the 19 statements to triangulate the results from the findings of the qualitative method.

## Results

Based on the 13 participants' journal responses to the instructor's questions, three categories with a total of eight themes were identified. Also, statistical analysis of survey questions was carried out to validate the findings from the qualitative method.

### *Category I: Students Perceived that Studying Individual Characters Greatly Supported the Recognition of Character Orthography and Helped with Meaning and Pronunciation*

Participants said that copying characters helped them remember the orthography and meaning of characters. In addition, the explanation of character structures (e.g., left-right structure, upper-lower structure) and radicals (e.g., semantic radicals and phonetic components) helped students remember character orthography and meaning. Furthermore, students perceived that pronunciation was remembered from listening to and pronouncing characters, but not from obtaining explanations of structures and radicals.

*Theme 1: Students perceived that writing (copying) characters strongly supported the recognition of character orthography and facilitated the recognition of meaning.* In answering the question "Does the writing (copying) of characters help you recognize them?" (week 6), the participants were unanimous in saying that copying helped and they reached this conclusion for different reasons such as recognizing patterns, being engaged, fitting with their learning styles, and frequency of encounter. This question was asked at the same time as the question: "Does the writing (copying) of characters help you remember their meanings and pronunciations?" Participants answered this question from the perspective of recognizing character orthography. Besides copying characters, four students also voluntarily provided the information that other activities such as typing and seeing characters also helped them to recognize character orthography. On the whole, students felt strongly that writing characters helped them recognize character orthography. For example, Ashley stated, "Writing the characters repeatedly makes me start to recognize patterns." Curt wrote, "The writing of characters helps me to recognized [*sic*] them because it is something that I am actively [*sic*] doing myself, and it is easier for me to remember than if I just look at the character a few times." Etta pointed out: "It helps me because I am a visual and kinesthetic learner...so seeing and doing are two things that help me a lot."

Besides facilitating the recognition of character orthography, most participants felt that copying characters helped with the recognition of character meaning. In responding to the question "Does the writing (copying) of characters help you remember their meanings?" (week 6), seven out of the thirteen participants thought that copying characters helped, two gave a confirmed answer yet did not acknowledge it as the most effective method, and one said that sometimes it helped. For example, Tom mentioned, "The writing of characters does help me remember their meanings because throughout the time that I'm writing them over and over again, I am remembering what exactly they mean." Lacy stated, "Copying for meaning, it helps. I don't think it is the best method, but it helps."

*Theme 2: Students perceived that explanations supported the recognition of character orthography and helped with the recognition of meaning.* In responding to the question “Does the explanation of character structures and radicals help you to remember the shape of characters?” (week 7), eight out of the thirteen participants felt that the explanation of character structures and radicals helped them remember the shape of characters. Etta’s response clearly illustrated this view: “Yes. Because then it breaks the character down into smaller pieces (and therefore, I can remember them better).” Peter agreed:

Yes, absolutely. Although I have my own style for learning how to write characters, I find that it is incredibly helpful when I know what the individual broken-down parts of a symbol are for retention. When I am trying to recall a character which we learned a long time ago, and haven't used recently, it is noticeably [*sic*] easier to remember symbols which have been explained in this way.

In responding to the question “Does the explanation of character structures and radicals help you to remember the meaning of characters?” (week 7), six out of the thirteen participants felt that the explanation of character structures and radicals definitely helped them remember the meaning of characters, two thought that the explanation helped with some characters, and five declared that it was not beneficial. For example, Ashley stated, “The explanations do help a lot for remembering the meaning of a character as it gives me something to refer to in my memory.” Lacy, however, did not agree. She said “Not really because again, what helps me remember meanings is putting them in sentences and comprehending what they mean.”

*Theme 3: Students perceived that listening to and pronouncing characters facilitated pronunciation.* When participants were asked whether copying characters and receiving explanations about character structures and radicals helped them remember character pronunciation, six participants voluntarily reported using different methods such as listening to and pronouncing characters, and one mentioned using pinyin to help with pronunciation. Etta stated, “I remember pronunciation by hearing it.” Tom stated, “The only thing to help the pronunciation of characters is to practice, orally, the pronunciation of characters.” Murray mentioned, “More often, I simply mimic the pronunciation as best I can in class.”

Most participants felt that the explanation also did not help them much in remembering character pronunciation. In reflecting on the question “Does the explanation of character structures and radicals help you to remember the pronunciation of characters?” (week 7), ten out of the thirteen participants felt that the explanation of character structures and radicals did not help them much to remember the pronunciation of characters although three thought it was helpful. Ashley replied, “No, I don’t understand how the phonetic components imply pronunciation.” Calvin also gave a negative answer: “Because i [*sic*] don't see a relation between radicals and the pronunciation of characters. I match pronunciations with whole characters.”

*Category II: Students Perceived that Practicing Characters in a Meaningful Context Strongly Helped with Meaning and Pronunciation*

Participants believed that combining characters into words and phrases facilitated the recognition



of meaning, using characters in context greatly supported meaning, and both listening to and reading aloud characters in context facilitated character pronunciation.

*Theme 1: Students perceived that combining characters into words or phrases supported the recognition of meaning.* In response to the question “Does putting a word (or phrase) beside a character at the margin of the character book help you to remember the meaning of the character?” (week 7), eight out of the 13 students (one of them said “sometimes”) thought that combining characters into words helped them remember the meanings of the characters. For example, Etta wrote, “Yes! That does. Because then if I remember one of them, I can usually remember what the phrase means even if I can’t remember what all the characters mean.” Ricky stated, “Yes it helps me remember the meaning by putting a character with a word because I have something to correlate with.”

*Theme 2: Students perceived that using characters in context facilitated the recognition of meaning.* In response to the following survey statement “Writing the workbook exercises helps me to memorize the meaning of characters in the exercises” (week 12), 11 out of the 13 participants strongly agreed, one agreed, and only one disagreed. The workbook exercises they were referring to included various activities such as reading comprehension questions and answers, arranging characters into sentences, using grammatical patterns to express ideas, and translation. Generally speaking, the workbook exercises used characters in meaningful contexts. In addition, nine participants (among which two elaborated on the reason) responded that writing characters in context facilitated the learning of characters when asked “What are the three top things (activities) that help you most to learn characters?” Specifically, Murray wrote, “The workbook exercises usually help a great deal because I am forced to think about the character's usage and apply it, reminding me of meaning and usage at the same time.” Ashley also stated, “The workbook was immensely helpful because it forced you to use the characters in different combinations. In doing so, the workbook made you associate characters with meaning.”

*Theme 3: Students perceived that reading aloud or listening to sentences or texts facilitated character pronunciation.* All of the participants agreed or strongly agreed with the following survey statement “Reading a text aloud helps me to memorize the pronunciation of characters in the text” (week 12).

When participants were asked about whether explanations of radicals helped them remember character pronunciation (week 7), two participants volunteered the information concerning the usefulness of context on pronunciation. Ashley wrote, “I remember pronunciation of the characters mostly through listening to the dialogue on the CDs.” Etta wrote, “And if I can match the character up with another one (like in a sentence) then I can remember them better.”

### *Category III: Students Perceived that Practicing Characters through Social Interaction Facilitated Character Recognition*

Social interaction was implemented through group work in this study. Students said that group work helped them recognize characters. Participants felt that the optimal group member number is three.

*Theme 1: Students perceived that group work facilitated character recognition.* In responding to the question “Does working with a group help you to recognize characters?” (week 11), nine out of the 13 participants felt that group work helped with character recognition because of different reasons such as helping each other within the group, hearing other members, exchanging ideas on character recognition, meaningful interaction, and peer pressure to succeed. In addition, in answering the question, “What are the three top things (activities) that help you most to learn characters?” (week 15), one student mentioned again that group work helps. In summary, participants felt that group work facilitated character recognition when they were engaged in activities such as reading texts aloud and getting the meaning. For example, Lacy said, “It helps because characters I didn't recognize other team mates might have known and vice versa.” Ashley wrote as follows:

Yes, this helped for a few different reasons. The first reason is that I can more clearly hear someone else speaking as opposed to the entire class speaking at once. This is important to me because I find it more difficult to properly speak and announce [*sic*] when several people are speaking at once. The second reason is that it can function as an actual conversation between three people where you actually test out what you know about the characters. This reason ties into my third and final reason which is that a group of three allows for members of the group to help one another. We can exchange different ideas we have used for learning characters. Additionally, when there are students who are stronger and weaker at different areas, it allows for us to compliment each other.

*Theme 2: Students perceived that the optimal group member number was three.* In responding to the question “What is the ideal number of people in a group?” (week 11), 10 out of the 13 participants felt that “three” was a good number for a group. They gave several reasons for identifying this number including optimal amount of input, easier turn taking and getting involved, and a good focus. For example, Murray stated, “Three seems to be ideal, allowing members to switch off in speaking roles a little easier and [*sic*] remain engaged.”

### *Data Triangulation*

Because of the small sample size (13 participants), a Kolmogorov-Smirnov one-sample test was carried out among the 19 statements, and the statistical results for the following four statements were found to be significant or approaching significance. “The practice of writing characters helps me to memorize their shape” ( $M = 4.54$ ,  $SD = .67$ , Kolmogorov-Smirnov  $Z = 1.35$ ,  $p = .054$ ). “In order to memorize a character, the writing of the character over different sections is more effective than the total number of times the character is written” ( $M = 4.54$ ,  $SD = .78$ ,  $Z = 1.50$ ,  $p = .02$ ). “Writing the workbook exercises helps me to memorize the meaning of characters in the exercises” ( $M = 4.69$ ,  $SD = .85$ ,  $Z = 1.76$ ,  $p = .004$ ). “Reading a text aloud helps me to memorize the pronunciation of characters in the text” ( $M = 4.38$ ,  $SD = .51$ ,  $Z = 1.41$ ,  $p = .04$ ).

Statistical analyses revealed that participants perceived that writing individual characters greatly facilitated the recognition of character orthography, and practicing characters in context strongly supported the recognition of meaning and pronunciation. Statistical results aligned with the themes that emerged from the qualitative method.

## Discussion

Participants perceived that studying characters in isolation (i.e., studying individual characters), in context, and through social interaction were helpful in improving character recognition in different ways. Studying characters in isolation and in context seems contradictory, but it may not be because these two ways of learning supply different benefits.

Student perceptions might provide educators with a window into their developmental stages. They felt it was beneficial to focus on individual characters to learn character orthography and on characters in context to learn meaning.

### *Focused Study of Characters*

Results suggest that participants felt strongly that studying individual characters facilitated the learning of character orthography. First, participants unanimously confirmed that writing (copying) characters helped them with the recognition of character orthography. This result agrees with the study done earlier by Ke (1996) in that writing and recognizing characters are connected. This result also agrees with the finding from the study of Ke (1998) that both heritage and non-heritage learners strongly disagreed with the statement that reading a Chinese text “is more effective than practicing character writing for your character learning” (p. 99). The finding may be explained by great differences between the orthography of Chinese and English. Consequently, CFL learners felt the need to make a special effort to learn the features of individual characters through copying them. Second, more than half of the participants felt that their recognition of character orthography could benefit from the explanation of character structures and radicals. This may be explained from the second language acquisition theory that learners go through the developmental stages at different speeds and some students might not have been developmentally ready to benefit from this type of explanation. In general, knowledge of character structures may facilitate the learning process for the majority of students.

Findings suggest that fewer participants felt that studying individual characters helped them with meaning. Although more than 70% of participants said that writing (copying) characters helped them to remember meaning with some restrictions (for example, two did not acknowledge it as the best way to remember meaning), 53% expressed the idea with no restriction. Although around 62% felt that the explanation helped them with meaning, 46% of participants gave the support with no restriction. One possible explanation for this finding is as follows: Because characters' meanings are to some extent related to the ways characters are written, copying characters and obtaining the knowledge of semantic radicals may help with the recognition of meaning to some degree.

In addition, some participants voluntarily offered the information that listening to and pronouncing characters helped them learn pronunciation. One possible explanation for this finding relates to the nature of Chinese as a logographic system. Since character orthography does not give a good indication of pronunciation, CFL learners felt the need to practice character pronunciation on an individual basis at the beginning.

### *Practicing Characters in Context*

Context might consist of meaningful large chunks such as clauses and sentences or small ones such as two-character vocabulary items. Most of the participants indicated the usefulness of contextualization, and a majority of them expressed the benefits of words and phrases. More than 90% of the participants agreed (among which 85% strongly agreed) that using characters in context facilitated the learning of meaning. There are several explanations for the finding. First, using characters in context matches how students learn the language aurally and orally. Second, context provides a verification to see if word recognition is correct or not. If word recognition is not correct, it does not make sense in a specific context. By using words in context, students learn to use context to verify character recognition. Third, by using characters in context, students practice the productive skill, which at the same time could be conducive to the receptive skill—character recognition.

In addition, more than 60% of participants felt that combining characters into words or phrases helped them remember the meaning of characters either sometimes or all the time. This finding is in line with the conclusion from Ke (1998) that “practicing characters in the context of vocabulary items was one of the most significant predictors for character learning achievement” (p. 106). One possible explanation is that characters have great flexibility in combining with other characters to form words because meanings for individual characters are broad. Combining characters into words helps students clarify the meaning of the characters.

Participants felt strongly that context facilitated their learning of character pronunciation. Specifically, participants unanimously agreed with the usefulness of pronouncing characters in texts to remember their pronunciation. There may be two explanations for this finding. First, listening and speaking preceded reading and writing when participants learned the language. Reading aloud characters in sentences enables students to connect written characters with the oral ones they might already know. Second, context provides more opportunities to practice pronunciation.

### *Practicing Characters through Social Interaction*

In this study, nearly 70% of participants felt that group work supported the recognition of characters. Students reported different reasons why group work helps with character recognition. First, group work provided a good learning environment. Specifically, students may put more effort into doing group activities since, as one student mentioned, he felt the urge to perform at his best. Also, another student mentioned her willingness to ask for help within a small group when compared with that in the whole class. Another student thought it was easier to speak in a small group because there is less distraction. In addition, the student mentioned that working in a small group may reduce pressure for some people. Second, working with a small group of peers offers instant and useful support to group members by sharing knowledge on characters and on effective ways of learning. The strong student could help the weak one within a group. In addition, some participants mentioned that they helped each other by pulling together knowledge of characters, and some said that they could learn useful ideas on how to remember characters. Third, students could interact with each other in meaningful ways as they worked together to solve problems in the reading process.

*Developmental Stages in Learning Characters*

Participants' perceptions may be explained by their developmental stage. Beginning CFL learners perceived the greatest benefit of using context in learning meaning, and the helpfulness of leaning meaning in a variety of ways. First, contextualization may be beneficial because beginning CFL learners are still at the stage of using large chunks of fixed clauses and phrases to express themselves and have difficulty decomposing chunks into characters. Therefore, the meanings of words and phrases and even larger chunks are easier to learn than meanings of individual characters. Second, the perceived benefit of learning character meaning in isolation and in social interaction may be explained in that at the initial stage students need to explore different ways to learn meaning. The reason why learning characters in isolation is related with meaning may be because the method is not equal to mechanical repetition deprived of meaning. On the contrary, the ways characters are written are definitely related to their meanings as represented through semantic radicals. Obviously, when learning characters in isolation, students can learn the meaning of individual characters. In addition, when learning characters and words in a group setting, group members give support and share experience in the meaning-making process.

Participants perceived that studying characters in isolation strongly supported their learning of character orthography. This might be because at the first developmental stage in learning characters, students do not know about character orthography. Consequently, they may need to study individual characters to gradually gain this knowledge.

More than 60% of participants felt that the explanation of character structures and radicals helped with character orthography, and a similar percentage of participants felt that explanations helped with the recognition of meaning of at least some characters. However, more than 70% felt that the explanations did not help much with pronunciation. The above finding echoes the suggestion of Ke (1998) that it is beneficial to teach students about character components and is in line with the finding of Shen and Ke (2007) that CFL learners can quickly build up knowledge of character structures. It supports a conclusion from Shen (2010) that "beginning learners... considered radical knowledge to be a help in learning characters" (p. 60). In addition, this result agrees with the conclusion by Xiang (1995) that in teaching commonly used characters, knowledge of phonetic components does not help much with pronunciation.

The perceived differences in instructional effectiveness described above may reflect the students' developmental stage. Generally speaking, there are different degrees of difficulty concerning character shapes, semantic radicals, and phonetic radicals. Compound characters have three major shapes and are composed of some frequently-occurring semantic radicals. In contrast, there are many more phonetic radicals. Consequently at the beginning stage, it might be easier to conceptually understand the construction of characters and connect character meanings with frequently used radicals, yet it is difficult to use phonetic components to recognize character pronunciations. Only at a later stage, when students accumulate enough knowledge of character pronunciation, will the instruction of phonetic radicals become relevant.

Based on students' answers to journal questions and their responses to a survey, two authors' reflections and classroom observations, the present study yields some preliminary findings.

However, because of the small sample, no generalizations can be made. In addition, students' perceptions are highly subjective and may vary from group to group and from setting to setting. Therefore, pedagogical implications based on the present research findings are tentative.

## Conclusion

The present study found that participants felt strongly that studying characters in isolation (including writing characters) greatly facilitated the recognition of character orthography, and using characters in context greatly helped the recognition of meaning. That is, students felt that they need to focus on both characters and words in the learning process. Students' perceptions are in line with the character-centered approach, which focuses on characters. In this way, students feel that they have a good chance to learn character orthography. Students' perceptions are also in line with the approaches that focus on words. In this way, students feel that they have a good chance to learn meaning.

Based on the findings of students' perceptions, it might be relevant to develop a new hybrid approach, focusing on both individual characters and words at the initial stage. Since students perceived that writing characters by hand improved their character recognition, it makes sense to continue this practice.

This study reveals that students felt they needed to focus on characters to learn orthography. This gives rise to the question of when to introduce characters to beginning CFL learners. Is it a good idea to let students read pinyin instead of characters first? According to Zhao (2004), this method was evaluated as ineffective because it put off the burden of character learning to a later time. However, based on students' diverse needs, it is worthwhile to revisit this question in a future study.

In the future, it is important to expand studies like this to include more participants from various learning settings so that generalizations can be made. Also, a similar research method may be applied to study intermediate and advanced students to tap into more learning strategies and to explore the relationship between oral and reading abilities. In addition, when students have more knowledge of characters and words, it will be possible to study their perceptions of different reading approaches such as intensive reading, extensive reading, sustained silent reading, reading e-texts, etc. Furthermore, since many simplified characters were formed "from the simplification of common radicals and phonetic components" (Norman, 1988, p. 80), it will be important to find out how advanced students use phonetic components to get pronunciation when reading in simplified and traditional characters.

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## Appendix

### *Survey on Character Recognition*

1. The explanation of the semantic radicals helps me to memorize the meaning of characters.
2. The explanation of the phonetic components helps me to memorize the pronunciation of characters.
3. The explanation of a character's structure helps me to memorize its shape.
4. The chorus reading of characters from the blackboard helps me to memorize their



pronunciation.

5. The chorus reading of characters from the blackboard helps me to memorize their shape.
6. Writing down words in the margin of the character book beside the component characters helps me to memorize their meaning.
7. The practice of writing characters helps me to memorize their meaning.
8. The practice of writing characters helps me to memorize their shape.
9. In order to memorize a character, the writing of the character over different sections is more effective than the total number of times the character is written.
10. The typing of characters helps me to memorize their pronunciation.
11. The typing of characters helps me to memorize their meaning.
12. Reading a text aloud helps me to memorize the pronunciation of characters in the text.
13. Reading a text silently helps me to memorize the meaning of characters in the text.
14. Writing the workbook exercises helps me to memorize the meaning of characters in the exercises.
15. I prefer writing over typing to memorize the shape of characters.
16. I prefer typing over writing to memorize the pronunciation of characters.
17. I enjoy the writing of characters.
18. I enjoy the typing of characters.
19. I wish that I could type all my homework assignments instead of handwriting them.

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