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## Research in Developmental Disabilities



# Exploring the relationships between the use of text message language and the literacy skills of dyslexic and normal students

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#### ABSTRACT

It is apparent that individuals using text abbreviations as a written convention is a continuingly growing phenomenon. This special writing convention has been referred to as textism usage. However, there is surprisingly little research investigating the impacts of textism use on dyslexic children's cognitive abilities associated with literacy skills. Thus, the relation between textism use, phonological awareness, as well as morphological awareness is not yet clear. This issue is critical and urgent because no conclusive guidance is available for practitioners or educators to refine instructional strategies. Furthermore, given that prior researchers focus mainly on alphabetic language, little research draws attention on non-alphabetic language, in which morphological awareness seems rather significant than phonological awareness. In this study a total of 57 participants across six elementary schools in Taiwan were recruited and were formed into three groups. To effectively collect the textisms used by the participants, this study adopted Facebook as the tool to store the messages because of its high penetration rate of 51 percent in Taiwan. Findings of this study suggested that dyslexic children may get rid of the identification, which might encourage them shift their focuses from others' judgment to selecting a proper textism. To use the textism appropriately requires the dyslexic children realize the meaning of the textism and memorize the spelling/writing convention. Consequently, the dyslexia group in this study performed as well as reading-age group in word recognition and meaning recognition. It seemed that dyslexic children preferred to use contraction, symbol, and combined word. These categories of textism are L-S (logography to semantics) in nature.

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#### 1. Introduction

Developmental dyslexia is characterized by an unexpected low reading ability in people with adequate intelligence (Tunmer & Greaney, 2010). Prior studies concluded that people with dyslexia have difficulties in learning to read, spell, and write due to inadequate cognitive skills associated with literacy abilities (e.g., Griffiths & Snowling, 2002; Lyon, Shaywitz, & Shaywitz, 2003; Snowling, 2000). One of the cognitive skills necessary to attain high literacy levels is phonological awareness. It has been acknowledged that an individual's reading attainment is strongly associated with his level of phonological awareness (Elbro, 1997; Goswami, 2002). Furthermore, empirical evidence (e.g., Griffiths & Snowling, 2002; Ransby & Swanson, 2003; Snowling, 2000) has shown that children with dyslexia exhibit impaired phonological skills when compared to chronological-age-matched children. Accordingly, such inadequate phonological skills evidenced in dyslexic

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children translate to a lack of an ability to manipulate the elemental units of language (Hoyles & Hoyles, 2010), namely phonemes. Thus, phonological awareness enables a speaker to transfer phonemes into words and, conversely, it allows the listener to turn words into phonemes. In this regard, phonological awareness may also refer to an understanding of spelling/writing conventions.

#### 1.1. Text message and reading attainment

Although the significance of phonological awareness in developmental dyslexia has been documented, results from previous studies unequivocally came from using "physical prints." There is little research focusing on the relation between phonological awareness and dyslexic children's reading attainment when reading "digital prints," namely text messages. Features of the digital prints inherited from information technologies, which continuously change and constantly create new applications, are distinct from features of general material, and usually comprise various formats. Thurlow (2003), to our knowledge, seems to be the first researcher to find that young people generally use text abbreviations as a written convention while using computer-mediated communication. For instance, "2moro" means "tomorrow" and "atm" refers to "at the moment." Thurlow considered this convention as "textism," which follows different spelling/writing rules. Many well-known applications, such as e-mail, MSN, Facebook, Twitter, and so on, provide not only an effective way to communicate, but also they gradually change spelling conventions to express individuals' thoughts. It is apparent that individuals who use text messaging as a critical communication channel are part of a growing phenomenon. Indeed, children of the current generation have been primarily immersed in an environment where sending and receiving messages in a digital format is a commonplace. The number of children using the Internet, and the time they spend expressing themselves using the new way of communication, will continually increase. Thus, understanding how textism usage impact on dyslexic children is a pressing issue.

Apart from phonological awareness, this study considers morphological awareness as another critical cognitive ability, which might impact dyslexic children's reading attainment. In their study, Plester, Wood, and Bell (2008) and Plester. Wood, and Joshi (2009) found that the influence of textisms on a participant's reading attainment was mediated by their phonological awareness. However, whether the relation would be the same in developmental dyslexia is unclear because participants recruited in the aforementioned studies were normal readers. As previously stated, deficits in phonological awareness prevent developmental dyslexia from directly linking a phoneme to a word, and vice versa. This deficit would negatively impact literacy attainment since phonological awareness is less obvious in textisms, which might not be directly linked to the original pronunciation. In addition, evidence from their studies pointed out that the use of textisms alone directly accounted for the variance of a participant's reading attainment. Besides, the use of textisms has indirect effects on a participant's reading attainment through the mediate variable, phonological awareness. Plester et al. (2008) considered this result confusing because reading attainment was supposed to be indirectly explained by the use of textisms through phonological awareness. Taken together, they suggested that the variance of the participant's reading attainment might not be explained merely by phonological awareness; instead, there are other determinants to be explored. Thereby, this study argues that morphological awareness plays an important role in this relation. Because textisms usually combine alphabetical and numerical symbols (or some symbols), many textisms are intuitively hard to pronounce. For example, individuals may use symbols to express smiley faces, e.g., "how are you:)." Other textisms included "@" for "at," "b/c" for "because," and "btwn" for "between." In such cases, textisms may require cognitive abilities other than phonological awareness. In this regard, morphological awareness seems to be one of the required cognitive abilities since it allows individuals to perceive cues to the textisms' meanings, thereby enabling a search for potential corresponding pronunciations.

#### 1.2. Non-alphabetic language and morphological awareness

Unlike previous studies that focus on alphabetic language, e.g., English, this study would like to pay attention to the effects of textism on phonological awareness and morphological awareness in Chinese reading development and Chinese developmental dyslexia. The important emphasis of an alphabetic language is that it has clear phonological skills in relation to reading (Lyon et al., 2003). Non-alphabetic language, like Chinese, is basically morphosyllabic because each character may represent a morpheme (Shu, McBride-Chang, Wu, & Liu, 2006). Usually Chinese characters contain a semantic cue and a phonetic cue. For example, the character "媽 [ma1]/mother/" consists of a semantic cue "女 [nu3]/women/" and a phonetic cue "馬 [ma3]/horse/." These two components are basically assembled by strokes, which is the smallest writing unit of a Chinese character. Furthermore, a meaningful Chinese word is usually constructed with a combination of at least two Chinese characters. The meaning of Chinese words differs as the sequence of character combinations changes. For instance, "蜜蜂 [mi4 feng1]/bees/" is different from "蜂蜜 [feng1 mi4]/honey/," and "山上 [shan1 shang4]/mountaintop/" is not similar to "上山 [shang4 shan1]/climbing mountain/." All of these features indicate that knowledge of the complicated rules of Chinese word formation, or morphological awareness, is particularly significant for Chinese reading attainment. As a result, a sophisticated performance in morphological awareness is expected for Chinese children. However, whether morphological awareness would have the same positive/ negative association as phonological awareness between textism use and reading attainment for Chinese dyslexic children is not clear.

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