The relationship between symbolic play and language acquisition: A meta-analytic review

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ABSTRACT

A developmental relationship between symbolic play and language has been long proposed, going as far back as the writings of Piaget and Vygotsky. In the current paper we build on recent qualitative reviews of the literature by reporting the first quantitative analysis of the relationship. We conducted a three-level meta-analysis of past studies that have investigated the relationship between symbolic play and language acquisition. Thirty-five studies ($N = 6848$) met the criteria for inclusion. Overall, we observed a significant small-to-medium association between the two domains ($r = .35$). Several moderating variables were included in the analyses, including: (i) study design (longitudinal, concurrent), (ii) the manner in which language was measured (comprehension, production), and (iii) the age at which this relationship is measured. The effect was weakly moderated by these three variables, but overall the association was robust, suggesting that symbolic play and language are closely related in development.

Introduction

Across several disciplines (e.g., psychology, education) there is a general although not uncontroversial assumption that symbolic (or 'pretend/fantasy/imaginary') play has an important role in development. Numerous classic and modern theories incorporate this form of play as a key theoretical concept in development, although each theory differs significantly on specific details (e.g., Piaget, 1951; Rakoczy, 2006, 2008; Vygotsky, 1978). In the current paper we focus on the developmental relationship between symbolic play and language acquisition. Specifically, we take stock of the existing literature that has focused on the topic, and rigorously test the strength of the relationship using quantitative meta-analytic techniques.

Symbolic play

Symbolic play reveals a child's emerging capacity for symbolic representation. Although a standard definition has eluded the field, Lillard (1993) operationalised symbolic play as "the projecting of a supposed situation onto an actual one, in the spirit of fun rather than for survival" (p. 349). Lillard identified five features differentiating play and non-play episodes, which are both necessary and sufficient for play to be considered pretend. These include: (i) a pretender, (ii) a reality (a pervasive and obvious essential component), (iii) a mental representation that is different from reality, (iv) a layering of representation over the reality, such that they exist within the same space and time (also see Bretherton, O'Connell, Shore, & Bates, 1984), and (v) an awareness on the part of

the pretender of the components of play described in (ii)–(iv). Children are typically good at distinguishing pretence and reality, suggesting that pretend scenarios are a meaningful and mostly separate context in development (Leslie, 1987; for additional discussion see Bourchier & Davis, 2002; Lillard, Pinkham, & Smith, 2010). The capacity for symbolic representation as revealed through symbolic play is argued to reflect the child's emerging cognitive competence, a view that has framed the majority of theory and research into the relationships between symbolic play and language (McCune, 1995).

Symbolic play and language

The relationship between symbolic play and language acquisition has been a particularly prominent past research topic. Both domains share many conceptual commonalities; in particular, they are both *symbolic* and *communicative* (Bates, Benigni, Bretherton, Camaioni, & Volterra, 1979; Werner & Kaplan, 1963). Consistent with these commonalities, many studies have identified statistically significant concurrent and longitudinal associations (i.e., symbolic play predicting language) between the two domains (e.g., Bates et al., 1979; Hall, Rumney, Holler, & Kidd, 2013; Kelly & Dale, 1989; Kirkham, Stewart, & Kidd, 2013; Lewis, Boucher, Lupton, & Watson, 2000; Lyytinen, Laakso, Poikkeus, & Rita, 1999; McCune-Nicolich, 1981; Ogura, 1991). This relationship has been observed when the two behaviors emerge around the second year of life, as well as in older children. For instance, Bates et al. (1979) reported longitudinal associations between early symbolic play and language in children aged 9–13-months. Similarly, McCune (1995) reported that symbolic play and early language development were closely coupled, with development in symbolic play predicting development in spoken language longitudinally from 8 to 24 months (see also Ogura, 1991). In older children, Kirkham, et al. (2013) reported that symbolic play and language were significantly associated in 3–4-year-old children over and above the influence of non-verbal IQ and age, suggesting that the two domains are significantly related until elementary school age.

Despite reports of positive associations between symbolic play and language acquisition, not every study has reported the effect. For instance, Bornstein, Vibert, Tal, and O'Donnell (1992) reported a concurrent association at 13-months, but not longitudinal associations from 13- to 20-months. Furthermore, Lyytinen et al. (1999) reported a longitudinal symbolic play–language association from 14- to 24-months, but in the same sample found that symbolic play at 18-months did not predict language at 24-months. In a sample of slightly older children, Shore, O'Connell, and Bates (1984) reported no longitudinal symbolic play-language association from 20 to 28 months, although Shore (1986) reported a significant concurrent association in a sample of 18–24 month-olds.

There are several possible explanations for these inconsistencies. Firstly, it may be that the effect is weak in the population, and is thus particularly sensitive to problems associated with operationalizing key concepts. This may be especially problematic for measuring symbolic play, which is both difficult to define (Sutton-Smith, 2001) and has been operationalized in many different ways. Secondly, the likelihood of observing the effect (if it exists) may have been significantly affected by sample size, which in symbolic play-language studies have been notoriously variable and often low, as has also been the case in studies that have investigated the role of symbolic play in other cognitive domains (Lillard et al., 2013). This mirrors the general tendency for developmental research to be underpowered. In a recent analysis of 12 standardised meta-analyses investigating various aspects of language development, Bergmann et al. (2018) reported that most studies test too few participants, reporting a median power of 44% (i.e., 44% of identifying a true effect if it exists, range: 6–99%). Problems with power weaken the reliability and replicability of data, and can lead to both false positives and false negatives.

Therefore, as with many cases in the field, the true strength of the relationship between symbolic play and language is difficult to determine. Such inconsistencies raise the potential problem of publication bias, which may be particularly problematic in studies of pretend play. Smith (1988, 2010), for instance, has suggested that the role of play in development has been overstated because many researchers follow a "play ethos", whereby they weigh evidence according to an *a priori* belief in the intrinsic value of the behavior. The belief that play behaviors are beneficial for development is a common theme in the psychological and biological sciences. From an evolutionary perspective, it has long been argued that play enables juveniles to hone complex skills within the relatively safe confines of the play context. Indeed, many unrelated species engage in some form of play (e.g., physical play, object play), which begs the question as to why similar behaviors would independently evolve if they had no function. Conclusive evidence in support of this general assertion is very difficult to find, potentially because play likely has multiple functions and outcomes (Bateson & Martin, 2013). However, as Smith has argued, it is dangerous to assume a developmental function for behaviors without rigorously testing them, and this may be have influenced the past literature due to the possible presence of confirmation bias.

Several recent qualitative reviews of the symbolic play literature have considered the play-language relationship. In a wide-ranging review of the role of playful learning in preschool, Hirsh-Pasek, Golinkoff, Berk, and Singer (2009) concluded that play (broadly construed) was an important context for language and literacy development. Similarly, Weisberg, Zosh, Hirsh-Pasek, and Golinkoff (2013) reviewed correlational and intervention research investigating the role of play on language development, and concluded that "play is highly beneficial to children's language skills and provides a supportive context for language learning" (p. 49). Concentrating specifically on symbolic play, Lillard et al. (2013) (including commentaries by Bergen, 2013; Walker & Gopnik, 2013; Weisberg, Hirsh-Pasek, & Golinkoff, 2013) briefly reviewed correlational (concurrent and longitudinal) and experimental intervention research investigating the relationship between symbolic play and early language.[1] They concluded that the concurrent correlational evidence for the relationship was compelling, and that there was some evidence for a longitudinal relationship where play predicted language across the first 2 years of life.

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[1] Early language was defined as "first words and syntax" (Lillard et al., 2013, p. 18).