



Linking parental scaffolding with self-regulated learning in Chinese kindergarten children



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ABSTRACT

The current study aimed to examine the relationships between dimensions of parental scaffolding and children's self-regulated learning (SRL). One hundred and thirty Chinese kindergarten children participated in a range of problem-solving tasks with their parents and independently. Parent-child interactions and child-alone behaviours were video-recorded for an in-depth observational analysis. Parental cognitive support, emotional support, and contingency were coded in parent-child interactions. Children's cognitive, metacognitive, and motivational strategic behaviours and task performance were coded and assessed within the context of child-alone tasks. Results showed that contingency was particularly important for children's SRL. Parental contingency was the only independent predictor of children's SRL among the three aspects of parental scaffolding and mediated the effect of parent education levels on children's SRL.

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1. Introduction

Since the 1980s, the term self-regulated learning (hereafter abbreviated as SRL) has become widely used and is broadly defined as "learning that results from students' self-generated thoughts and behaviours that are systematically oriented toward the attainment of their learning goals" (Schunk, 2001, p. 125). Children's development of SRL has been identified as an important socialisation process beginning in early childhood (Suchodoletz, Trommsdorff, & Heikamp, 2011). As self-regulatory abilities are learnt and highly teachable, parenting plays a key role in kindergarten children's learning of SRL strategies within problem-solving situations (Whitebread & Babilio, 2012). A small number of studies have suggested that parental scaffolding, as one of the primary parental behaviours during parent-child interactions, is related to children's SRL (e.g. Neitzel & Stright, 2003; Pino-Pasternak, Whitebread, & Tolmie, 2010).

Much of the existing research concerning children's SRL has centred on school-age children and has suggested the importance of children's effective use of SRL strategies to their learning outcomes in academic tasks (e.g. Pino-Pasternak et al., 2010), whereas less attention has been given to kindergarten children's strategic

behaviours in problem-solving contexts. Moreover, the predominance of Caucasian participants in this research area calls for further studies in different cultural contexts. No studies of which we are aware have linked parenting with children's use of SRL strategies in China. The current study aimed to expand the literature by shedding light on the role of parental scaffolding in kindergarten children's SRL in the Chinese context.

1.1. Early development of SRL

As SRL has consistently been related to academic performance in school settings, most researchers have focused on school-aged children's self-regulatory competence in specific academic tasks (e.g. Thronsdon, 2011). In fact, children's learning begins long before they enter school and before anyone intentionally teaches them (Vygotsky, 1978). Whitebread (2012) emphasised that young children's self-regulatory abilities can be significantly promoted within playful contexts characterised by emotional support, appropriate levels of cognitive challenges, and opportunities for children to explore their learning processes and that methodological limitations in prior studies have led to the underestimation of kindergarten children's SRL performance. An over-reliance on verbal-based methodologies is evident in many of the earliest studies on children's metacognitive abilities (Winne & Perry, 2000). Cognitive constructivists, following Flavell's (1979) influential work, tend to argue that young children's incapacity for self-

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regulation during learning activities results from limitations of their metacognitive competence (Zimmerman, 2001). Studies set in naturalistic settings, however, have shown that young children's ability to demonstrate their metacognitive competence can be negatively affected by contextual factors during experiments (Perry, 1998). The ecological validity of research tasks is therefore essential in investigating young children's strategy use, which is demonstrated more accurately when the tasks are meaningful and age-appropriate (Whitebread et al., 2009).

Despite limited research on young children's SRL, evidence has identified the emergence and development of SRL behaviours in children as young as 3 years old. Bronson (2000) provided a comprehensive review of kindergarten children's development of self-regulation and its relations to environmental support. She concluded that, compared to infants and toddlers, kindergarten children are more organised in their control of attention, monitoring behaviours, and adoption of strategies. Further, with regard to motivational aspects of SRL, kindergarten children are increasingly interested in taking challenges and their focus gradually moves from exploring the task to achieving goals. The kindergarten period is a crucial time for children's development of SRL due to children's significant advances in cognitive awareness, effortful control, language, etc., which allow children to choose appropriate strategies to solve problems (Bronson, 2000).

1.2. Socialisation of SRL: the importance of parental scaffolding

The construct of scaffolding is introduced to explicate an interactive process by which an experienced adult instructs a child to complete a difficult task that the child finds difficult or cannot complete independently (Wood, Bruner, & Ross, 1976). Relying on the "scaffold" of instructional and socioemotional strategies created by parents, the child can not only successfully tackle the task but also gradually become an independent learner (Robinson, Burns, & Davis, 2009). A few studies have shown a tendency towards multidimensional approaches, exploring the contribution of different scaffolding behaviours to indicators of children's SRL (e.g. Pino-Pasternak et al., 2010). Parental scaffolding behaviours which have been found to be related to children's SRL can be categorised into three main aspects as cognitive support, emotional support, and contingency.

1.2.1. Parental cognitive support and children's SRL

Parents provide cognitive support during joint problem-solving tasks by conveying information about task management techniques and strategies (Vygotsky, 1978). Previous research has indicated the predictive role of parents' provision of cognitive support in children's SRL during child-alone and classroom activities. Robinson et al. (2009) provided new insights into the importance of parental cognitive support by investigating the associations between children's performance with mothers' assistance and child-alone performance in a similar task. The findings suggested that for children with mothers who demonstrated more cognitive support in the task, higher proportions of self-regulated attention in the parent-child task were related to higher accuracy in the child-alone task. In contrast, for children with mothers who provided minimal scaffolding instructions, the attention regulation skills observed in the parent-child task were not associated with performance in the child-alone task. As Vygotsky (1978) suggested, children's learning can be viewed as a process of moving from other-regulation to self-regulation.

Neitzel and Stright (Neitzel & Stright, 2003; Stright, Neitzel, Sears, & Hoke-Sinex, 2001) examined the influences of two indicators of maternal cognitive support, the provision of meta-cognitive information and manner of instruction, on children's SRL

in classroom activities. The results of both studies demonstrated that mothers' manner of instruction moderated the relationships between parents' provision of metacognitive information and children's SRL behaviours in the classroom such as metacognitive talk, task persistence, and self-monitoring. Both studies suggest that parents need to not only provide adequate metacognitive information, but also convey the information in an understandable way and at an appropriate pace. However, although both studies highlighted the importance of the manner of instruction, they focused entirely on mothers' behaviours, but did not assess their contingency that is the degree to which mothers were able to adjust their manner of scaffolding in response to children's ongoing evidence of task understanding.

1.2.2. Parental emotional support and children's SRL

While parental cognitive support contributes more to children's cognitive and metacognitive behaviours, emotional support has been found to be related more strongly to children's motivational and emotional regulatory process, particularly children's persistence on the task, motivation to continue the task and emotional responses to the task (Pino-Pasternak et al., 2010). Without appropriate and timely emotional support from parents, children may lack motivation to learn cognitive strategies or to practice newly acquired knowledge when solving problems independently (Stright et al., 2001).

Early studies have paid attention to both positive and negative aspects of parental emotional behaviours and their relations to children's motivational behaviours of SRL. For instance, Salonen, Lepola, and Vauras (2007) examined the role of parents' positive and negative emotional responses in children's task orientation. The findings indicated that parents of task-oriented children adjusted their emotional responses more sensitively to their children's emotional expressions, compared to parents of non-task oriented children. In addition, parents of task-oriented children emitted more positive emotional signals than parents of non-task oriented children.

1.2.3. Parental contingency and children's SRL

The concept of contingency is also termed as "the shift rule". It refers to a parental shift in scaffolding following the rule of providing less specific instructions and higher cognitive demand after a child's success and more specific instructions and lower cognitive demand after a child's failure (Wood & Middleton, 1975). For instance, a parent who is able to provide contingent scaffolding will use a more challenging question to promote his or her child's thinking when the child demonstrates a good understanding and provides a more manageable instruction when the child shows a poor understanding of the task. Children's SRL in problem-solving tasks have been shown to be associated with parental contingent scaffolding behaviours. Wood and Middleton (1975) firstly showed that the sensitivity of parents' instructions contingent on children's level of task ability was related to children's independent performance in a post-instruction task. In contrast, the actual frequency of parent's instructions had no relation with children's post-instruction performance. These findings reveal a clear distinction between quantity and quality of parental scaffolding.

Inspired by Wood and his colleagues' work with young children, later studies have further corroborated the significance of varying levels of intervention contingent on children's reactions, but have paid more attention to school-aged children's performance in homework-type activities. Pratt and Savoy-Levine (1998) examined the relationships between contingent tutoring and children's performance on long-division mathematics homework. Both studies found that mothers' use of "the contingent shift rule" was related with children's level of learning gains from a tutoring session to an

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