# **Research Brief: The Intersection of Play and Learning in the Early Grades**

Research on the benefits of play have been conducted over many decades with more recent studies not only focused on preschool and kindergarten students but elementary aged students as well. For the purposes of this brief, play is defined as “what children and young people do when they follow their own ideas, in their own way and for their own reasons” (Lester & Russell, 2008 as cited in *Purposeful Play,* 2016). As we lay out in the paragraphs below, play has been shown in research to positively impact academic outcomes, including language, literacy, math, etc. Additionally, play has clear benefits for a student’s social and emotional well-being, which serves as the foundational support needed for students to be available for and engaged in learning throughout their educational careers:

*Play is a unique form of adaptive behavior that has the power to create interconnections among different areas and systems of the brain, body and mind. (Lester and Russell, 2008). While skills like reading and math certainly have cognitive aspects, the reason why we engage in them, the importance we assign to them, the anxiety we feel around them, and the learning that we do about them, are driven by the neurological systems for emotion, social processing, and self.*

From a social-emotional perspective, play has been shown in research to positively impact executive function (i.e., working memory, including attention and impulse control, and cognitive flexibility), stress levels, and social competences (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011; Bauer, Gilpin & Thibodeau-Nielson, 2021; Berk & Meyers, 2013; Diamond, Barnett, Thomas & Munro, 2007; Pellegrini, 2005; Ciairano, Visu-Petra & Settanni, 2007; Barnett & Storm, 1981; Singer, 1961).

There are many types of play that exist along a continuum from free play to guided play to direct instruction (Zosh, Hirsh-Pasek, Hopkins, Hanne-Jensen, Liu, Neale, Solis, & Whitebread, 2018):



For the purposes of this brief and for the Playful Learning Institute, we focus on the benefits of guided play and games as instructional strategies to enhance both academic and social-emotional outcomes for students, Preschool to 3rd grade (PK-3).

For students to achieve high level thinking and learning, instruction must be meaningful and engaging (Fisher, Hirsh-Pasek, Newcombe, Golinkoff, 2013). Children who experience “direct instruction” (Bereiter, 1986) with emphasis on drill and practice can learn lessons and even achieve general cognitive gains (Bowman, Donovan, & Burns, 2001). However, studies comparing the outcomes from direct instruction with outcomes from playful learning have shown differences arise in variables that matter for socialization and for instilling a love of learning. Children in direct instruction programs had higher rates of delinquency, were less willing to help other children, and were more likely to experience emotional problems (Bowman et al., p. 139). Hart, Yang, Charlesworth, and Burts (2003) confirmed these findings in a longitudinal study that directly compared children who received direct instruction with those who received developmentally appropriate pedagogical practices. Results showed that through the third grade, children receiving primarily direct instruction experienced more stress than children receiving developmentally appropriate curricula. Furthermore, stress seemed to play a causal role in Hart et al.’s 2003 model, as it predicted the appearance of hyperactive and distractible behaviors, as well as greater hostility and aggression. Importantly, these findings emerged regardless of gender, race, and socioeconomic status. Being placed in a direct instruction classroom also hindered boys’ achievement, mediated by the stress of being in such a classroom. These children grew more slowly in reading (vocabulary and comprehension) and language expression than did their peers in more developmentally appropriate classrooms.

Language and literacy development are a core part of curriculum and instructional opportunities provided to students, PK-3. The research highlights the positive impacts that guided play and games have on outcomes for students in these areas (Siracho & Spodek, 2006; Christie & Enz, 1992; Singer, Golinkoff, & Hirsh-Pasek, 2006). Guided play and games offer students the opportunity to interact with one another, which has been shown to advance language development in students (Toub, Hassinger-Das, Nesbitt, Hgaz, Weisberg, Hirsh-Pasek, Golinkoff, Nicolopoulou, Dickinson, 2018; Quinn, Donnelly and Kidd, 2018; Bergen and Mauer, 2000). Cavanaugh (2007) found that kindergarten students had higher DIBELS scores when they played a game about literacy concepts (e.g., rhyming) that they invented themselves than when they completed an assigned literacy activity. Research also suggests that children demonstrate their most advanced language skills during play, and that these language skills are strongly related to emergent literacy (Christie & Enz, 1992; Christie & Roskos, 2006). Further, Hart, Yang, Charlesworth, and Burts’ 2003 longitudinal study directly compared children who received direct instruction with those who received play as part of instruction. Children placed in a direct instruction classroom grew more slowly in reading (vocabulary and comprehension) and language expression than did their peers in more developmentally appropriate classrooms.

The research on the impact of play on math and science outcomes follows a similar pattern as play and language/literacy development (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011; Zosh, Hassinger, Toub, Hirsh-Pasek, Golinkoff, 2016). For example, playing numerical board games has been demonstrated to improve numerical knowledge in low-income children (Ramani & Siegler, 2008) and improvements in spatial skills (Ferrara, Hirsh-Pasek, Newcombe, Golinkoff, & Lam, 2011). Similarly, as noted above, play has been shown to impact students’ executive function skills (Bauer, Gilpin & Thibodeau-Nielson, 2021; Berk & Meyers, 2013), which are key to mathematical concept development and learning. The research literature articulates the concurrent relationships between executive function skills and performance of mathematical calculations, and how executive function skills support the acquisition of new mathematics knowledge (Cragg & Gilmore, 2014). This research lends further support for playful learning in classrooms to assist in both the development of executive function skills as well as mathematical concepts.

Based on this research and the Department’s goals of improving outcomes for students by 3rd grade, the proposed goal of the Playful Learning Institute is to support schools in what the National Association for the Education of Young Children (NAEYC) describes as “a rich curriculum coupled with a playful pedagogy”. In its newly published *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth through Age 8 (4th Edition),* NAEYC proposes six pillars of playful learning:

1. Active (“Minds-On”) Thinking Promotes Learning
2. Engaged Learning – Staying on Task Promotes Learning
3. Meaningful-Creating Links to Existing Knowledge Establishes Connections that Promote Learning
4. Social Interactions with Others Promote Learning
5. Iterative Thinking Promotes Learning
6. Joy, Positive Affect and Surprise Promote Learning

These pillars could be used to help guide the indicators of practice that we look for as we engage in joint classroom visits and that can inform the development of the Playful Learning Institute.

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