



## Early childhood education quality and child outcomes in China: Evidence from Zhejiang Province



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### ABSTRACT

Despite high rates of Chinese kindergarteners (3–6 years old) enrollment in early care and education (ECE), the quality of that care has not been widely examined. Following rapid economic growth in urban areas in the past three decades, there are growing concerns within China that families in urban and rural areas are experiencing an ECE opportunity gap. To address this concern, this study examined ECE quality and its association with child outcomes based on a relatively large sample of kindergartens in China. Using a stratified and random sampling method, the study recruited 1,012 children (age 3–6) from 178 classrooms in Zhejiang Province, a relatively developed region with a population of over 54 million people. We used the *Chinese Early Childhood Environment Rating Scale* to measure ECE quality and found moderately low quality for the study sample. Also, lower quality was observed in rural than urban areas, in private than public programs, and in programs with overall low parent education than those with high parent education. One dimension of quality, *teaching and interactions*, predicted child outcomes in language, early math, and social cognition as measured by the *Children's Developmental Scale of China* (age 3–6) in hierarchical linear models. The possible sociocultural and contextual reasons for these findings and implications for policymakers and practitioners are discussed in this paper.

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### 1. Introduction

Nowadays, more than half of Chinese children aged 3–6 attend center-based childcare before primary school. As in many countries, kindergarten, called ‘you’eryuan’ in Chinese, is the predominant form of center-based childcare for 3 to 6 year olds in China. In 2010, *The Central Government of the People's Republic of China (2010)* promulgated the *Compendium for China's Mid- and Long-Term Education Reform and Development*, which declared that 95% of Chinese children should receive at least one year of preschool education, while 75% of children should receive a three-year preschool education by 2020. According to *National Bureau of Statistics of the People's Republic of China (2013)*, the proportion of

3–6-year-old children enrolled in childcare centers rose from 28% in 1991 to 62% in 2012. Thus, the focus on increasing access has raised questions about the quality of early care and education (ECE) in China. However, the quality of that care has not been widely examined. Furthermore, there are also concerns that different levels of ECE access and quality may exacerbate the growing opportunity gaps between urban and rural children (Hu, Zhou, Li, & Roberts, 2014), children attending public and private programs (Bu, 2008), and children of higher and lower socioeconomic statuses (SESs) (Zhang, Luo, Tao, Luo, & Dong, 2015). The purpose of this study was to describe the quality of ECE in a province of China and relate it to the early developmental outcomes of children.

#### 1.1. Defining ECE quality in China

Under the influence of the deep-rooted cultural traditions of collectivism and respect for knowledge, Chinese ECE tended to focus on maintaining discipline, teaching children rules, basic art and academic skills (Li & Rao, 2005; Ng & Rao, 2005; Tobin, Hsueh, & Karasawa, 2009). Consistent with these traditional beliefs, most ECE involves large-group instructional and art/music activities and

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† Deceased (2016). In memory of Dr. Yi Pan who cared deeply about the provision of quality early childhood education for disadvantaged children in China. The research team, greatly saddened by the loss of a friend and colleague, will carry on his dream of improving the lives of children in poverty in China.

group responses to teachers, although direct instruction in literacy and calculating skills is forbidden during the kindergarten years (Zhu & Wang, 2005). Over the past three decades, Chinese ECE professionals have introduced some Western ECE quality concepts into Chinese ECE regulations and practices (Hu, 2014; Zhu & Zhang, 2008), such as play-based curriculum and child-centered teaching approaches (Ministry of Education of the People's Republic of China, 2001). However, a recent national survey on children's daily activities in 440 classrooms from 11 provinces indicated that kindergarteners (aged 3–6) spent 46% of their time on whole-group activities during the observation day and only 19% on free play in interest-center activities (Liu, 2011).

A few studies have explored the quality of Chinese kindergarten education (Liu, 2011; Pan, Liu, & Lau, 2010; Xiang & Liao, 1995). In the early 1990s, Xiang and Liao (1995) reported relatively poor ECE quality in a nationwide study in China that included over 400 ECE programs from six provinces. Their observations indicated that Chinese ECE programs lacked age-appropriate materials for children's learning and play and provided few opportunities for free play, individualized interactions with teacher(s), and social interactions with peers (Xiang & Liao, 1995). Chinese kindergarten teachers tended to focus on academic skills, discipline and rule enforcement rather than socio-emotional development (Xiang, 1995). A recent study of 28 classrooms from 14 kindergartens in Beijing obtained largely consistent findings using an unpublished measure similar to *Early Childhood Environment Rating Scale (ECERS)* and reported that these programs were of low to moderate quality (Pan et al., 2010). The study indicated that in most of the observed classrooms, teacher-directed group activities occupied most of a school day and teachers provided little time and few opportunities for free play. Most teacher–child interactions were one-way in a large-group manner and teachers paid little attention to children's individual learning needs and interests (Pan et al., 2010).

ECE quality in Chinese kindergartens may vary along several dimensions. Due to the long-lasting urban/rural divide in China, the rapid economic growth in urban areas in the past three decades has led to an upward social mobility for many urban families, but relatively stagnant social mobility for many families in rural areas that have not seen such growth (Guo, 2008; Pang, 2006; Tang & Zhao, 2008). Then, there are concerns that children in urban areas enjoy more opportunities than children in rural areas, including access to higher quality ECE (Wu, Yong, & Cai, 2012). Lacking of sufficient funding and qualified teachers, ECE programs in rural areas are found to have much lower quality on average than those in urban areas (Hu, Zhou et al., 2014). By auspice, Chinese kindergartens can be largely divided into public and private kindergartens. According to statistics by Ministry of Education of the People's Republic of China (2013), private kindergartens take up 69% of all ECE programs in China. Like the U.S., many Chinese private kindergartens are for-profit. However, in contrast to the U.S., the majority of Chinese private programs largely serve children from mid- to low-income families (Bu, 2008). Although both public and private kindergartens charge tuition, public kindergartens receive significantly more public funding and private kindergartens operate mostly based on private funding sources (e.g., student tuitions). Thus, public programs tend to be better funded and better equipped and have more qualified and stable teacher forces than private ones (Hu & Li, 2012). Meanwhile, the quality of kindergartens might differ dramatically based on the SESs of the families they serve. In China, like in many other countries, more-advantaged children might have better chances to attend higher quality kindergartens than less-advantaged children (Zhang et al., 2015). Furthermore, one can assume that these dimensions may not be independent and these divides may have impacts, possibly in an interactive manner, on child developmental outcomes, as more-advantaged children are

more likely to live in urban areas and attend high quality public programs.

## 1.2. Current research relating ECE quality to child outcomes

### 1.2.1. ECE quality and child outcomes

In many U.S. studies, ECE quality has been related to modest but statistically significant gains in language, cognitive, and social skills (Burchinal, Magnuson, Powell, & Hong, 2015). Evidence from experimental and rigorous quasi-experimental studies has demonstrated that quality ECE has modest to moderate causal effects on child outcomes (Yoshikawa et al., 2013), and evidence from large-scale observational studies has shown positive yet modest associations between child care quality and child outcomes (Burchinal, Kainz, & Cai, 2011; Keys et al., 2013). Very modest causal associations were detected in a recent study using instrumental variables (Auger, Farkas, Burchinal, Duncan, & Vandell, 2014), suggesting gains in language and math related to global process quality measures. Similar associations between global quality and child outcomes have also been reported in developing countries such as India (Rao, 2010), Bangladesh (Aboud, 2006; Aboud & Hossain, 2011; Moore, Akhter, & Aboud, 2008), Kenya, Uganda, Tanzania (Malmberg, Mwaura, & Sylva, 2011), Jamaica (Baker-Henningham, Walker, Powell, & Gardner, 2009), Costa Rica (San Francisco, Arias, Villers, & Snow, 2006), and Chile (Leyva et al., 2015). There is some evidence that children from less-advantaged backgrounds may benefit more when they experience higher quality childcare than children from more-advantaged backgrounds in both the U.S. (Burchinal et al., 2015) and around the world (Engle et al., 2011; Heckman, 2010).

One potential reason for the relatively modest associations between ECE quality and child outcomes is that ECE quality is often defined and measured globally and measures of more specific aspects of quality may provide better predictions (Bryant, Zaslow, & Burchinal, 2010; Peisner-Feinberg, & Yazejian, 2010; Zaslow, Martinez-Beck, Tout, & Halle, 2011). Recent meta-analysis of data from seven large-scale child care studies indicated stronger associations between child outcomes and ECE quality when quality was measured more specifically than globally, as measured by the *Early Childhood Environmental Rating Scale-Revised (ECERS-R)* total score (Burchinal et al., 2011). The studies found stronger associations between specific dimensions of ECE quality and aligned domains of child outcomes (Burchinal et al., 2015). For example, it was found that the “interaction” factor encompassing items related to teacher/peer interactions and teaching children in a responsive manner modestly predicted children's language and social skills, but ECERS-R total score did not (Burchinal et al., 2015). Other findings looked at specific quality measures from other ECE quality instruments (e.g., CLASS) and reported stronger associations with child outcomes for these specific quality measures than for the global ECERS-R total scores (Burchinal et al., 2015).

However, in a large-sample study, a research team reported mixed results for the associations between several ECERS-R quality dimensions (total score and three factor scores) and child outcomes (cognitive, social-emotional, and health) (Gordon, Fujimoto, Kaestner, Korenman, & Abner, 2013). They found that there were no significant associations between the ECERS-R total and factor scores and child outcomes in reading and math. A few significant associations were found between children's socio-emotional and health outcomes, but they were small and not in a pattern consistent with domain specificity (Gordon et al., 2013). Although results were not consistent across studies, it is reasonable to conclude that the strength of associations between ECE quality and child outcomes are stronger when specific dimensions of quality are more closely aligned with certain domains of child outcomes.

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