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Chinese Literacy-Learning Strategy Impact on English Reading Development: A Case Study of Taiwanese Learners of English

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Abstract
While recent research has demonstrated that L1 literacy aids L2 literacy acquisition, in the case of varying scripts, not all L1 literacy skills can be successfully applied to the L2 domain. While most students will eventually identify more efficient L2 learning strategies on their own, struggling students may fall behind and eventually give up on L2 learning if they are not explicitly taught how to access the L2 script. In this case study, a group of low English reading proficiency Taiwanese university students was given a reading skills intervention wherein they were explicitly taught the skills to access phonological information in alphabetic script. The results found an almost across-the-board increase in reading proficiency, and a substantial number of students demonstrated improved writing ability as well. Students also self-reported improved attitudes towards English as a subject. The author calls for more in-depth study of low English proficiency Chinese readers, to determine whether they may be helped by giving them targeted instruction in decoding phonological information from alphabetic script -- which may be a non-intuitive skill for Chinese L1 learners of English.

Keywords: Chinese learners of English, TEFL, ESL, TESOL, Literacy, Literacy learning
Introduction

Studies from the last three decades have consistently shown a link between L1 and L2 literacy development. Chu-Chang (1981), Robson (1981, cited in Penfield, 1986), and others have shown that L1 literacy skills accelerate L2 literacy development. L1 and L2 literacy skills are often seen to be interdependent – as manifestations of a common underlying proficiency. High levels of L1 proficiency help L2 acquisition, and conversely, high proficiency in L2 has positive effect on L1 development (Bournot-Trites & Tellowitz, 2005). While L1 and L2 literacy will always share some basic elements, the processes involved are different. Nonetheless, many researchers treat L2 literacy as merely a ‘slowed-down’ version of L1 literacy (Singhal, 1998). While it is true that the L1 and L2 reading process have similarities, it is also important to recognize that many factors come into play, which in turn makes second language reading a phenomenon unto itself. Despite the similarities between reading in an L1 and reading in an L2, a number of complex variables make the process of L1 different from L2 (Singhal, 1998).

Research has shown an undeniable link between L1 and L2 literacy development. However, there has been relatively little research on the development of literacy in L2s whose orthographic system differs significantly from the students’ L1. Do L1 literacy skills always transfer directly, or would an L2 that uses a different form of writing necessarily entail learning a new set of reading skills? Using the examples of Chinese and English, this paper will explore the relationship and potential pitfalls between L1 and L2 literacy learning strategies, and then will make pedagogical recommendations for mediating students’ negotiations of L2 literacy learning when L1 and L2 script vary in type, based upon a case study of Taiwanese learners of English.
L1 Effect on L2 Literacy

The effect of first language on second language acquisition is often a greatly misunderstood issue, and is often placed in negative terms such as “L1 interference.” However, it is important to understand that, especially for adult learners, L1 literacy is a tremendous resource to draw from while attempting to master L2 literacy. But what effect does L1 have on L2 literacy? There is some debate as to whether there is any effect at all, but most of this debate comes down to the definition of literacy that one starts with.

At the most basic level, there is a general consensus that low-level skills of reading, such as encoding/decoding skills and functional abilities, will transfer to the L2. Such skills include pre-reading skills of directionality, sequencing, ability to distinguish shapes and sounds, and the knowledge that written symbols correspond to sounds and can be decoded in order and direction (Lessow-Hurley, 1990). Other transfers include such skills as an awareness of the varieties of reading/writing styles, and the purposes that literacy is used for (i.e., directions, ingredient lists, public notices, etc.). L1 literacy learning strategies can also sometimes come in handy for L2 acquisition. Skills such as pre-reading, proofing, hypothesizing, rhetorical devices, and knowledge of text structuring can all help to facilitate the L2 acquisition process (Roberts, 1994). There is also evidence that a good grasp of L1 literacy can increase confidence and self-esteem in L2 learners (Hudelson, 1987). As previously stated, studies have shown that adult learners who are taught literacy skills in their L1 first, have greater success in developing literacy skills in the L2 than students who are only instructed in L2 literacy. L2 learners who already possess literacy skills in their L1 consistently outperform classmates who are not literate in their L1 (Robson, 1981, cited in Penfield, 1986). This is the concept behind bilingual instruction.

However the transfer of L1 literacy skills to the target L2 does not happen
automatically. While basic encoding/decoding skills are always transferable, higher skills may be specific to a language or writing script. Evidence has shown that someone learning an L2 that bears a different written script will have often have to learn different learning strategies to compensate. Koda (1997) states that different L1 orthographic properties produce qualitatively different word processing and recognition procedures. These will affect L2 reading through transfer. She also states that difficulties in L2 orthographic processing lead to word misidentification, which reduces one's ability to guess the meaning of unknown words from context. Holm and Dodd (1996), likewise, have found that both L1 and instructional methods of attaining L1 literacy can impact L2 literacy development. They found that Chinese L1 speakers had poor phonological awareness compared to L1 speakers of alphabetically written languages. In addition, Hong Kong learners of English, who learn their L1 writing system with no phonetic mediation showed lower phonetic awareness of English writing than did Chinese speakers from the Peoples' Republic of China (where students are taught their L1 literacy with the mediation of the pinyin Roman script). Teachers need to be aware of differences in literacy learning strategies when teaching a target language to students whose L1 is written differently. Learners need to be made aware that the strategies that they use reflexively in their L1 may not be the best means of acquiring literacy skills in the L2, especially when learning foreign languages with significantly different writing systems. Herein, we will explore the impact that Chinese script has on L1 learners, and the effect on their subsequent studies of English.

**Logographic and Alphabetic Writing Systems**

Logographic systems, the oldest form of writing, include Chinese characters (see Figure 1.), as well as Egyptian hieroglyphs and Mesopotamian cuneiforms. In
logographic systems each symbol carries a meaning, not a sound. While, of course, one can orally read characters, the characters frequently lack any sort of phonetic representation, and can be applied equally across languages and dialects with the same meaning, even though the word will be pronounced completely differently (see Figure 2.). The result of individually encoding semantic concepts is a high volume of symbols, as each word in the language must be represented by a separate symbol or a group of symbols. For example, it is estimated that one must learn approximately 5000 separate characters in order to read a Chinese newspaper, and twice that in order to comprehend college textbooks (Cipollone, Keiser, & Vasishth, 1998). This incurs a relative disadvantage to the writing system as it takes years of schooling in order to achieve high literacy skills, but the advantage is that, because the characters are not tied to pronunciation, anyone versed in the characters can read – regardless of the language the person speaks. For example, speakers of Mandarin, Cantonese, or Hokkien, three distinct Chinese languages, would be able to read the same newspaper, despite their inability to converse directly with one another (Cipollone, Keiser, & Vasishth, 1998). Chinese characters are used by all Chinese language groups, as well as diverse languages such as Japanese, Korean, and historically for writing the Vietnamese language as well.

Figure 1.
An example of Chinese

您 是 大学 生 嗎？ (Are you a university student?)

nin  shi  da xue  sheng  ma
you are university student question marker

By contrast with logograms, alphabets represent phonemes, or speech sounds, with
individual symbols or symbol groups. The Roman alphabet and the Cyrillic alphabet are examples, as are consonantal alphabets such as Arabic and Hebrew (Cipollone, Keiser, & Vasishth, 1998). Alphabets are potentially the most economical form of writing, but often become more complex over time, as in the case of English odd forms such as *dough*, *through*, and *cough*.

Given such large distinctions in writing systems, it would seem to follow that each system would require separate learning strategies, and that is indeed what research bears out.

<table>
<thead>
<tr>
<th>Figure 2. An example of variability in pronunciation of characters</th>
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<tbody>
<tr>
<td>中</td>
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<tr>
<td>Zhong</td>
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<tr>
<td>Diong</td>
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<td>Jung</td>
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<td>Chuu</td>
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*Strategies for learning logographic writing systems*

Some common difficulties encountered by L2 learners of logographic languages (whose L1 is phonetically-transcribed) include the high volume of characters needed for basic literacy skills, the lack of phonetic information in such characters, and the subtle variation possible between characters. L1 speakers of logographic languages, like Chinese, will often suffer from limited phonetic awareness (i.e. limited ability to discern sounds at the phonemic level) (Holm & Dodd, 1996).

Given the high volume of characters required for functional literacy in logographic
writing forms, such as Chinese, it is not surprising that literacy requires a substantial investment of time and effort. There is no real way around simply memorizing the thousands of characters that make up the writing system. Native Chinese speakers tend to learn their reading and writing skills through rote, word-by-word memorization, and frequent repetition (Chan, 1999). This is not to say that there are not strategies to facilitate learning. There are, and the L2 learner should be made aware of them as early as possible. L1 speakers of Chinese exhibit a large reliance on visual information in word decoding strategies (Chikamatsu, 1996). This stands in marked contrast to speakers of languages that use a syllabic or alphabetic script, who tend to rely more on phonological information. Children learning Chinese demonstrate a greater eye for minute detail than their English-learning peers. This reflects the nuance attached to the Chinese writing system. Pine, Huang, and Song (2003, p.6) state:

One of the most obvious areas that has emerged is the specificity with which the Chinese children talked about characters, their detailed noticing of signs within signs of their literacy system. By the end of first grade, the children in this study report a type of knowledge and way of learning that includes the ability to notice highly detailed, small nuances of the dense character structures. This appears to be very different from learning strategies employed by Western beginning readers who often focus on beginning sounds and letter/sound associations from preschool years.

Chinese-speakers also focus on semantic recognition of characters, as opposed to phonology (Pine, Huang, & Song, 2003). Characters have meanings; they do not carry fixed pronunciations. This is the feature that allows Chinese characters to be effectively applied to a variety of languages, both within and without the Chinese
language family (Murphey, 2001). While some researchers have argued that Chinese readers may potentially bypass phonology completely (Zhou, Shu, Bi, & Shi, 1999), others, such as Perfetti & Tan (1999), argue that all printed word forms, be they alphabetic or logographic, arouse phonological information as part of recognition. Nonetheless, recognition of semantic information embedded in characters can be developed as a learning strategy. L1 and L2 learners of Chinese or other logographic writing forms should be taught and encouraged to develop metalinguistic awareness strategies. Shu and Anderson (1997) determined that learners of Chinese made extensive use of knowledge of character radicals for determining semantic information. Literate readers also made use of radicals for recognizing less commonly used characters. Highly literate speakers can also make use of phonological information sometimes embedded in characters (usually in the form of a character that has the same pronunciation as one of its parts, such as in the examples 把, 爸, and 巴, all of which are pronounced as “ba”). However, Shu and Anderson (1997) found this to be little used by lower-level learners – in native speakers, this strategy is not observed in a consistent manner until sixth grade (by which point most average children would meet government standards of basic literacy). This strategy would not be useful to L2 learners until they had hit a quite advanced level. Still, learners should be made aware that phonological information sometimes exists.

Recall strategies for logographic writing systems also differ somewhat from other writing systems. Kinesthetic methods, whereby a learner traces a character with the finger in the air, or with a pencil about an inch above the paper, are commonly employed (Pine, Huang, & Song, 2003). This recall method is commonly taught to Chinese children as they are studying character writing. Structural analysis (analysis of simple character combinations to make complex characters) is another commonly used recall method. Chinese speakers use both strategies while speaking to clarify
homophones or to “spell” proper names (and thus distinguish between similar sounding characters).

Retention and recall of characters correlates with frequency of use (Shen, 2005). For the L2 learner, beginning reading is largely limited by word knowledge. Unlike in phonetic-based scripts, logographic characters are largely known or unknown. If unknown, the beginning reader will have no way of guessing meaning or pronunciation, and each 1% of unknown words in a text is estimated to cause a 2-4% decrease in text comprehension (Shen, 2005). More advanced readers can make use of knowledge of semantic or phonological clues embedded in radicals, but even then, it can be difficult to guess the meaning (beyond a broad semantic category) of unknown characters.

Research suggests that L2 learners of logographic characters greatly benefit from first gaining oral proficiency. This allows them to activate background knowledge when learning written characters, instead of having to simultaneously learn pronunciation, writing, and meaning (Wang, 1998). Both young Chinese L1 learners and L2 Chinese learners can make use of *roma pinyin* (羅馬拼音): a method of transcribing Chinese using the Roman alphabet; or *zhuyin fuhao* (注音符號): a system of phonetic markings, common in Taiwan, for initial character learning.

*Alphabetic scripts*

Alphabetic scripts come in many varieties, but they all have a common property – that they use characters or character combinations to represent the speech sounds of their languages (Cipollone, Keiser, & Vasishth, 1998). The Roman alphabet, Greek alphabet, Cyrillic, Thai, Arabic, and Hebrew are all examples of alphabetic writing. One can differentiate between alphabetic languages based on their “depth.” According to the orthographic depth hypothesis (Frost, Katz, & Bentin, 1987), the
extent to which a language’s writing system represents phonology (i.e., whether symbols correlate directly and regularly to sound) determines how “shallow” or “deep” a language is. For example, Chinese is “deep” as its writing system has no real correlation with phonology. English would be considered much more shallow. There is considerable range within alphabetic writing systems. Languages with highly regular spelling systems, and regular sound to symbol correlation like Turkish or Spanish are very shallow. English lies somewhere in the middle as its spelling is quite irregular (Wang, 1998). Obviously, this lack of regularity in the writing system will have an impact on the L2 learner. Strategies such as whole-word recognition and chunking reflect that English is not merely read as the sum of its phonological parts. Still, Dycus (1997) states that, while it is possible to obtain meaning without phonological recoding, it is still often necessary.

Some special considerations that must be made for L2 learners of consonantal languages. Languages such as Hebrew or Arabic normally omit vowels from writing (except in the cases of weak consonants or extended vowel sounds). While this does not pose as big a problem to native speakers as one may expect (e.g., Rdnง sntncs tht dnt hv vwls sn’t tht dfclt), the L2 learner lacking a firm grasp of vocabulary may encounter considerable difficulty. Fortunately Hebrew and Arabic learners can make use of diacritic vowel markers. These marks, used for teaching children and L2 learners, supply vocalic information until the learner develops sufficient grasp of vocabulary to be able to read text devoid of vowels.

Laufer (1997) presents evidence showing that the size of the reader's active vocabulary is the key for all types of literacy, with a threshold vocabulary of about 5000 lexical items needed before L1 reading strategies like guessing from context can be effectively transferred to L2 reading. From this perspective, we should be placing less emphasis on having lower-level L2 readers guess from context in order to learn
new words, and more on direct vocabulary instruction (Dycus, 1997).

L1 and L2 Literacy Learning Strategy Conflict
Given the massive differences between English and Chinese scripts, it is no wonder that L1 speakers of Chinese experience considerable difficulty in learning to read and write English. While some skills of L1 literacy will apply to learning any L2 – e.g., pre-reading skills of directionality, sequencing, ability to distinguish shapes and sounds, and the knowledge that written symbols correspond to oral language and can be decoded in order and direction (Lessow-Hurley, 1990) – many of the script-dependent skills that both Chinese learners of English and English L1 learners of Chinese have picked up while learning to read and write their L1 will not be of much assistance when learning the L2. Particularly, one of the key components of alphabetic literacy, that characters or character combinations represent the speech sounds of their languages (Cipollone, Keiser, & Vasishth, 1998) is missing from Chinese script, and can be difficult for the Chinese L1 learner of English to grasp intuitively. In practice, what this means is that Chinese L1 learners of English will tend initially to try to utilize their L1 literacy learning strategies to bear in learning English. The author would hypothesize that students in this category will often learn English words by "shape" and as whole chunks, with no regard for morphological variants. In effect, this means that "go" and "going" are stored as completely different words, or that even if the student knows how to read the words "race" and "car," a reader may not recognize, nor even be able to pronounce the word "racecar" (as, indeed, the author has witnessed). While most Chinese learners of English eventually come to recognize the grapheme to phoneme correlation inherent in alphabetic script, a lack of explicit instruction of this relationship has caused many Chinese students to remain ignorant of the most basic concepts of English literacy, and thus to struggle
with English coursework. These students often eventually come to self-diagnose themselves as simply being "poor students of English" or as having no ability to learn foreign languages. This can lead to larger problems of disruptive classroom behavior and academic apathy which may spread to other subjects. While there may actually be a correlation between language learning proficiency and the inability to intuitively grasp grapheme-phoneme relationships in alphabetic scripts, nonetheless, these students are not necessarily incompetent in language learning, and are almost certainly capable of learning English to considerably higher levels of proficiency if they are given explicit instruction in English literacy-learning strategies. Ultimately, in the high-stakes testing environment of East Asian secondary education, these students' lack of understanding of English-literacy learning strategies can endanger their competitiveness for college and career-field entry, even if they are pursuing a vocation wholly unrelated to English. For this reason, it is vital that educators ensure that students are well-grounded in the proper literacy learning strategies for foreign language learning, so that simple misunderstandings and inefficient study habits do not limit students' futures.

The following case study from a Taiwanese university 1st year English classroom setting illustrates this problem, and makes some targeted suggestions for teachers who are striving to help Chinese students who are struggling with English literacy.

**Case Study: Low-level English literacy in Taiwan**

The case study described herein documents a literacy skills intervention conducted on a class of 1st year PE majors at a Taiwanese university. Upon entering the class in the fall semester, the author was advised by his department not to expect much out of the class. They were "poor students" who were "uninterested in English learning." In an effort to bolster class interest in learning, the author selected Ackert and Lee's (2005)
text, Reading and vocabulary development 2: Thoughts & notions, which prominently featured sports themes and action-oriented reading material. Additionally, various reports and assorted activities were assigned throughout the semester which was tied to the students' major and individual sports interests. Despite these appeals to interests, the author was disappointed to find very limited engagement on the part of most students. There was a tremendous disconnect between the subjects of study and the students. It was over half of the way through the first (admittedly dispiriting) semester that the instructor discovered why -- nearly 2/3 of the students could not read in English!

It may strike the independent observer as extremely strange that one could get 10 weeks into a course before discovering that a majority of one's students were functionally illiterate, but in this case, the students had set up an elaborate coping mechanism (I will stop short of calling it a "cheating mechanism") to allow them to "survive" English classes without a loss of face. Teachers familiar with East Asian classrooms will note that students frequently will consult with each other before answering questions, and that this is quite acceptable in the classroom context. Thus, comprehension questions were not detecting anything amiss. What about in-class reading, then? This is where the students had developed an elaborate means of covering for their classmates. When a non-reader was called upon to read aloud, he/she was literally fed the script, word for word, quietly, by a literate classmate sitting near-by. The ambient noise in a class of nearly 50 students tended to cover this bit of subterfuge, unless the teacher intervened (in which case the literate students simply stopped helping for awhile, or, in more extraordinary cases, diverted attention by asking a question). Once this was discovered, the author was amazed by two aspects: 1) this meant the students knew who could read and who couldn't, and they had even selected their seating arrangement accordingly to best help everyone in the
class; and 2) they accepted this state of affairs -- no one questioned why some could read and others couldn't; the readers simply saw it as their obligation to help the non-readers to struggle through the class. Once this was uncovered, the author did some independent testing of student volunteers, and quickly discovered that they did not understand the relationship between letters and sound. They could only read highly familiar words (e.g., "the," "is," etc.), and even words that they knew and used well in oral communication were not recognized in written form. Based upon this sample, the instructor decided that this reading handicap had to be addressed if the students were ever going to improve their English performance. After obtaining permission from his department, and assurance that he would continue to instruct that class during the spring semester, the author began to lay plans to introduce a course of instruction in basic literacy-learning strategies.

Subjects
This study took place in a 1st year (freshman), 2nd semester, English class at National Kaohsiung Normal University. In the Taiwanese university system, classes are grouped by major, and this class was composed mostly of 1st year undergraduates (there were two 2nd year students) majoring in Physical Education. There were a total of 46 students in the class, of whom 29 were assigned to participate in the literacy skills intervention. All students spoke Mandarin Chinese (the national language of Taiwan), and most were native speakers of Taiwanese (Hokkien). The author was the instructor of record for the class, and had been the instructor for the previous semester as well, so the instructor and the students knew each other well by the time this study took place.
Materials

The core of the reading seminar was based around the text *Fast Track Phonics for Young Adults and Adults* by Kaye Wiley (2002). This text was selected as one of the few texts available at that time and locale for non-child learners.

Procedures

At the beginning of the spring semester, a basic test of reading-aloud was administered individually to students. Students were tested for both decoding fluency and reading comprehension. Students who could read successfully were then separated from the rest of the class, and were given individualized reading assignments. Those students who could not successfully complete the reading test were put into an Intensive Reading Seminar. The reading seminar took the place of one class hour per week, during which time only the reading seminar participants were required to attend.

Every week, the students were presented with the letter sounds and letter combination rules. Students were given individual attention at the presentation of each new sound to ensure that they were correctly perceiving/pronouncing the phoneme. Chinese equivalent sounds were explained when available. Each week, students would review previously learned material via "novel spelling" tests, wherein students were given unknown vocabulary words which they had to decide how to spell based upon previously learned phonic rules, and all possible spellings were considered as correct (e.g., "bake"spelled as baik or bayk would be deemed acceptable). All phonics instruction was presented in English, but supplemental Chinese instruction was used as necessary (the instructor is Chinese-speaking). The Intensive Reading Seminar lasted for a total of ten weeks of the semester (i.e., ten total hours of instruction).
To encourage writing development, and as a means of tracking some of the growing awareness of spelling conventions on the part of reading seminar participants, ten minutes each week during the combined section were devoted to guided free-writing activities, wherein students were told to write continuously on a given topic for the whole ten minutes. If they did not know the word, they were allowed to write the word in Chinese. If they did not know the spelling of a word, they were encouraged to guess.

At the end of the ten week session, students participated in ungraded exit interviews, conducted in both Chinese and English, wherein they rated the effectiveness of the reading intervention, their own learning from the intervention, and noted any changes in attitude towards both English and reading as a result of the intervention.

**Results**

It was highly unlikely that this reading intervention was going to act as some sort of "miracle cure." No ten hours of instruction in phonics is going to cause students whose university entrance exam scores placed them in the bottom 1/3 nationally in English achievement to suddenly become top English students. Still the modest goals of the study were achieved as the intervention yielded strong results in both reading aptitude and attitude towards the English language. Exit interviews showed that 21 of the 29 students who took the Intensive Reading Seminar as a graded component of the course either agreed or strongly agreed to both statements that they "felt more positively towards English as a subject than they did at the beginning of the semester" and that they "felt that they had improved in their reading ability during the course of the semester." Additionally, both classroom reading performance and students’ journals showed considerable improvement. While the students still performed poorly compared to students in other departments, the differences were notable. One
student, "ML," was quite representative of the overall change in class tone and ability. At the beginning of the spring semester, she was unable to read much more than a handful of memorized words, and could not, by herself, read entire sentences. By the end of the semester, she was actively volunteering to read -- which she did slowly but surely. She exhibited a high error rate -- over-regularization of pronunciation (e.g., "pint" pronounced to rhyme with "mint") was the most frequently encountered problem -- but her reading confidence was up, and she could work her way through most sentences now. Her journals changed dramatically as well. At the beginning of the semester, she would write almost 80% in Chinese. By the end of the semester, Chinese vocabulary use had dropped down to roughly 20%. While, once again, over-regularization spelling errors were rampant, she nonetheless was trying to spell out the words that she knew in English, whereas previously she would have just given up on trying to put pen to paper. While ML was one of the students demonstrating the most dramatic change in ability after receiving explicit instruction in English literacy learning strategies, all but one of the students demonstrated some level of improvement in in-class sentence reading ability (i.e., reading aloud), and 18 of the 29 students showed significant improvement in their journal writing. The one student who showed no improvement whatsoever made it quite clear from the beginning of the semester that he had no interest, and submitted none of the required assignments, and did not participate in class activities.

General Discussion
Language teachers need to seriously consider the complications that different writing systems can cause to L2 learners. To improve upon L2 literacy acquisition, teachers should conscientiously teach L2 learners the best literacy learning strategies for the target language, and not simply let students rely on native language literacy strategies
that may not apply as well to the target language. Students with an L1 background in logograph-based language (such as Chinese) would be well advised to practice their skill at recognizing phonological cues. As the above case study shows, low-performance Chinese students of English may show dramatic improvement by being exposed to explicit instruction on the sound to symbol correspondence in alphabetic script. Programs such as Phonics are highly beneficial to Chinese learners for teaching them to relearn their literacy learning strategies, and to prevent their applying their L1 strategies to the task of foreign language learning -- which, due to its inefficiency for the task, may be the source of tremendous frustration. While the limited scope of this study (i.e., only part of a single class) should not, in of itself, be seen as sufficient evidence to merit radical changes to English teaching curriculum in the Chinese-speaking world, it should be enough to justify further study of the link between poor English performance and use of inefficient literacy learning strategies. If this is found to be a widespread problem amongst Chinese students who perform poorly in English classes, such should be seen positively, as it is a problem that is easily redressed by introducing explicit Phonics (or similar) instruction into the introductory English language curriculum. Given that reading can literally be the "key" to self-learning in language study, the value of explicit instruction in effective and efficient English literacy learning strategies to non-native speakers should be readily apparent.

**Conclusion**

Literacy development in an L2 will always be a complex endeavor. While it is always in the learner’s best interest to have a well grounded knowledge of L1 literacy, teachers must keep in mind that the skills that they bring from their L1 will not always relate directly to L2 literacy. Instructors should be knowledgeable of the structure of
students’ L1 language, so as to be capable to assist students to “bridge the gaps” by explicitly teaching literacy learning skills specific to the target language.

References


Holm, A., & Dodd, B. (1996). The effect of first written language on the acquisition


Shu, H., & Anderson, R. C. (1997). Role of radical awareness in the character and


Readiness of College Students in Taiwan to Read to Learn from Texts in English

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Tzung-yu Cheng is an associate professor at China Medical University in Taiwan where he teaches courses in critical reading and academic reading. His current research interest includes content area reading, reading assessment, and the sociology of language learning and teaching.

Abstract
In Taiwan, college teachers require their students to study scholarly works in English. Over the past five years, universities in Taiwan have been proposing that college content courses be instructed only in English. It is relevant, therefore, that this method of instruction be subject to scrutiny with regard to the field of teaching English as a second language. To evaluate students’ cognitive reading readiness for college English texts, two groups of college freshmen in Taiwan, representing the upper 1.765% and approximately the upper 25% respectively were sampled among the Taiwanese college freshmen majoring in sciences and engineering. These students were administered the Gates-MacGinitie Reading Tests - the Fourth Edition, Level 7/9, Form S. The results indicated that 77.67% of the participants in the upper 1.765% group scored below Grade 10 and 82.35% of the participants in the next upper 25% group scored below Grade 7. When using this measurement, efficacy of reading to learn from texts in the EFL context is questionable.

Key words: content area reading, English reading ability, reading grade equivalents, EFL college students

Introduction
The pursuit of higher academic status coupled with the demands of keeping pace with
the dynamic pace of globalization has expanded English education in Taiwan. Many universities now propose the implementation of English courses related to specific disciplines. If the principal mission of a college education in Taiwan is the effective transmission of knowledge, then more research is needed to validate this methodology. This study is a first step approach in evaluating the readiness of Taiwanese students to learn from English textbooks. It is hoped that this preliminary research will lead to additional large-group and longitudinal studies.

In this study, firstly, the broad rationale is presented along with references to past research regarding the use of English textbooks in college courses in Taiwan. This will generate an understanding of the difficulties students encounter in reading and comprehending the subject matter of English as a foreign language textbook. Two groups of Taiwanese college students were the subjects of this study employing the Gates-MacGinitie Reading Test, Level 7/9 Form S to ascertain the reading comprehension level of each student. The results and implications of this research are shown in the following text.

As academic excellence in English is also sought in many southeastern Asian countries, the findings of this study may be of some relevance to those who are involved in curriculum reform and development in various EFL contexts. This is highlighted in relation to the current proliferation of EAP/ESP programs in Asia.

**Literature Review**

In Asia, the Philippines, Hong Kong, and Singapore have been officially immersed in English since World War II. Indonesia and Malaysia are now mandating English competence in government and business. All these enclaves of English in Southeast Asia do business in English with Australia and India (Ives, 2006). The practical popularity of English has also exploded in China, doubtless its widest market, and a
very high percentage of Taiwanese have studied abroad in the last several decades (Photis & Photis, 2003). The academes in Hong Kong, Taiwan, Mainland China, and Japan, zealously promote and value the publication of research in journals appearing in the Science Citation Index and in the Social Science Citation Index in the United States and in Great Britain (Zhou, 2008).

In Taiwan, moreover, it has long been a common practice of most college teachers to assign English-language textbook study (Cheng, 1993; Cheng & Hung, 2002; Tsai, 1978; Yiau, 1993). In a survey of 65 college content area instructors at a medical university in southern Taiwan, Cheng and Hung (2002) found that 20% of the teachers used English texts only in the courses they taught, and 75.4% used English texts in at least 50% of the courses they taught; while 4.6% of these teachers reported that they used Mandarin Chinese texts only. In a later unpublished survey on 137 content area teachers from a national polytechnic institute, the researcher found that 8.03% of the teachers used English texts only in the courses they taught, with 1.46% using Mandarin Chinese texts only. Among them, 18.98% reported that they used English texts in at least 70% of the courses they taught, and 24.09% said that they used English texts in at least 50% of the courses they taught.

Studies over the past decade, however, have documented that most Taiwanese college students encounter considerable difficulty in dealing with college texts in English (Cheng, 1993; Yiau, 1993). For example, Yiau (1993) reported that 87 to 88% of the doctoral and graduate students at public universities reported experiencing great difficulties in comprehending the lexis and English syntax in their scholarly works. Cheng (1993), observing a medical college in central Taiwan over a two-year period, also disclosed that medical students commonly attempt to avoid direct experience with English text reading. They prefer to seek out translated versions of their assigned texts. Now, more than a decade later, it remains common for college
students to struggle doggedly attempting to decode college content area texts in English. It is a frequent sight to see students mark or encircle large segments of vocabulary words and phrases page by page and read them very slowly, word by word. Great motivation and patience is needed in reading the textbooks. If translated versions are accessible, students will find and utilize them without a second thought. Reading English textbooks may prove inefficient, so students rely a lot on class notes as most instructors teach in Mandarin Chinese and visually display the notes in simple, sketchy English on a chalkboard or through PowerPoint presentations.

What are the basic causes of this common problem in college learning? Some are obvious—such as gross differences in origin and structure between the two languages involved, and more immediately, issues in early language study pedagogy in the primary and secondary schools. A common denominator is the English teacher. In the Test of English for International Communication (TOEIC) given in 2007, Taiwanese English teachers scored 95 points lower than the global mean score (Hu, 2008). Apparently, the Taiwanese teachers lack sufficient facility and experience with English and the courses in teaching English as a second language. Very few studies have been produced to explore this important educational issue.

Let us consider, first, the character of the English-language texts most commonly assigned in Taiwanese colleges. The English-language discipline-specific textbooks used in Taiwanese universities are not prepared for non-first-language students, but were originally written for native English speakers. For example, social science students in the United States and Taiwan may be assigned the same texts. Case studies examined in these texts may be drawn from instances or contexts that are thoroughly unfamiliar to Chinese-readers. A common example is present in various chapters, case studies of issues and experiences that occur which are quite unfamiliar to Taiwanese students: inner-urban neighborhoods of large American cities—Los Angeles, Chicago,
New York, or other, utterly unfamiliar settings. These texts are even quite remote and impenetrable for native-speakers of English. For Chinese, imagine the real effectiveness of struggling through such culturally inappropriate materials. These texts are written for English speakers who "ideally" should possess at least a reading grade level of 12. However, in Taiwan, assessments of the student reading level is difficult to ascertain, as there exists no conclusive assessment to discover individual students’ reading grade levels in English.

This absence of measurement has been aggravated over the past 5 years as colleges and universities throughout Taiwan have been eager to promote campus internationalization through the use of English by enthusiastically proposing that college content courses be instructed only in English (Chen, Hu, & Liu, 2008; Hu, Chen, & Liu, 2008). Yet, the achievement is still unknown, unmeasured and controversial. As reported by Hu, Chen, and Liu (2008), the top-ranked Taiwanese universities, such as National Taiwan University and National Tsing Hua University, have excitedly voiced their success of adopting this policy by announcing that 10% of their courses are instructed only in English for the fall semester of 2008. The momentum has been picking up and other universities, regardless of ranking, are eager to follow along. Nevertheless, experts and professors in English education have also voiced contradictory results. Further disclosure indicates that it is common to hear teachers and students communicate in awkward English in which the English sentences are fraught with Chinese syntax (Hu, Chen, & Liu, 2008). The students, on the other hand, have responded controversially as well; some favor the courses whereas some expressed frustration because they could not understand the English used in these courses (Chen, Hu, & Liu, 2008). Yet no research exists to evaluate this change in curriculum emphasis.

To attempt a first step at accumulating data, an endeavor was made to fill these
voids by administering the Gates-MacGinitie Reading Tests (GMRT) - the Fourth Edition, Level 7/9, Form S, to two different groups of students who are different in their overall school achievement. The goals are twofold: 1) to establish the grade distributions corresponding to the English reading ability of both Taiwanese high-achieving and high-intermediate achieving college students and 2) to determine if Taiwanese college students of different achievement levels have been prepared to cope with the incessant requirements for reading fluency and comprehension of college textbooks in English.

It is hoped that this preliminary research will lead the way to more significant, large-group studies as well as longitudinal studies. We may determine from these studies whether the gaps in reading to learn from English textbooks are operative among the college student population, and whether compensatory practices are indicated, such as reading remediation.

Method

Participants

This study involves two groups of college students: high-achieving group and high-intermediate achieving group. In a 10th-grade world history class in the English native setting, as Singer and Donlan (1989) reported, there will be at least a 10-year span of achievement, perhaps from 5th grade to college level. In this study, the high-achieving participants were selected to represent a specific level of school achievement among Taiwanese youths. The intent was to identify the range of their reading grade equivalents, which serves to delineate the English reading ability among the best students in Taiwan. As studies in a massive scale are impossible at present, the other specific level of school achievement was also evaluated, the results of which serve to depict both the range of reading grade equivalents and the gap of
their reading ability from the high-achieving students. The results from both groups will serve as matching criteria for future studies that involve students of different achievements.

In this study, the high-achieving group consisted of 94 freshmen majoring in the Department of Medicine (a seven-year program) in a medical university in central Taiwan. The study involved only participants from medical schools as high-achieving students are often found at these college departments. To describe their standing of overall school achievement among Taiwanese high school graduates, the researcher relied on the computations and descriptive statistics of the participants’ performances on the Joint College Entrance Examination issued by the College Entrance Examination Center in Taiwan (CEEC, 2008).

Taiwanese high school students, at the end of Grade 10, are required to choose a track of study between humanities and sciences which include engineering and life sciences. Usually students proficient in mathematics choose the science track. Each year, two joint college entrance examinations are held in late January and in July. The first examination, with the intent of selecting students who are interested in a particular field of study, covers only the contents taught in Grades 10 and 11. The July examination, however, tests the entire contents taught from Grades 10 to 12. In the July examination, students in the science track are required to take five or six subjects: Mandarin Chinese, English, mathematics for science, biology, chemistry, and physics. Students in humanities on the other hand are required to take five subjects: Mandarin Chinese, English, mathematics for humanities, history and geography. Both tracks take the same Mandarin and English tests. The results of the tests are weighted on a scale of zero to 100.

In this study, the criteria used to define the two ability groups are based on the results of the July Joint College Entrance Examination. In 2007, 100,117 high school
graduates registered for the examination (CEEC, 2008). Among them 49,788 students took the examination for the science track. As the tests are written annually by a group of commissioned college professors around ten days before the examination is held, no reliability data have been established for all the tests. For example, the national mean of the English examination fluctuates from year to year as the figures indicate: 37.03 (SD=23.79) in 2005, 33.95 (SD=23.71) in 2006, 31.12 (SD=21.53) in 2007, and 42.62 (SD=25.68) in 2008 (CEEC, 2008). Therefore, to better represent the subjects’ ability in overall school achievement, the participants’ ability was determined by the minimum college department admittance score (MCDAS) which shows the sum of the raw scores of the test subjects.

As the majority of the departments in engineering require the examinees to take only five courses, computations were executed individually on the top-ranked departments to yield a mean MCDAS. The MCDAS of the department from which the subjects in this study were selected was 478.7, with an average of 79.783. The computations revealed that the mean MCDAS of the participating department ranks the fifteenth among all of the science and engineering departments in Taiwan (See Appendix A: Mean MCDAS among the Top 15 Departments). Finally, the researcher tallied the number of students accepted into the top 15 departments, 879. The 94 participants in this study were among the 879 students, representing the top 1.765% among the 49,788 high school graduates in the science track in Taiwan.

The high-intermediate achieving group was made up of 153 freshmen, majoring in the Department of Pharmacy (a five-year program), which traditionally ranks third in popularity among fields of studies at medical schools in Taiwan. In estimating the standing of the high-intermediate ability group among high school graduates, the following steps were followed:

1. The researcher averaged the MCDAS of the department (367.152 in six
subjects) to yield a mean MCDAS of 61.19. Then the researcher computed the national mean MCDAS for the examinees in the science track. Followed was this formula (sum of the national mean of each test subject × the examinees taking each subject) ÷ (sum of the examinees in the six subjects): [Mandarin (54.46 × 100,070) + English (31.12 × 100,059) + mathematics for science (36.09 × 49,788) + biology (56.94 × 30,002) + chemistry (43.55 × 46,236) + physics (32.81 × 46,092)] ÷ (100,070 + 100,059 + 49,788 + 30,002 + 46,236 + 46,092). The computations yielded a national mean MCDAS of 41.893, which is 19.297 points lower than the MCDAS of the pharmacy department.

2. As the uppermost mean MCDAS, 87.51, is found in the Department of Medicine at National Taiwan University, which is 45.617 points higher than the national mean MCDAS and is 26.32 points higher than the MCDAS of the pharmacy department. The average of the examinees above 41.893 on the MCDAS was adopted. Based on these computations and the traditional college department ranking in Taiwan, the ability of the pharmacy students was estimated at the upper 25%.

Of the 94 high-ability participants, 26 were gradates from the high schools in northern Taiwan, 37 from central Taiwan, and 31 from southern Taiwan. Of the 153 high-intermediate ability students, 50 were gradates from the high schools in northern Taiwan, 67 from central Taiwan, and 36 from southern Taiwan.

Research Instrument

The Gates-MacGinitie Reading Tests (GMRT) - the Fourth Edition, Level 7/9, From S (MacGinitie, MacGinitie, Maria, & Dreyer, 2002) was used as the measure. GMRT is one of the most commonly used survey tests for measuring reading ability.
(Carpenter & Paris, 2005; Cook, Gerber, & Semmel, 1997; Fisher, 2001; Lipson & Waxson, 1991; MacGinitie, MacGinitie, Maria, & Dreyer, 2002; Nelson & Stage, 2007; Paris & Associates, 2004; Tatum, 2004). Level 7/9 consists of two subtests: vocabulary and comprehension. There are 45 questions in the vocabulary test and 48 questions in the comprehension test. The administration of this test is timed, with vocabulary tests taking 20 minutes and comprehension tests taking 35 minutes. The Fourth Edition contains 2006 and 1999 norms (MacGinitie, MacGinitie, Maria, Dreyer, & Hughes, 2007). Raw scores are converted into normal curve equivalents, national percentile ranks, national stanines, grade equivalents (GE), and extended scale scores.

The vocabulary test words are of general usefulness, not obscure or specialized words. Each word is presented in a brief context frame with five choices. Many vocabulary questions include one or more of three different types of wrong answers: visual similarity, miscue, and association (MacGinitie, MacGinitie, Maria, & Dreyer, 2002).

As presented in the technical report (MacGinitie, MacGinitie, Maria, & Dreyer, 2002), the comprehension passages consist of the following topic areas: fiction, social studies, natural sciences, and humanities. The passage type includes 4 narratives, 6 expository, and 1 setting. The questions contain 24 inferential questions and 24 literal questions. Each comprehension question is presented with four choices. Some prior knowledge wrong answers and text-phrase wrong answers are included in the choices. The passages were selected from varied authorship and not from very familiar topics or from books or other materials that were currently very popular, or used in many classrooms, or likely to have been read by many students. Comprehension passages were chosen so that females and males of various ethnic groups would be represented in test content. The readability of the passages averages 7.9, based on Dale-Chall
Formula for Predicting Readability and Fry Readability Formula (Fry, 1977).

Level 7/9 was standardized by employing a stratified random sampling design, which used a sample size of 12,153 students drawn from the 7th to 9th grades in 47 states in the United States. The reliability coefficients were computed by means of the Kuder-Richardson Formula 20. The reliability coefficients were found ranging from 0.94 at Grade 7 to 0.95 at Grade 9 (MacGinitie, MacGinitie, Maria, & Dreyer, 2002). Another 3,225 students at Grades 7 to 10 participated in level equating studies. The correlations were 0.90 for the 7th graders who took both Level 6 and Level 7/9, 0.90 for the 8th graders who took both Level 6 and Level 7/9, 0.90 for the 9th graders who took both Level 6 and Level 7/9, and 0.87 for the 10th graders who took both Level 7/9 and Level 10/12.

To increase the validity of the tests, the test writers of GMRT employed analysis of Differential Item Functioning and a panel of 15 reviewers from African, Asian, Hispanic, and Native Americans to remove questions that might be unfair to students of different ethnic groups. As the correlations between the Third Edition and the Fourth Edition were high ranging from .91 to .93 and the design of the two editions was very similar, the studies of the validity and reliability on the Third Edition was often used to support the validity of the Fourth Edition (MacGinitie, MacGinitie, Maria, & Dreyer, 2002). Significant correlations were found between the Third Edition and the verbal or English sections in Preliminary Scholastic Assessment Test (PSAT), Scholastic Assessment Tests (SAT), American College Testing Program (ACT), and grade point average (GPAs) (Lipson & Wixson, 1991; MacGinitie, MacGinitie, Maria, & Dreyer, 2002).

Level 7/9 was deemed right for this study as the maturity and difficulty of the content make it an appropriate test for students from Grades 5 to 12.9 (MacGinitie, MacGinitie, Maria, Dreyer, & Hughes, 2007). Moreover, the subjects’ approximate
number of years of English learning was estimated to range from 7 to 9 years. In this study, grade norms are used as one of the major indices; however, interpretations can be misleading as the grade equivalents at the extremes are “extrapolated by projecting the average performance of students at grade levels that were tested to performance of students at grade levels that were not tested” (Baumann, 1988, p.37).

**Procedure**

One week prior to the tests, the subjects were informed about the purposes of the test and were also told that they could stop participating anytime they wished. The tests were administered in two 50-minute periods in five different freshman English classes. In the first period, the vocabulary question sheets were distributed, sample questions were practiced, and questions were explained. The students were then given 20 minutes to complete the vocabulary subtest. In the second period, the same preparatory steps were repeated, and then the students were given 35 minutes to complete the comprehension subtest.

**Grading**

Two college English teachers hand-graded both subtests. The raw score was then converted to grade equivalents by referring to the 2006 norm in the Manual for Scoring and Interpretation (MacGinitie, MacGinitie, Maria, Dreyer & Hughes, 2007).

**Data Analysis**

The SPSS version 11.5 was used to organize and analyze the data collected in the study. First reported were the descriptive statistics of the raw scores. Next reported were the descriptive statistics of the converted GE. A graph was also constructed to describe the grade distributions.
Results

Descriptive Data by Raw Score

Table 1 depicts the descriptive statistics of the raw scores of both of the high-ability and the high-intermediate ability groups. In the high-ability group, the mean performance was 56.38. The median was 56. The range was 45, spreading from 33 to 78. A score of 64 is in the upper 75 percentile while a score of 50 shows a performance in the lower 25 percentile.

In the high-intermediate ability group, the mean was 41.88. The median was 40. The range was 58, spreading from 18 to 76. A score of 48 is in the upper 75 percentile while a score of 35 shows a performance in the lower 25 percentile.

Table 1: Mean, Median, Mode, Range, Minimum, Maximum and Percentiles

<table>
<thead>
<tr>
<th></th>
<th>High Ability</th>
<th>High-Intermediate Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>94</td>
<td>153</td>
</tr>
<tr>
<td>Total Score</td>
<td>93.00</td>
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</tr>
<tr>
<td>Mean</td>
<td>56.38</td>
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<tr>
<td>Median</td>
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<td>50</td>
<td>56.00</td>
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<tr>
<td>75</td>
<td>64.00</td>
<td>48.00</td>
</tr>
</tbody>
</table>

Descriptive Data by Grade Level

Table 2 lists the mean, median, mode, range, minimum, maximum and percentiles of the results of both ability groups by grade and month. In the high-ability group, the mean and the medium both fall within the Grade 8 level. The mode falls at Grade 7.1 level. The range was 7.9 grade levels, spreading from Grade 5.1 to Grade PHS (Post
High School). Grade 9.7 level is in the upper 75 percentile while Grade 7.1 level shows a performance in the lower 25 percentile.

In the high-intermediate ability group, the mean was at Grade 6.0 level. The median and the mode both fall within the Grade 5 level. The range was 9.5 grade levels, spreading from Grade 3.5 to Grade PHS. Grade 6.7 level is in the upper 75 percentile while Grade 5.2 level shows a performance in the lower 25 percentile.

Table 2: Mean, Median, Mode, Range, Minimum, Maximum and Percentiles

<table>
<thead>
<tr>
<th></th>
<th>High Ability</th>
<th>High-Intermediate Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
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<td>153</td>
</tr>
<tr>
<td>Valid</td>
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<tr>
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<tr>
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<tr>
<td>Std. Deviation</td>
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<tr>
<td>Minimum</td>
<td>PHS</td>
<td>PHS</td>
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<tr>
<td>Maximum</td>
<td>PHS</td>
<td>PHS</td>
</tr>
<tr>
<td>Percentiles 25</td>
<td>7.1</td>
<td>5.2</td>
</tr>
<tr>
<td>Percentiles 50</td>
<td>8.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Percentiles 75</td>
<td>9.7</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Distributions of Grade Level

Table 3 presents the percentages of grade distribution by 1.0 grade level. In the high-ability group (HA), both Grade 5 and PHS are at the extremities of the bell curve as only 2.13% of the students scored at Grade 5 and 3.19% at PHS. Percentages for the other grade levels were tabulated as follows: Grade 6 = 16.06%, Grade 7 = 30.85%, Grade 8 = 21.28%, Grade 9 = 7.45%, Grade 10 = 14.89%, Grade 11 = 1.06%, and Grade 12 = 3.19%. Table 3 also shows that 22.33% of the subjects scored above Grade 9. The table also indicates that a significant percent (18.09%) of the participants scored within the elementary school grade levels.
In the high-intermediate ability group (HIA), both Grade 3 and Grade PHS are at the extreme ends of the curve, with only 0.65% at both grade levels. Low percentages are also found at Grade 12 (0.65%), at Grade 11 (0.0%), and at Grade 10 (1.31%). The overall distributions by percent for the remaining grade levels were tabulated as follows: Grade 4 = 16.99%, Grade 5 = 40.53%, Grade 6 = 24.18%, Grade 7 = 6.54%, Grade 8 = 4.58%, and Grade 9 = 3.92%. Table 3 shows that the majority or 82.35% of the participants scored within the elementary school grade levels. The table also indicates that a very low percent (2.62%) of the participants scored above Grade 9.

Table 3: Frequency and Percentage by Grade and Month

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Frequency HA/HIA</th>
<th>Percent by 1.0 Grade HA/HIA</th>
<th>Cumulative by 1.0 Grade HA/HIA</th>
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<tbody>
<tr>
<td>03.0~03.9</td>
<td>00/01</td>
<td>00.00/00.65</td>
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<td>00/26</td>
<td>00.00/16.99</td>
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<td>05.0~05.9</td>
<td>02/62</td>
<td>02.13/40.53</td>
<td>02.13/58.17</td>
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<td>06.0~06.9</td>
<td>15/37</td>
<td>15.96/24.18</td>
<td>18.09/82.35</td>
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<td>07.0~07.9</td>
<td>29/10</td>
<td>30.85/06.54</td>
<td>48.94/88.89</td>
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<td>08.0~08.9</td>
<td>20/07</td>
<td>21.28/04.58</td>
<td>70.22/93.47</td>
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<td>07.45/03.92</td>
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<td>12.0~12.9</td>
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<tr>
<td>Total</td>
<td>94/153</td>
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Graph 1 visually displays the overall grade distributions among participants between both groups. In the high-achieving group, the majority of the subjects fell within the grade levels 6 to 10, with very small percentages found at Grade 5, Grade 11, Grade 12, and Grade PHS. In the high-intermediate ability group, the majority of the subjects fell within the elementary grade levels 4 to 6. The percentage plunged abruptly from Grade 6 (24.18%) to grade 7 (6.54%). The descending trend was also
observed from Grade 7 to Grade PHS.

Graph 1: Grade Distributions by Percent

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Discussion

The study evaluated if EFL college freshmen are ready to read to learn from textbooks in English through the use of the Gates-MacGinitie Reading Tests. The participants in this study represent two groups of Taiwanese college students varying in learning abilities and in overall school achievements. The findings, however, show that in the high-ability group, only 22.33% of the subjects scored above Grade 9 and 18.09% of the participants scored within the elementary school grade levels. In the high-intermediate ability group, the majority or 82.35% of the students scored within the
elementary school grade levels while only 2.61% of the participants reached the high school grade levels.

As Singer and Donlan (1989) indicated, in the native English setting, vocational texts can vary in difficulty from a 9th-grade level for food services to the 14th-grade level for radio and television repair manuals. Academic texts also vary in difficulty. However, to read materials needed on the job with a 70% level of comprehension, mechanics would have to read at a 9th-grade level, and supply clerks at a 10th-grade level; while many beginning college students need to read at least at the 13th-grade level. The results suggest that great discrepancy exists between Taiwanese college students’ English reading ability and the reading ability essential in reading to learn from college textbooks in English. The results may also suggest that the majority of the college students throughout the country are not ready to read to learn from textbooks in English.

With regard to the current debates over the efficacy of the college courses taught only in English (Chen, Hu, & Liu, 2008; Hu, Chen & Liu, 2008), the effect is questionable as the results of the current study show that the reading ability of the majority of the students is low, even among the upper 1.7% of Taiwanese college students. In addition, many Taiwanese newspapers have reported that the country ranked poorly in the International English Language Testing System (IELTS) given in 2006, and used by many British and other foreign universities to assess students’ English ability. Taiwan ranked 17th in 2006 among the top 20 countries which had the highest number of people taking the language-proficiency test: behind Japan, South Korea, and Vietnam (Gluck, 2007). Besides, Taiwan ranked the last among Korean, Hong Kong, and Singapore in the Test of English as a Foreign Language (TOEFL-iBT) given in 2007 (Hu, 2008), and used by more than 6,000 universities in 130 countries (Educational Testing Service, ETS, 2008). These results suggest that
students in these courses taught only in English might have to exercise great motivation and willpower to overcome the English language barriers. The most successful might be those who are highly motivated or those who are more successful than the others in their English learning.

Why are the majority of Taiwanese college students not ready to read college textbooks in English? Some possible causative factors are, firstly, that Taiwanese children usually commence learning English at the third grade level in elementary school. Yet it is estimated that over 60% of families in larger cities begin private English classes starting from kindergarten and even earlier. In such cases, classes are apparently expensive, crowded and of variable quality (Gluck, 2007). The achievement attained by these various forms of instruction remains unknown as the English they learn is mainly daily and basic. However, its effect is further complicated by the multi-glossing Taiwanese linguistic environment and becomes questionable. A vast number of families communicate in either Hakka or Min, the two prevailing Chinese dialects used in Taiwan. The majority of children need to learn to read and write Mandarin, the school language, from kindergarten. Great effort is made in elementary schools to raise the level of their Mandarin reading and writing to match the competence of those from families speaking only Mandarin. As Mandarin is the dominant school language, English use is therefore limited to English classes. As a consequence, no children use English outside of their classroom because they quickly determine which language serves their social needs among their peers in school and in the community.

In addition, beyond elementary school, children experience severe time-constraints when learning English as they are faced with the joint high school and the joint-college entrance examinations. English at secondary school becomes only one of the compulsory school subjects among mathematics, biology, physics, chemistry,
Mandarin Chinese, history, geography and civics. The time allocated to reading English at school and at home is limited. In addition, as reported by Gluck (2007), too much emphasis is given to rote-learning, and students are simply required to memorize words and grammar to pass the tests. Under this restricted English learning environment, it is not justified to say that those college students who scored below Grade 6 in this study are very poor in English. Instead, it should be noted that the amount of time devoted to English learning is much less than that of children maturing in a country where English is the native language.

Zhou (2008) voiced his great concern for the quality of college education in Hong Kong if knowledge transmission is carried out mainly in English at college in the pursuit of globalization when the language context is mainly in Cantonese Chinese. He pointed out that students who are poor in English will encounter great learning difficulty and a poor command of English will discourage students from learning and acquiring knowledge. Furthermore, Zhou warned that students’ competence in a particular field will be smothered and college experiences will become discouraging for those students who are not efficient in English.

It may not be the major responsibility of college subject teachers to teach their students how to read to learn from textbooks in English; yet, they should be informed of their students’ reading ability. This knowledge will allow them to decide what texts and what teaching approaches to use if the students are to learn from their courses. The colleges and English teachers should assume the role as educational leaders; however, most English instructors in Taiwan are unfamiliar with the functions of such a regular reading test tool as the GMRT. Their majors in English literature and linguistics reveal a dearth of training in such knowledge. Perhaps teachers are in need of some basic courses or workshops in educating.
Conclusions

In the EFL setting in Taiwan, not all college students are able to read texts in English successfully, and time is greatly constricted for students at grade schools. Moreover, English represents a small fraction of the different varieties of courses that are compulsory for students in Mandarin Chinese. If knowledge transmission is the major concern for the quality of college education in the EFL context, the results of this study may provide another perspective on the value and efficiency of using Mandarin Chinese, the language of our heritage, in reading to learn from Chinese college texts.

As English is an indispensable global language, it might be more reasonable in Taiwan to require the majority of the students to learn the simple, survival English as it is more manageable by students of different learning abilities. For those who are highly motivated and are more successful than others in English learning, and for those who are interested in postgraduate studies or studies in English speaking nations, English of higher level is essential and environments should be created and provided for them. International colleges would be an avenue for not only teaching higher English proficiency, but also language instruction in other languages of the world as well as business and cultural studies with courses abroad.

Implications for Further Research

Teaching EFL in college involves the content area teachers, the students and the English textbooks. The transmission of academic knowledge involves positive interaction and learning skills of both the teacher and the student. There is a complicated synergy where readiness, remediation and learning are linked and merit intensive research. As teachers are at the core of this learning experience, some future studies may follow this avenue of research.
As Cheng and Hung (2002) found in their survey of 65 medical school teachers, 67.7% among them held their highest degree from the universities in Taiwan and 27.7% in the USA. In the later unpublished survey on 137 teachers at a polytechnic institute, 37.23% of the college teachers earned their highest degree in Taiwan; while 43.07% were graduates in the USA. These college teachers are very successful EFL learners and have much experience in learning to read academic texts in English. In future studies, efforts can concentrate upon: 1) how they learned to read English scholarly works as college students; and 2) the underlying beliefs that contribute to their decisions concerning why some of them use only English texts in all the courses they teach, why some of them use a certain proportion of Mandarin and English texts in class, and why a small number of them reject the use of English texts completely. These underlying beliefs may include concerns for making text language selection and responsibility for teaching priority at college. These empirical data offer different ways to depict how Taiwanese college students read to learn from college texts in English. In addition, the rationale for the universities’ enthusiasm for English textbooks and teaching in English can be better portrayed.

The existing research into how college students beyond the freshman year read has documented that high percentages of the graduate and doctoral students at public universities had difficulties in comprehending the English vocabulary and syntax and repeated reading is the dominating strategy in reading their scholarly works (Yiau, 1993). Yet, more empirical data need to be accumulated in portraying the Taiwanese college students’ difficulties in reading to learn from English texts. In the future, longitudinal studies can be conducted to trace the progress among the participants who scored lower than Grade 7 in this study. These studies can focus on: 1) how they manage the increasing demands of English texts beyond freshman year, 2) the amount of time they use per week in reading English and Mandarin texts; 3) what they
perceive as the major contributions to their learning at college: relying on and sharing class notes, reading from texts in either Mandarin or English versions, or other ways they use effectively; and 4) retesting the participants at their senior year to understand their progress in English and describe the causative factors. These pre and post tests could not only evaluate growth in English reading and comprehension but also lead to standardizing a measurement for countries where English is a second language.

Besides, studies can be conducted on the medical personnel such as nurses, physicians, and pharmacists. Our visits to clinics and hospitals when we are sick enable us to see physicians jot down their diagnoses and write prescriptions in sketchy, simple English filled with medical terms. Pharmacists then read and fill the prescriptions. The communications among doctors and nurses are often carried out mainly in Mandarin Chinese mingled with English medical terms. In the future, studies can be conducted on these personnel to understand 1) the underlying reasons they prefer to use English in writing down diagnoses and communicate in Mandarin mingled with English medical terms, 2) how they managed reading texts in English at college, and 3) when they draw on medical findings and participate in conferences, which language they prefer between Mandarin and English. These data will help English educators learn more about the status of English as perceived by different professions and the rationale for the universities’ enthusiasm for English textbooks and teaching in English.

The high-ability participants in this study are majors in medicine who are among the brilliant high school graduates; however, among them, 15.9% of the subjects scored at Grade 6 and 2.13% scored at Grade 5. Grades 6 and 5 are equivalent to the elementary grade levels of native speakers of English. Why do these high achievers possess such a low reading ability? To seek out the answer, qualitative research is needed to explore the factors that have been discouraging their improvement in
English. In future studies, qualitative research should also be conducted using the students who scored at the high extremities to delineate the factors that have contributed to their success in learning to read. These studies can offer reliable empirical data from which effective approaches can be designed for EFL teaching and learning.

References


Hu, C.F. (2008). Taiwan’s test scores in English proficiency were compared with those of South Korea, Hong Kong and Singapore. Taiwan’s scores were ranked the lowest (Published in Mandarin Chinese). *The Liberty Times.* Retrieved October 10, 2008 from [http://www.libertytimes.com.tw/2008/new/sep/20/today-life18.htm](http://www.libertytimes.com.tw/2008/new/sep/20/today-life18.htm)


MacGinitie, W.H., MacGinitie, R.K., Maria, K., & Dreyer, L.G. (2002). *Gates-


Tatum, A.W. (2004). A road map for reading specialists entering schools without exemplary reading programs: Seven quick lessons a reading specialist who worked in a high-poverty; urban elementary school provides seven lessons that can serve as guideposts for others. The Reading Teacher, 58 (1), 28-38.


**Appendix A: Mean MCDAS among the Top 15 Departments**

<table>
<thead>
<tr>
<th>Name of University</th>
<th>Department</th>
<th>MCDAS</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Taiwan University</td>
<td>Medicine</td>
<td>525.03</td>
<td>87.51</td>
</tr>
<tr>
<td>National Cheng Kung University</td>
<td>Medicine</td>
<td>512.80</td>
<td>85.47</td>
</tr>
<tr>
<td>National Yang-Ming University</td>
<td>Medicine</td>
<td>510.44</td>
<td>85.07</td>
</tr>
<tr>
<td>Chang Gung University</td>
<td>Medicine</td>
<td>506.9</td>
<td>84.48</td>
</tr>
<tr>
<td>National Taiwan University</td>
<td>Electronic E¹</td>
<td>419.52</td>
<td>83.90</td>
</tr>
<tr>
<td>National Taiwan University</td>
<td>Dentistry</td>
<td>501.46</td>
<td>83.58</td>
</tr>
<tr>
<td>Taipei Medical University</td>
<td>Medicine</td>
<td>495.4</td>
<td>82.57</td>
</tr>
<tr>
<td>National Taiwan University</td>
<td>Physics</td>
<td>410.32</td>
<td>82.06</td>
</tr>
<tr>
<td>National Yang-Ming University</td>
<td>Dentistry</td>
<td>489.54</td>
<td>81.59</td>
</tr>
<tr>
<td>National Taiwan University</td>
<td>Materials S &amp; E²</td>
<td>407.94</td>
<td>81.48</td>
</tr>
<tr>
<td>National Chiao Tung University</td>
<td>Elec. E &amp; C S¹</td>
<td>407.3</td>
<td>81.46</td>
</tr>
<tr>
<td>Kaoshiung Medical University</td>
<td>Medicine</td>
<td>486.9</td>
<td>81.15</td>
</tr>
<tr>
<td>Tzu Chi University</td>
<td>Medicine</td>
<td>481.51</td>
<td>80.25</td>
</tr>
<tr>
<td>Fu Jen Catholic University</td>
<td>Medicine</td>
<td>480.67</td>
<td>80.11</td>
</tr>
<tr>
<td>China Medical University</td>
<td>Medicine</td>
<td>478.27</td>
<td>79.78</td>
</tr>
</tbody>
</table>

¹Electronic Engineering  
²Materials Science and Engineering;  
³Electrical Engineering and Computer Science Honors Program  
⁴Test subjects include biology, physics, chemistry, mathematics for science, Mandarin, English  
⁵Test subjects: physics, chemistry, mathematics for science, Mandarin, English