Including playful aggression in early childhood curriculum and pedagogy

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THE APPROPRIATENESS OF YOUNG children's playful aggression within early childhood settings continues to be debated among early childhood professionals. Research suggests that children's play—all types of play—should be the foundation of early childhood practice; however, playful aggression continues to be a neglected aspect of early childhood curricula. While decades of research identify the significant developmental benefits within multiple domains of learning as derived from various aspects of play, strict policies prohibiting playful aggression remain. With a growing number of young children enrolled in preschool programs it is important for educators to provide beneficial and inclusive experiences conducive to fostering optimal development of young children in all learning domains. This article suggests that the intolerance of children's playful aggression may reduce their optimal development; more specifically, their cognitive, social, physical and communicative development may be limited or hindered due to the omission and/or exclusion of playfully aggressive opportunities.

Introduction

Decades of research demonstrates play as the means through which young children learn (Parten, 1932; Piaget, 1951; Smilansky, 1990; Vygotsky, 1966). Significantly, early childhood environments foster numerous aspects of young children's development through daily playful experiences. With the majority of three- to five-year-old children enrolled in preschool programs-more than 60 per cent in the United States, 80 per cent in Australia and 90 per cent in the United Kingdom-steadily increasing (OECD, 2015), many early childhood education policy-makers have adopted principles and guidelines for play-based curricula and play-based best practice (American Educational Research Association, 2005). As such, early childhood curricula aim to provide young children's optimal growth and development through play-based pedagogy (Hewes & McEwan, 2006; NAEYC, 2010).

In support of play as a key component of early childhood pedagogy, Developmentally Appropriate Practice (DAP), the Early Years Learning Framework (EYLF) and the Early Years Foundation Stage (EYFS) are three examples of national governmental initiatives to provide research-based principles and guidance for the delivery of quality educational experiences for young children. The National Association for the Education of Young Children (NAEYC) in the United States, the world's largest organisation

dedicated to improving the education of young children, provides an extensive framework of principles and guidelines for best practices in early childhood care and education. Collectively, these guidelines are known as Developmentally Appropriate Practice (DAP). DAP promotes young children's optimal learning and development through play-based pedagogy (NAEYC, 2010). Serving as the foundation for early childhood educators' decision making, Australia's EYLF is a play-based early childhood curriculum framework that considers specific curriculum relevant to local communities and guides the planning, implementation and evaluation of quality programs in early childhood settings (DEEWR, 2009). In the United Kingdom, the EYFS presents a framework of standards that support young children's learning, development and care through the implementation of play-based activities that foster young children's progress in seven areas of learning and development (Department for Education, 2014).

While the EYLF and the EYFS provide broad frameworks that guide early childhood educators' decision making, DAP outlines specific principles of child development and learning that include examples of playful activities for consideration. Specific to the physical domain, DAP states that preschool-age children should spend a minimum of a quarter of their school day in physical activity (Copple & Bredekamp, 2009). In agreement with DAP, studies that focus on young children's physical health recommend that

children engage in at least 60 minutes and up to seven hours of unstructured (free play) physical activity daily (Ammerman et al., 2007; NASPE, 2002) with at least two daily opportunities for outdoor play (Ammerman et al., 2007).

In an investigation of outdoor play, Clements (2004) provides an extensive discussion of the benefits of outdoor play, which include the acquisition of skills necessary for adulthood and the increased growth and development of the fundamental nervous centres in the brain. However, studies indicate that young children are receiving less than the recommended minimum of 60 minutes of daily free play, and that the characteristics of the preschool (e.g. environment and policy) highly influences the physical activity levels of the children in attendance (McWilliams et al., 2009; Pate, McIver, Dowda, Brown & Addy, 2008; Pate, Pfeiffer, Trost, Ziegler & Dowda, 2004). Additional findings from Clements (2004) indicates that despite the popularity of chase-and-flee games-a vigorous and cooperative game-a decline in young children's outdoor imaginative activities exists. One explanation of lower level physical activity in young children may be attributed to findings from Hart and Tannock (2013a) that demonstrate educators' discomfort with allowing aggressive play behaviour (e.g. chase-and-flee) due to a lack of understanding of the distinct differences between sociodramatic play and serious aggression.

Young children's play

The importance of play has a long history across numerous disciplines and has been recognised as an integral aspect of human evolution whereby it facilitates the building of the skills required for adaptation and survival (Byers & Walker, 1995; Pellegrini, Dupuis & Smith, 2007). In the early stages of life, playful behaviours are the foundation for early learning, and within an educational context, play is considered a fundamental tool for early childhood education practices providing numerous developmental benefits for young children and is easily imbedded into curricula. Through playful experiences, young children further their creative expression, language and literacy, cognitive competence, social skills and physical development. Current research views play not as an unimportant pastime, but as a critical component of early childhood programs because of its positive impact upon social, physical, cognitive and emotional development (Calabrese, 2003). In short, play is the foundation of young children's growth and development (Malloy & McMurray-Schwarz, 2004). During play, children advance their physical, cognitive, communicative and social-emotional development (Hewes & McEwan, 2006; Nagel 2012). For example, children benefit physically through their exploration of social boundaries, placement in a social group and repetitive movements to test their strength and restraint (Calabrese, 2003). Play also fosters children's physical health through exercising their fine and gross motor muscles, as well as providing children with an outlet to release built-up energy.

In one sense, play could also be considered a unique component of young children's physical activity in that the physical activity of young children is fundamentally different than that of older children, adolescents or adults (Burdette & Whitaker, 2005). And while it could be argued that subtle differences exist in the nomenclature, this paper contends that play and physical activity for young children are intimately connected in terms of the important development outcomes associated with such endeavours. Importantly, the links between play and physical activity at the nexus of brain health, cognition and scholastic achievement are well documented and worthy of consideration. For example, research has demonstrated links between school-based physical activity and enhanced learning via enhanced attention span, emotional regulation and concentration (Wojcicki & McAuley, 2014; see also Maeda & Murata, 2004; Pellegrini & Bjorkland, 1997; Shepard, 1997; Sibley & Etnier, 2003). Physical activity has also been associated with better grades in youth (Coe, Pivarnik, Womack, Reeves & Malina, 2006) and improved performance on academic achievement tests (Hillman et al., 2009). The physical benefits of play, in themselves, have been intermingled with cognitive benefits such as children learning about the effect their behaviour has on others (Logue & Harvey, 2010) and being provided with creative outlets to explore their world with a sense of empowerment (Parsons & Howe, 2006).

Children engaged in play also experience a range of intellectual benefits through cause and effect relationships and their exploration of complex or challenging concepts that require higher level thinking (i.e. logico-mathematical thinking and scientific thinking), thus further developing their cognitive competence (Bauer & Dettore, 1997). Play also facilitates the development of social skills in that it requires children to cooperatively develop themes, make decisions, pay attention to detail, sequence their actions and resolve conflicts or solve problems (Bauer & Dettore, 1997). Furthermore, dramatic play, which fosters cognitive and social development in young children is a facilitator of symbolic functioning (Hewes & McEwan, 2006) and is valuable for mathematics (Emfinger, 2009) and literacy (Korat, Bahar & Snapir, 2003; Pellegrini & Galda, 1993) development. Young children's symbolic play fosters literacy aspects related to early reading and writing (Pellegrini & Galda, 1993). For example, during socio-dramatic interactions, young children continually negotiate with peers and adults, who provide contexts of literacy experiences (Korat et al., 2003).

The social benefits of play for young children extend from developing friendships and participating cooperatively to maintaining those friendships by developing trusting relations (Hewes & McEwan, 2006; Pellegrini, 1988; Reed & Brown, 2000; Reed, Brown & Roth, 2000). Through social pretend play, young children learn to build strong peer relationships (Dunn & Hughes, 2001). Play provides children with the opportunities to develop concepts of right and wrong, and good and bad (Bauer & Dettore, 1997)

in support of social-emotional development. Through their playful interactions with peers and adults, children learn, practise and maintain challenging vocabulary and more advanced language concepts while simultaneously learning to view the perspectives of others. And while the evidence offered above prosecutes a very cogent case for ensuring play is something that does not move to the periphery of early learning environments, one aspect of play that often garnishes negative critique, is often omitted from curriculum documents and is arguably not valued or deemed inappropriate is that of playful aggression.

Playful aggression

Existing research involving rough-and-tumble play (Jarvis, 2007; Pellegrini, 1987; Smith & Lewis, 1984; Tannock, 2008), risky play (Sandseter, 2009), superhero play (Bauer & Dettore, 1997), 'bad guy' play (Logue & Detour, 2011), active play (Logue & Harvey, 2010), play fighting (Hart & Tannock, 2013a; Pellis & Pellis, 2007), big body play (Carlson, 2011), war play (Levin & Carlsson-Paige, 2008; Hellendoorn & Harinck, 1997; Malloy & McMurray-Schwarz, 2004) and physically active and imaginative play (Parsons & Howe, 2006) describe similar playful aggressive behavioural characteristics. Given the numerous terms used to define similar play behaviour, teachers struggle to recognise the benefits and support children's engagement of playful aggression (Hart & Tannock, 2013a). For the purpose of this article, play types that include aggressive characteristics will be defined using Hart and Tannock's (2013a) definition of playful aggression as, 'verbally and physically cooperative play behaviour involving at least two children, where all participants enjoyably and voluntarily engage in reciprocal role playing that includes aggressive make-believe themes, actions, and words; yet lacks intent to harm either emotionally or physically' (p. 108).

Characteristics of playful aggression

Malloy and McMurray-Schwarz (2004) define aggression as playful when the participants recognise that the messages within interactions represent behaviours and objects within the play realm rather than reality. Jarvis (2007) states that playful aggression is a set of enjoyable, physical, vigorous and reciprocal behaviours that include chasing, jumping and play fighting. Logue and Harvey (2010) define playful aggression to include superhero play, play fighting, chase games and protect/rescue games. Pellis and Pellis (2007) state playful aggression as synonymous with play fighting. Sandseter (2009) classifies playful aggression as risky play, which she defines as a thrilling and exciting form of play that involves the risk of physical harm (Sandseter, 2007). Within her qualitative exploration of the affordances for risky play in two preschool outdoor environments, Sandseter (2009) identifies playful aggression subcategories: wrestling/ fighting, fencing with sticks, chase and catch, snowball war, wrestle/fight/fence, fighter roles (superheroes).

Benefits of playful aggression

Playful aggression is considered to be a beneficial form of social play that encompasses complex behaviours involving many areas of the brain and engages much of the brain's physiology (Cozolino, 2013). Numerous animal experiments suggest that various types of playful aggression are precursors for learning, communication and components of social bonding (see, for example Bekoff, 2001; Boulton & Smith, 1992; Drea, 1996; Spinka, Newberry & Bekoff, 2001). In one important study using juvenile rats as test subjects, Pellis and Pellis (2007) demonstrated how roughand-tumble play (RTP)—a category of playful aggression leads to organisational changes in the areas of the brain involving social behaviour. Specifically, male rats were introduced into established colonies to observe social competence. One group of male rats were reared in groups of rats allowing for RTP, while another group of male rats were reared in isolation without RTP opportunities. Pellis and Pellis (2007) determined that rats reared in isolation displayed a significant deficit; they lacked the ability to calibrate movements with other rats, which provided foundational support of failure to develop emotional and cognitive skills. The authors' findings concluded that playfighting patterns produce experiences that could improve social competence. Pellis and Pellis (2007) argue that if similar patterns exist for rats and nonhuman primates, it is possible that RTP in childhood is causally related to social competence later in life. And while this research is limited to observing social behaviour among rats, studies of playful aggression and RTP in humans continues to demonstrate positive developmental outcomes.

Playfully aggressive behaviours as found in RTP, superhero play and big body play are believed to be valuable components of early childhood with many developmental benefits, including social, emotional, cognitive, language and physical development (Bauer & Dettore, 1997; Calabrese, 2003; Clements, 2004; Hewes & McEwan, 2006; Logue & Detour, 2011; Parsons & Howe, 2006; Pellegrini, 1988, 1989b; Reed & Brown, 2000; Reed, Brown & Roth, 2000; Sandseter, 2010). Interestingly, playfully aggressive behaviours, while observable in all children, are more prevalent and observable in boys than in girls (Flanders, Leo, Paquette, Pihl & Seguin, 2009; Smith, 2010). There exists a myriad of reasons and theories as to why this may be so, that are beyond the scope of this paper, but the potential of benefits of playful aggression for boys are worthy of some consideration here.

Playful aggression provides young boys with perhaps their only opportunity to experience a caregiver's role of give-and-take as well as the feeling of being cared for by their peers (Freeman & Brown, 2004). Recognising these benefits, Parsons and Howe (2006, p. 298) argue that 'providing opportunities to engage in superhero play opens up a multitude of creative possibilities and allows children the freedom to explore their world with a sense

of empowerment and control. Playful aggression also provides experiences that allow for immediate feedback for some brain areas that regulate social behaviour and general cognition (Pellis & Pellis, 2007). More specifically, playful aggression allows children to experience complex physical and linguistic peer responses and practise controlled and motivated competitive and cooperative behaviour within peer groups (Jarvis, 2007).

A further important component of playful aggression in boys is its ability to foster positive relationships with peers. Playful aggression facilitates opportunities for boys to enhance their capacity to monitor and read facial expressions, verbalisations and inferences about intent while also developing an awareness of establishing relationship hierarchies (Smith & Lewis, 1984; Costabile et al., 1991; Pellegrini, 2003). For boys, relationship hierarchies play an important role in emotional and social development and such hierarchies are evident in numerous facets of society.

Societal influences on playful aggression

Hart and Tannock (2013b, p. 1) suggest societal influences increase young children's interest in playful aggression and that such influences include 'movies (e.g. Star Wars), books (e.g. Harry Potter), national figures (e.g. military forces), community helpers (e.g. police officers), professional sports (e.g. rugby) and commercial toys (e.g. NERF® guns)'. Pervasive in Western culture, playful aggression has been ritualised in major spectator events such as hockey, football, basketball and stock car racing (Reed & Brown, 2000). However, because playful aggression in educational settings is either discouraged or banned, children receive mixed messages about the appropriateness of play fighting and war toys in school, home and community settings (Hart & Tannock, 2013b). For example, competitive sports such as fencing, kendo, wrestling and judo involve playful aggressive behaviour because players attempt to dominate one another, not cause injury (Hart & Tannock, 2013b). In contrast, boxing and ultimate fighting-recognised as a sport—allow for a greater degree of aggression; more specifically, violent behaviour such as a 'knock out' is considered an appropriate context of the sport. Collectively, these examples are categorised as a type of game play. As such, they are guided by rules that specify how the sport is played and involve physically aggressive behaviour as a crucial aspect of success and a normative expectation for players (Miethe & Deibert, 2007).

As in sports, playful aggression is guided by specific rules of the game, yet considered inappropriate behaviour by young children. Playful aggression is a highly sophisticated activity that builds community among the players, and behaviour that violates its rules should be banned, not the play itself (Freeman & Brown, 2004). Playful aggression among young children involves rules and routines that vary between the context of the play such as level of friendship,

setting, culture, gender and age (Freeman & Brown, 2004; Hart & Tannock, 2013b; Malloy & McMurray-Schwarz, 2004; Reed, Brown & Roth, 2000; Pellegrini, 1989a, 1989b, 1994). Because violence within sports is dependent on the rules and routines of the specific event (Miethe & Deibert, 2007), young children's exposure to varying levels of adults' aggressive behaviour is cause for confusion as to why such behaviour is socially acceptable in particular settings (e.g. sports), but not in their play.

Reconceptualisation of playful aggression

It is likely that early childhood educators restrict playful aggression play due to an inadequate understanding of its benefits (Little, Wyver & Gibson, 2011), and find it difficult to understand and facilitate playful aggression in early childhood settings (Fletcher, May, St. George, Morgan & Lubans, 2011). Since the 1990s, violence in United States schools has received considerably more attention than in previous eras with strict policies in place (e.g. zero tolerance) to curb behavioural problems, including aggression (Miethe & Deibert, 2007). The conventional view is that rough play should always be suppressed; however, that view fails to make the distinction between playful and serious aggression (Freeman & Brown, 2004). Of significance here is that there are specific differences between playful aggression and real aggression or fighting (Fry, 2005; Smith, 2010) and the research suggests that playful aggression only turns into real fighting or adverse circumstances among school-aged children about 1 per cent of the time (Smith, 2010; Smith, Smees & Pellegrini, 2004). The benefits of playful aggression, as noted above, far outweigh any assumed consequences or unintended interactions and the developmental necessity of playful aggression is equally significant.

The first five years of life can be viewed as the optimal opportunity for supporting the development of emotional and behavioural regulation and communication (Keenan, 2012). Physical aggression—an unlearned behaviour that begins between one and two years of age—tends to increase with frequency until approximately three-anda-half years of age, therefore, young children need to learn alternative behaviours (Tremblay, 2012). As teaching prosocial behaviours in preschool is a common approach to preventing young children's aggression (Girard, Girolametto, Weitzman & Greenberg, 2011), supervising adults have ample opportunities to support positive social interactions among young children whether painting a portrait in the art centre or wrestling indoors on tumbling mats.

Research indicates that preschool is a sensitive period for learning to regulate physical aggression (Tremblay, 2012), given aggressive and disruptive behaviour is one of the most enduring dysfunctions in children (Lochman, Boxmeyer, Powell & Jimenez-Camargo, 2012). Preschoolaged children who have not developed age-appropriate self-regulation skills are at a high risk for chronic aggression

and antisocial behaviour (Keenan, 2012). Paradoxically then, providing opportunities for playful aggression as it emerges in young children's play are not only an important aspect of development but may also play a role in suppressing aggression and antisocial behaviour rather than contribute to such behaviours.

In terms of promoting prosocial behaviours, supporting playful aggression within educational settings also has the potential to allow additional and continual opportunities to foster prosocial skills such as caring, turn taking, perspective taking and conflict resolution. Because real fighting occurs in only about 1 per cent of playful aggression bouts, as noted earlier (Smith, 2010; Smith et al., 2004), the possibility of superhero play or RTP leading to serious aggression seems no different to any other learning activity. Moreover, learning prosocial behaviours is a gradual process learned in part through adult mediated practice (Girard et al., 2011); therefore, it seems fitting to embed prosocial skill development into an activity young children find appealing. Group interactions provide opportunities for adults to encourage cooperative play, redirect children to ask each other for help, suggest roles during dramatic play, or script play for children requiring more support (Girard et al., 2011). Freeman and Brown (2004) contend that rather than banning playful aggression, teachers should reconceptualise their view by preparing environments that help all children form affiliations and friendships according to their personal strengths and preferences. Early childhood programs should support boys' and girls' play choices, recognising that each child has a unique repertoire of interactional styles that prepare them to cooperate with a diverse peer group (Freeman & Brown, 2004). Playful aggression is a highly developed form of socialisation that offers children, particularly boys, opportunities to create and sustain friendships (Freeman & Brown, 2004).

As with all children's activities, playful aggression requires supervision that gives children freedom from adult interference (Freeman & Brown, 2004), Freeman. and Brown (2004) offer eight broad support strategies for early childhood professionals: (a) permit both boys and girls to participate; (b) create a wide-open space reserved for aggressive play; (c) provide at least a half hour per day to fully develop their play episode; (d) provide close supervision and immediate support for children's physical and emotional security; (e) educate teachers and parents about the characteristics of playful aggression as compared to serious aggression; (f) educate children about playful aggression by making rules, discussing concerns and providing strategies to join or opt out of the play; (g) add playful aggression into professional development programs; and (h) conduct playful aggression research to contribute to the field of early childhood education. More recently, Hart and Tannock (2013a) provided more specific support for implementing playful aggression into early childhood programs. Bridging the gap between research and practice, Hart and Tannock's (2013a) support strategies for teachers and teacher training programs serve as a

foundation for the inclusion of playful aggression within early childhood programs. Hart and Tannock (2013a) clarify definitions of serious aggression and playful aggression, conceptualise the importance of various forms of playful aggression in child development and provide strategies for early childhood educators when confronted with playful aggression in their classroom. 'Without a full understanding of the distinct difference between playful and serious aggression, early childhood professionals may react with concern and send conflicting messages to young children regarding the appropriateness of playful aggression' (Hart & Tannock, 2013a, p. 107).

As supported by Freeman and Brown (2004), Hart and Tannock (2013a) note supervision as a key component for supporting playful aggression in early childhood settings. Young children need clear directions, the establishment of rules and reinforcement or redirection from teachers to ensure their developmental growth and safety (Hart & Tannock, 2013a). To determine what actions constitute playful aggression and serious aggression, teachers should collaborate with children to establish consistency among participants and supervising teachers (Hart & Tannock, 2013a). Such collaborations would assist in the development of curriculum and pedagogy that fosters playful aggression in a positive fashion and supports an important aspect of child development.

Summary

The debate among educational professionals continues as to the appropriateness of playful aggression within educational settings (Boyd, 1997; Freeman & Brown, 2004; Parsons & Howe, 2006). Although researchers offer support strategies for its inclusion in early childhood settings (Bauer & Dettore, 1997; Calabrese, 2003; Carlson, 2011; Freeman & Brown, 2004; Hart & Tannock 2013a; Parsons & Howe, 2006; Pellegrini, 1987; Reed, Brown & Roth, 2000), strict policies prohibiting playful aggression remain (Boyd, 1997; Freeman & Brown, 2004; Reed, Brown & Roth, 2000).

With a growing number of young children enrolled in preschool programs, it is important for educators to provide beneficial experiences conducive to fostering optimal development of young children in all domains of learning. After all, research suggests that children's play-all types of play-should be the foundation of early childhood practice. However, the inclusion of playful aggression continues to be a neglected aspect of early childhood curricula, due in large to the lack of knowledge regarding its benefits, perceptions of all aggression as serious with intent to harm and requirements to uphold zero-tolerance policies. The intolerance of preschool children's playful aggression may reduce their optimal development; more specifically, young children's cognitive, social, physical and communicative development may be deprived of developing to the fullest extent.

References

American Educational Research Association. (2005, Fall). Early childhood education: Investing in quality makes sense. *Research Points*, 3(2), 1–4. Retrieved from www.aera.net/Portals/38/docs/Publications/Early%20Child%20Education.pdf.

Ammerman, A. S., Ward, D. S., Benjamin, S. E., Ball, S. C., Sommers, J., Malloy, M., & Dodds, J. (2007). An intervention to promote healthy weight: Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) theory and design. *Preventing Chronic Disease*, 4(3). Retrieved from www.cdc.gov/pcd/issues/2007/jul/06_0115.htm.

Bauer, K. L., & Dettore, E. (1997). Superhero play: What's a teacher to do? *Early Childhood Education Journal*, 25(1), 17–21. doi: 10.1023/A:1025677730004

Bekoff, M. (2001). Social play behaviour: Cooperation, fairness, trust and the evolution of morality. *Journal of Consciousness Studies*, 8(2), 81–90.

Boulton, M. J., & Smith, P. K. (1992). The social nature of play fighting and play chasing: Mechanisms and strategies underlying cooperation and compromise. In J. H. Barkow, L. Cosmides, J. Tooby & D. Premack (Eds.), The adapted mind: Evolutionary psychology and the generation of culture (pp. 429–444). New York, NY: Oxford University Press.

Boyd, B. J. (1997). Teacher response to superhero play: To ban or not to ban? *Childhood Education*, 74, 23–28.

Burdette, H. L., & Whitaker, R. C. (2005). Resurrecting free play in young children: Looking beyond fitness and fatness to attention, affiliation and affect. *Archives of Pediatric and Adolescent Medicine*, 159(1), 46–50.

Byers, J. A., & Walker, C. (1995). Refining the motor training hypothesis for the evolution of play. *American Naturalist*, 146(1), 25–40.

Calabrese, N. M. (2003). Developing quality sociodramatic play for young children. *Education*, 123, 606-608.

Carlson, F. M. (2011). Big body play. Washington, DC: National Association for the Education of Young Children.

Clements, R. (2004). An investigation of the status of outdoor play. Contemporary Issues in Early Childhood, 5, 68–80. doi: 10.2304/ciec.2004.5.1.10

Coe, D. P., Pivarnik, J. M., Womack, C. J., Reeves, M. J., & Malina, R. M. (2006). Effect of physical education and activity levels on academic achievement in children. *Medicine & Science in Sports & Exercise*, 38(8), 1515–1519.

Copple, C., & Bredekamp, S. (2009). Developmentally appropriate practice in early childhood programs serving children from birth through age 8 (3rd ed.). Washington, DC: National Association for the Education of Young Children.

Costabile, A., Smith, P. K., Matheson, L., Aston, J., Hunter, T., & Boulton, M. (1991). Cross-national comparison of how children distinguish serious and playful fighting. *Developmental Psychology*, 27, 881–887.

Cozolino, L. (2013). The social neuroscience of education: Optimising attachment and learning in the classroom. New York, NY: W.W. Norton & Company.

Department for Education. (2014). Statutory Framework for the Early Years Foundation Stage: Setting the standards for learning, development and care for children from birth to five. Runcom, UK: Department for Education. Retrieved from www.foundationyears.org.uk/eyfs-statutory-framework/.

Department of Education, Employment and Workplace Relations (DEEWR). (2009). Belonging, Being & Becoming: The Early Years Learning Framework for Australia. Canberra, ACT: Commonwealth of Australia. Retrieved from https://docs.education.gov.au/system/files/doc/other/belonging_being_and_becoming_the_early_years_learning_framework_for_australia.pdf.

Drea, C. M. (1996). Aggression decreases as play emerges in infant spotted hyenas: Preparation for joining the clan. *Animal Behaviour*, *51*(6), 1323–1336.

Dunn, J., & Hughes, C. (2001). 'I got some swords and you're dead!': Violent fantasy, antisocial behavior, friendship, and moral sensibility in young children. *Child Development*, 72(2), 491–505. doi: 10.1111/1467-8624.00292

Emfinger, K. (2009). Numerical conceptions reflected during multiage child-initiated pretend play. *Journal of Instructional Psychology*, 36(4), 326–334.

Flanders, J. I., Leo, V., Paquette, D., Pihi, R. O., & Seguin, J. R. (2009). Rough-and-tumble play and the regulation of aggression: An observational study of father-child play dyads, *Aggressive Behaviour*, 35(4), 285–295.

Fletcher, R., May, C., St. George, J., Morgan, P., & Lubans, D. R. (2011). Fathers' perceptions of rough-and-tumble play: implications for early childhood services. *Australasian Journal of Early Childhood*, 36(4), 131–138.

Freeman, N. K., & Brown, M. H. (2004). Reconceptualizing rough and tumble play: Ban the banning. Social Contexts of Early Education, and Reconceptualizing Play (III) Advances in Early Education and Day Care, 13, 219–234. doi: 10.1016//S0270-4021(04)13008-5

Fry, D. P. (2005). Rough and tumble social play in humans. In A. D. Pellegrini & P. K. Smith (Eds.), *The nature of play: Great apes and humans* (pp. 64-85). New York, NY: Guilford Press.

Girard, L. C., Girolametto, L., Weitzman, E., & Greenberg, J. (2011). Training early childhood educators to promote peer interactions: Effects on children's aggressive and prosocial behaviors. *Early Education and Development*, 22(2), 305–323. doi: 10.1080/10409281003668060

Hart, J. L., & Tannock, M. T. (2013a). Playful aggression in early childhood settings. *Children Australia*, 38(3), 106–114. doi: 10.1017/cha.2013.14

Hart, J. L., & Tannock, M. T. (2013b). Young children's play fighting and use of war toys. In P. K. Smith (Topic Ed.), R. E. Tremblay, M. Boivin & R. Peters (Eds.), Encyclopedia on Early Childhood Development [online]. Montreal, Canada: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. Retrieved from www.child-encyclopedia. com/sites/default/files/textes-experts/en/774/young-childrens-play-fighting-end-use-of-war-toys.pdf.

Heliendoorn, J., & Harinck, F. J. H. (1997). War toy play and aggression in Dutch kindergarten children. *Social Development*, *6*(3), 340–354. doi: 10.1111/j.1467-9507.1997.tb00110.x

Hewes, J., & McEwan, G. (2006). Lessons in learning—Let the children play: Nature's answer to early learning. Montreal, Canada: Canadian Council on Learning. Retrieved from http://galileo.org/earlylearning/articles/let-the-children-play-hewes.pdf.

Hillman, C. H., Pontifex, M. B., Raine, L. B., Castelli, D. M., Hall, E. E. & Kramer, A. F. (2009). The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience*, 159(3), 1044–1054.

Jarvis, P. (2007). Monsters, magic and Mr psycho: A biocultural approach to rough and tumble play in the early years of primary school. Early Years: An International Journal of Research and Development, 27(2), 171–188. doi: 10.1080/09575140701425324