

## THE CONTRIBUTION OF PLAY FIGHTING TO THE EMOTIONAL DEVELOPMENT OF CHILDREN

**Ioan TRIFA\***

Universitatea din Oradea

Corresponding author: nelu.trifa@gmail.com

**Abstract:** Play fighting is a form of behavior in which partners compete with each other to gain an advantage. Behavior during play fighting largely resembles the behavior in a real fight, where partners encounter, push and pull down onto the ground, trying to get into a position whereby to control or to dominate the opponent. In the play, unlike the fight, movements are exaggerated and performed at a lower intensity, muscles being somewhat less tensed, and certain actions that can cause injury to the partner are inhibited or modified, while offensive-defensive roles will be reversed quite frequently.

Play fighting can be considered a type of evolutionary adaptation designed to facilitate those experiences that will shape the cognitive and emotional development necessary for living in social communities. Research undertaken on different mammal species shows that play fighting offers many opportunities for expression and decoding emotions, improves emotional regulation and contributes to the development of coping mechanisms.

**Key words:** play; development; stress; emotional regulation.

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### INTRODUCTION

In evolutionary approaches, human or non-human behavior can be fully understood only in relation to the mechanism that explains the means of the ontogenetic development of behavior and the adaptive value of behavior and the contribution of these adaptations to increasing inclusive fitness (Tinbergen, 1963; Burghardt, 2005). The first part provides an explanation of how these traits or behaviors create a certain effect, and the second explains why these behaviors have been favored during the course of evolution (Confer et al., 2010; Scott-Phillips, Dickins, & West, 2011). The adaptive value of behavior or “survival value”, as it was called by Tinbergen (1963), concerns the contribution to increasing the chances of survival and reproduction. As shown by the author, some animals have a number of behaviors that are quite hard to understand. Many of the characteristics of these animals are adaptations that help them camouflage in the native environment, and these motions will be adapted to the function of avoiding being caught by predators that must be stimulated by movement in order to detect and track prey (Tinbergen, 1963). The adaptive value of behavior will be derived from the consequences that arise from these manifestations or from the effects produced by the deprivation of experiences that make these changes possible, but it is not always obvious which functions these behaviors serve.

In recent years, there have been many studies on different species of mammals, which have tried to highlight the functions of play fighting and its role in development. One of the most influential theories, formulated by Spinka, Newberry and Bekoff (2001), shows that juvenile play experience is meant to provide “training for the unexpected”. Marek Spinka and collaborators believe that play allows each individual to find their own solutions and rehearse behavioral

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\* Corresponding Author

sequences in which animals lose control over position and locomotion and need to regain these faculties quickly to deal with these unanticipated situations. According to them, play results in an increased versatility of the movements used to recover after a loss of balance after collisions with different obstacles, or after being knocked down or immobilized by an opponent, but also an increase in the individual's ability to recover following the emotional shock caused by this unexpected event. The authors showed that during play fighting every individual actively seeks to create unexpected situations, especially through a self-handicapping behavior. The function of these behaviors during the play would be to create such experiences by allowing them to regain control after a temporary loss and to help animals avoid emotional overreaction during unexpected stressful situations (Spinka et al., 2001; Peter et al. , 2009).

### **THE IMPORTANCE OF PLAY FIGHTING FOR EMOTIONAL REGULATION**

Play fighting represents a form of behavior in which partners compete with each other in order to obtain an advantage. Behavior during play fighting resembles largely the behavior in the real fight. The partners hit, push and knock down each other in an attempt to reach a superior position, and thereby to control or dominate the opponent. Unlike in real fighting, in play the movements are exaggerated and performed at a lower intensity, muscle is somewhat less tense and actions that can cause injury are inhibited or modified and the roles (offensive-defensive) will be quite commonly reversed.

In certain situations, when the partners are competing vigorously, these action patterns may be quite difficult to discriminate, and in order to prevent play from escalating to real fighting, many species have evolved signals that function to establish and maintain a play 'mood' (Bekoff & Allen, 1998). In the majority of species in which this type of play is present, the interaction happens as a response to the play-soliciting signals coming from one of the participants. These signals appear to foster some sort of cooperation between players so that each responds to the other in a way consistent with play (Bekoff & Allen, 1998). Thus, play fighting can be seen as a form of behaviour through which the protagonists learn to interact and, especially, to find an equilibrium between competition and cooperation (Palagi, 2006).

The attempts to suppress play fighting or to deprive young mammal specimens of such experiences, demonstrate that these play manifestations have multiple functions, being essential for a normal emotional development during the juvenile period and subsequently, for adult's mental health (Baarendse et al., 2013; Brown, 1998). Play deprivation for a relatively short period of time has led to an increase of such manifestations, both in intensity and duration, when new opportunities for playing arise or are created (Panksepp, 1998; Pellis & Pellis, 2006). However, play deprivation for a longer period of time may cause some abnormal reactions, especially in stressful or conflictual situations (Brown, 1998; Bateson, 2005; LaFreniere, 2011).

Conducting an experiment on two groups of rats reared in isolation, with or without the opportunity to have play experiences, Einon and Potegal (1978) found out that rats reared with no opportunities to play are inevitably attacked when, at the age of one month were placed in a cage together with other rats. These animals remain immovable for a significantly longer period of time compared to their peers that have had play experiences, although defensive behavior does not seem to be affected (Bateson, 2005; Pellis & Pellis, 2006; van Kerkhof, 2012). Also, Hard and Larsson (quoted by Pellis & Pellis, 2006) found out that male rats that were reared in isolation are either incompetent or present abnormalities with regard to mating behavior. However, animals reared in isolation are not only deprived of play-related experiences, but they are also deprived of any kind of social experiences, and the contribution of these experiences to the individual's normal development is difficult to appreciate (van Kerkhof, 2012).

In the late 50's, Harry Harlow (quoted by Shaffer, Kipp, 2010; Vicedo, 2010) separated monkey infants from their mothers, wishing to highlight the role of "biological instincts" and early

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experiences in behavior development. In order to determine the importance of nursing in comparison with mother contact comfort, for infant/mother bonding, Harlow replaced natural mother with surrogate mothers represented by two artificial dummies. A dummy was made out of wood wrapped with rubber and covered with cloth, warmed by an electric light placed at its back, and the other dummy was made out of wire mesh and had a different face. Harlow shows that regardless of mothers nursing, the monkey offspring has spent more time with the mother providing warmth and comfort, which reveals the need for affection and physical contact. Later, he tested the strength of attachment in two pre-arranged experiments: the first analyzed the reaction of the monkey offspring in an unusual situation meant to induce emotional stress; in the second the infant was placed in a room filled with objects designed to arouse curiosity. The monkey infant raised with surrogate mothers offering contact comfort have used it as a "security source" because it sat clinging before starting to explore with slow movements, and repeatedly returning for a little comfort before continuing to explore or play with objects. In contrast, the monkeys raised with wire surrogate mothers sat curled up at its feet and did not try to explore the surroundings on their own (Vicedo, 2010).

A few months later, monkeys raised with surrogate mothers started to show signs of depression or develop stereotyped behaviors like balancing, auto-stimulation and contact avoidance with their peers (Mendizza & Pearce, 2003) showing an obvious delay in development of social behavior (LaFreniere, 2011). Attempts of rehabilitation, by putting them together with other peers raised normally, turned out to be ineffective because monkeys raised in isolation respond with fear or aggression when their peers challenge them to play. However, rehabilitation of monkeys raised in isolation can be successful if they are placed together with partners that do not pose a threat, especially with female partners that are still in the attachment phase and ensuring an appropriate level of social stimulation. Even though monkeys raised in isolation will gradually get to develop normal social behaviors, they remain strongly reactive to stress and conflict (LaFreniere, 2011).

Subsequent research undertaken by Harlow and his colleagues (quoted by Vicedo, 2010) focused on comparing monkeys raised with surrogate mothers, but which have had opportunities to play with other peers raised in the same conditions, and the monkeys raised without play partners. In the conditions of raising monkeys with real or surrogate mothers, a prolonged attachment negatively affects the ability to establish social relationships with suitable peers. In order to clarify mother's role in the socialization process, Harlow and his colleagues separated the monkey infants from their mothers to raise them together with their peers. These monkeys raised only with other peers developed bizarre behaviors, clinging to each other like "wagons in a train,"; however, the presence of their peers allowed them to eventually develop skills which helped them establish social relations that are apparently normal.

This research suggested that mothers are not that essential, as it was believed, in the socialization process; however, their presence can facilitate the interaction between a child and other fellows. In the monkey, according to Harry Harlow (quoted by Vicedo, 2010), it would thus appear that "under favorable circumstances, real mothers can be bypassed but early peer experiences cannot" (Vicedo, 2010; p.8).

Stephen Suomi (2005) states that a young monkey bonding with its mother and with its peers complete each other rather than compete against each other in the course of social development. The infant/mother bonding is greatly enhanced long before any interaction with peers, and tends to change over time in terms of both shape and relative reciprocity. In contrast, the frequency and duration of interactions with peers tend to grow steadily during the first year of life and remains at a relatively high level until puberty. Each relationship offers to the young monkey a type of specific stimulation which the other part cannot replace, and the interaction of the young monkey with its mother and peers takes place in physical spaces and in different social

contexts; however, these relationships are not always completely independent from each other, nor are they always beneficial. For example, mothers that have a lower social status are more restrictive with their own offspring, in respect of the exploration conduct or play behavior with its peers. As a result, young monkeys have increasingly few opportunities to find partners of the same age, and when they are finally able to interact with other peers outside their group, their play was often cut short by their mothers' intervention. In this way, playing with their peers tends to become less frequent and shorter in duration and does not extend to create a lasting bond of affection among them, and these young monkeys which have not had the same opportunities to develop social relationships with peers from other families during their first years of life, will be less adept at dealing with peers and come to manifest more and more hostility as they grow. Suomi interpreted these findings as a demonstration of the critical role that playing can have in adjusting emotions (LaFreniere, 2011).

A number of other studies and observations carried out on different species of mammals present similar results; therefore, we can say that the long-term deprivation of this form of social interaction affects the emotional development of the individual. According to Peter LaFreniere (2011), monkeys deprived of playing during their juvenile period cannot cope with emotional excitement generated by dealing with an unusual or unexpected situation and respond via a mixture of feelings that oscillate between fear and threat. These monkeys show a high level of arousal and betray a great deficit in emotional adjustment.

William Mason (quoted by LaFreniere, 2011) suspected that this inability to engage in appropriate social interactions may be exacerbated by shortcomings in non-verbal communication and recognition of emotions. Miller, Caul and Mirsky (quoted by LaFreniere, 2011) compared in a cooperative-conditioning paradigm, the capacity of monkeys raised in isolation and monkeys raised in a social context to encode and decode facial expressions. They found out that monkeys raised in isolation are unable to effectively communicate emotional expressions. In order to assess the role of facial expressions in regulating social interactions of monkeys, Carroll Izard (quoted by LaFreniere, 2011) cut their facial nerves before placing them in shelters together with other monkeys. Monkeys with cut nerves became victims of aggression because of their inability to convey facial expressions. These skills to communicate and interpret emotional signals seem to be dependent on social interaction with parents and with other infants for their full development (LaFreniere, 2011).

In humans, research undertaken shows a number of similarities with some of these discoveries made on animals. Studies conducted in 1992 by Parke, Cassidy, Burks, Carson (quoted by Smith, 2010), and in 1993 by Boyum, Carson, Burks and Parke (quoted by Smith, 2010), confirmed that the length of time spent playing vigorously with his/her parents is associated with the child's ability to understand some emotional expressions, such as happy, sad, angry, scared or neutral (Pellegrini & Smith, 1998; Smith, 2010). At the same time, children who have been victims of aggression or have been deprived of such play episodes, are more inclined to react aggressively to "brutal" movements of a fellow, and tend to interpret them as a threat against him/her (Crick & Dodge, 1994), movements which otherwise represented an invitation to competition and play and which other children are able to interpret as such. In addition, Anthony Pellegrini (quoted by Smith, 2010) discovered that the frequency of interactions among fellows in play tracking and play fighting is correlated with the ability to understand play signals, whereas Smith, Smees and Pellegrini (2004) found that people who participate in play fighting or who have had such experiences are more able to differentiate between real fighting and play fighting, when they are presented such images or witness such events.

Play deprivation in a critical period for development will affect the individual's ability to find appropriate solutions under stress and to modify the behavioral response according to the situational context. Caroline van den Berg and her colleagues (1999), after conducting a series of

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tests performed on rats reared in groups or in isolation, have found that this form of social playing can be essential for developing coping mechanisms to deal with stressful situations from the social environment. The two groups of rats, after being subjected to a powerful social stress by placing them in a cage with a dominant male, presented major differences of behavioral response. Rats reared in isolation, when faced with this form of territorial aggression, presented an exploration behavior which made the resident male attack, unlike those of the control group, which reduced their activity or remained immobile. In addition, rats reared in isolation needed a significantly greater period of time to adopt a submissive behavior, which may lead to a higher number of attacks. On the other hand, the confrontation with the resident male resulted in an elevated plasma concentration of corticosteroids (corticoids), adrenaline and noradrenaline, corticosteroid concentration level and adrenaline were significantly higher in the group of rats reared in isolation. By comparing the results concerning behavior and data resulted from hormone analysis showed that play deprivation during the juvenile period does not reduce the impact caused by the presence of the resident male, which produced an inability in choosing appropriate response strategies (van den Berg et al., 1999). Even more, when rats reared in groups are offered a chance to escape from the presence of the dominant male through access to a platform above, they took advantage of the given chance, while rats reared in isolation failed to do so (Pellis & Pellis, 2011). After removing the dominant male, rats reared in group, but not those reared in isolation, restarted their play activity or mutual care, activities that are recognized to be used for reducing the effects of stress. These differences in behavior of the two groups are also highlighted by the hormonal changes that occur. For the rats reared in groups, the corticosteroids level grew rapidly in stressful situations but dissipated fast, compared to rats reared in isolation, this level will remain high for a longer period of time (van den Berg et al., 1999; Pellis & Pellis, 2006).

Play fighting may be extremely strenuous physically, cognitively and emotionally. Play fighting have the capacity of especially generating positive emotional states (Panksepp 1998), that facilitate the interaction between peers and help construct durable social rapport (Scott, Panksepp, 2003). In the context of play fighting, the participants learn to cope with powerful positive feelings, such as enthusiasm and restlessness, or with unpleasant feelings, such as fear, wrath, upset, benign somewhat obligated by the reactions the individual seeks to effect in the playing partner to modulate the intensity of their emotional response.

### **CONCLUSIONS**

Play fighting is proves to be among most important manifestations of play in childhood. Attempts to suppress play fighting, or to deprive young specimens of mammals of such experiences, demonstrate that these play manifestations fulfill multiple functions, which are essential for normal development during the juvenile period and later for adult mental health.

People who are deprived of such playing experiences may encounter difficulties in emotion regulation, which may affect the ability to understand the rules of conduct imposed by living in certain social communities and the ability to find workable solutions to the stressful life situations they might experience. Evidence gathered from this research conducted on different species of mammals shows that play fighting offers many opportunities for expression and decoding emotions, improves emotional regulation and facilitates the acquisition of better adapted reactions in unexpected situations or under stress.

Children seek to spend significant time in direct interaction with peers and to engage in play chasing and play fighting. Adults should allow children to engage in play chasing and play fighting and intervene only when obvious signs that these manifestations tend to degenerate into real fights. Adults and educators should provide for sufficient periods of free play, especially during breaks and during activities with an unstructured character, and such periods must be part of any educational program especially during childhood.

**CONFLICT OF INTERESTS**

Nothing to declare.

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