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The role of achievement strategies on literacy acquisition across languages

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ABSTRACT

We examined the importance of children's achievement strategies in different literacy outcomes in three languages varying in orthographic consistency: Chinese, English, and Greek. Eighty Chinese-speaking Taiwanese children, 51 English-speaking Canadian children and 70 Greek children were assessed on measures of phonological awareness, rapid automatized naming, reading fluency, and spelling. The children's use of a task-focused versus task-avoidant achievement strategy in the classroom context was rated by their teachers. The results indicated that the teacher-rated task-focused behavior was a significant predictor of spelling and to a lesser extent of reading fluency and that its effects were comparable across languages.

1. Introduction

Achievement strategies, defined as the ways in which individuals deal with various tasks and challenges in their learning environments, play an important role in academic performance (e.g., Aunola, Nurmi, Niemi, Lerkkanen, & Rasku-Puttonen, 2002; Nurmi, Aunola, Salmela-Aro, & Lindroos, 2003; Onatsu-Arvilommi & Nurmi, 2000; Stephenson, Parrila, Georgiou, & Kirby, 2008). In general, children who seek challenges and persist in the face of obstacles tend to do well at school. In contract, children who are afraid of demanding tasks and resort to task-avoidant behavior tend to do poorly at school (see Pintrich, 2003; Valentine, DuBois, & Cooper, 2004, for reviews). Although several studies have examined the effects of achievement strategies on literacy acquisition in different languages, there is still paucity of research examining the effect of achievement strategies across languages, particularly beyond the early years of schooling. This is critical in order to understand the complex nature of literacy acquisition across languages and the dynamics developed between linguistic and motivational factors. Thus, the purpose of this study was to examine the relationship between children's achievement strategies and literacy acquisition in three languages that vary in orthographic consistency[1]: Chinese, English, and Greek.

The theoretical basis of investigating achievement strategies among elementary school students originates from an interest in the role of dynamic mechanisms in children's learning. A variety of conceptualizations have been used in the past to describe these mechanisms, such as achievement beliefs and behaviors (e.g., Aunola, Nurmi, Lerkkanen, & Rasku-Puttonen, 2003), motivational styles (e.g., Pintrich, Roeser, & De Groot, 1994), and goal orientations (e.g., Elliot, 2005). Despite the variety of conceptualizations, there is an agreement that these strategies can be subsumed under two overarching categories. On the one hand, task-focused strategies, such as mastery orientation (Sideridis, 2003), goal orientation (Nicholls, Cheung, Lauer, & Patashnick, 1989), and action-oriented copying strategies (Mantzicopoulos, 1990) are typically characterized by success expectations, high effort, and persistence. On the other hand, task-avoidant strategies, such as learned helplessness (Butkowski & Willows, 1980) and ego-oriented copying (Salonen, Lepola, & Niemi, 1998) are typically characterized by failure expectations, passivity, and low levels of efforts and persistence in academic tasks.

[1] Orthographic consistency is defined as the degree of correspondence between the letters and the sounds (Seymour, Aro, & Erskine, 2003). In orthographically consistent languages, such as Finnish, Greek, or Italian, letters map relatively consistently onto sounds. In contrast, in orthographically inconsistent languages, such as English or Danish the relation between letters and sounds is equivocal: some letters can be pronounced in more than one way (e.g., the sound /a/ in the words *ball*, *cat*, or *head*).

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The key idea is that positive self-concept and efficacy beliefs, originating partly from successful previous learning experiences, provide a basis for students' success expectations concerning a particular learning task, which then leads to high effort and task-focused behavior in new learning situations (e.g., Eccles, Midgley, Wigfield, Buchanan, & Reuman, 1993; Meece, Wigfield, & Eccles, 1990). High effort and task-focused behavior provide then a basis for successful learning. By contrast, negative self-concept and low efficacy beliefs, originating from failures in previous learning experiences, increase the likelihood of expecting a failure. This then leads to a low level of effort and task-avoidance in a particular learning situation (e.g., Aunola et al., 2003; Darnon, Butera, Mugny, Quiamzade, & Hulleman, 2009; Sideridis, 2003), increasing the likelihood of failing in challenging learning tasks. In the present study, the achievement strategies were operationalized in terms of teacher-rated task-focused behavior. Examples of task-focus behavior include staying on task, avoiding distractions, and persistence, while task-avoidance is evidenced in off-task behavior, lack of involvement, and lack of persistence. From here onwards we will use the term task-focused versus task-avoidant behavior to refer to achievement strategies.

There is an increasing amount of research examining the role of task-focused versus task-avoidance behavior in learning to read. For example, Onatsu-Arvilommi and Nurmi (2000) found that, after controlling for previous level of reading skills, Finnish children's task-focused behavior was associated with a steeper increase in their reading skills 3 months later, whereas task-avoidance was associated with a smaller increase in reading skills. Several recent studies have shown a similar pattern of results in different orthographies (e.g., Fyrstén, Nurmi, & Lyytinen, 2006; Georgiou, Manolitsis, Nurmi, & Parrila, 2010; Hirvonen, Georgiou, Lerkkanen, Aunola, & Nurmi, 2010; Lepola, Salonen, & Vauras, 2000; Stephenson et al., 2008). However, a closer look into the correlation coefficients reported in different studies indicates that, albeit being significant, they vary considerably.

The extent to which task-focused versus task-avoidance behavior would impact students' learning to read might be assumed to vary according to how difficult or challenging a particular learning task is (e.g., Miller, 2003; Turner & Paris, 1995). The more demanding a particular task is, the more likely it will activate failure expectations among children leading to task-avoidant behavior, which then increases problems in learning and the likelihood of failing in a particular task (e.g., Darnon et al., 2009; Onatsu-Arvilommi & Nurmi, 2000). There are several ways in which various challenges related to literacy acquisition may vary. First, alphabetic languages have been put on a continuum from transparent, or shallow, orthographies to opaque, or deep, orthographies according to the degree of consistency in which graphemes correspond to phonemes (Seymour et al., 2003). Given the plethora of evidence showing that children learning to read in transparent orthographies outperform children learning to read in opaque orthographies (e.g., Aro & Wimmer, 2003; Seymour et al., 2003), we can assume that task-focused behavior should play a more important role in opaque orthographies than in transparent orthographies. The reason for this is that learning to read in opaque orthographies is more demanding than in transparent orthographies, and therefore task-focused behavior is more likely to contribute to the learning process. In line with this prediction, Manolitsis, Georgiou, Stephenson, and Parrila (2009) found recently that although task-focused behavior – assessed in kindergarten – predicted word decoding in grade 1 in English (an opaque orthography) after controlling for the variables measuring phonological awareness and letter knowledge, it did not predict word decoding in Greek (a transparent orthography).

Second, the difficulty of literacy learning tasks may also vary within a particular language. It may be assumed, for example, that because word identification in languages with a consistent grapheme–phoneme correspondence reaches high levels of accuracy soon after formal reading instruction and does not require a high level of effort, task-focused behavior will not play an important role. In other words, children will learn to read no matter what. However, spelling requires more effort for an extended period of time (e.g., Bosman & Van Orden, 1997; Treiman & Kessler, 2005), and is, therefore, more easily influenced by task-focused behavior. Greek orthography, with its high degree of regularity in reading, but irregularity in spelling (see Porpodas, 2004, for a description of the irregularities), provides an interesting context for examining the role of task-focused behavior on different literacy outcomes. If task-focused behavior becomes more important the more demanding the literacy task is, then we would expect a stronger effect of task-focused behavior on spelling than on reading fluency or accuracy. In line with this prediction, Georgiou et al. (2010) showed in a longitudinal study that task-focused behavior was a strong predictor of spelling in Greek, but not of reading fluency or word decoding. Notably, the effect of task-focused behavior remained significant even after controlling for the effects of the autoregressor (spelling ability measured at an earlier point in time).

To examine the effects of children's task-focused achievement strategies on literacy acquisition we selected three languages that vary in orthographic consistency: Chinese, English, and Greek. In Chinese, about 90% of the characters are semantic–phonetic compounds (Hoosain, 1991), consisting of one part that has some relation to the pronunciation of the character (phonetic radical) and one part that has some relation to its meaning (semantic radical). Even though the majority of the Chinese characters contain a phonetic radical, the information contained in the phonetic radical is usually an unreliable guide to its pronunciation. Only 25% of the characters (when lexical tone is considered) can be predicted correctly from the phonological information contained in the phonetic radicals (Yin & Weekes, 2004). Thus, Chinese is an extremely opaque orthography. Similar to Chinese, English contains many exception words. However, in general, a reader can sound-out most, if not all, letters of an unfamiliar English word. Ziegler, Stone, and Jacobs (1997) calculated the degree of body-rime consistency in monosyllabic words in English and found that 79.3% of these words were consistent in the direction of graphemes to phonemes (forward consistency) and 27.7% were consistent in the direction of phonemes to graphemes (backward consistency). In contrast to Chinese and English, Greek is considered to be an orthographically consistent language; at least in reading. Protopapas and Vlachou (2009) estimated forward consistency in Greek to be 95.1% and backward consistency to be 80.3%.

The differences in orthographic consistency among the three languages lead to specific hypotheses with respect to the role of task-focused behavior on reading fluency and spelling that we address as part of the following research questions:

1. Is the contribution of task-focused behavior on literacy skills different among children who learn to read English, Greek, and Chinese as their first language? If orthographic consistency moderates the relationship between task-focused behavior and literacy skills then a stronger relationship between task-focused behavior and literacy skills should be found in Chinese followed by English, and, lastly, by Greek.
2. Does task-focused behavior predict word- and text-reading fluency, and spelling after controlling for phonological awareness and rapid automatized naming (RAN)? Based on the findings of previous studies (e.g., Georgiou et al., 2010; Hirvonen et al., 2010), we hypothesized that task-focused behavior would predict both spelling and reading fluency, but its effects on spelling would be stronger because spelling is much more demanding than reading fluency.