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Monsters, Magic and Mr Psycho: Rough and Tumble Play in the Early Years of Primary School, A Biocultural Approach

Introduction

R&T play has been defined as a physically vigorous set of behaviours, e.g. chase, jump and play fight, accompanied by positive feelings from the players towards one another. R&T also involves reciprocal behaviour, which is often observed in role change, such as being chased and chasing (Pellegrini 1995). The play type was first academically named as such by the anthropologist Karl Groos in his books 'Play of Animals' (1898) and 'Play of Man' (1901). Later findings, principally from bio-evolutionary studies, for example, those of Smith (1982, 1973), Smith and Connelly (1972), Smith and Lewis (1985), Humphries and Smith (1987) and Pellegrini (1987, 1988, 1989a, 1989b, 1993a, 1993b, 1995, 1996, 1998) have suggested that much learning occurs during such play activities, particularly among male primate groups.

Psychologists and educational professionals have, however, preferred to concentrate their attention upon more adult directed activities for children. Blurton Jones (1967, p.362) reflected: 'the extremely obvious R&T play has always been regarded as unimportant by psychologists'. Sylva, Roy and Painter (1980) divided play into 'challenging' and 'ordinary' play, with R&T very firmly in the ordinary category, which purportedly has a 'low yield' for cognitive development. Such views were taken forward into the planning of many western early years curriculums during the 1980s and 1990s; Bishop and Curtis (2001, p. 34) quoted the Superintendent of schools in Atlanta: 'we are intent on

improving performance. You don't do that by having kids hanging on monkey bars'. At the turn of the twenty-first century, consequently, R&T research continues to attract little professional interest. Pellegrini (1995, p.1) wryly commented 'what children do on playgrounds is typically not considered important by most teachers and parents, and certainly not by scholars'. However, this paper will argue that recent research within the biological, evolutionary and socio-cultural paradigms highlights the importance of 'what children do on playgrounds' and that fostering recognition of this fact is currently a crucial issue for early years professionals, in the pursuit of a more holistic developmental approach within early years settings.

Rough and Tumble Play: Definition and Brief Research History

Before R&T is specifically defined within this literature review, there will be an attempt to broadly define the overarching concept of 'play'. Reed and Brown (2000) suggested that play may be hard to define because it is something 'felt' rather than 'done', commenting that there is no agreed universal definition for play in the literature.

The following criteria for defining play were proposed by Garvey (1977, p.10):

- It is enjoyable to the player;
- It has no extrinsic goals, the goal being intrinsic, the pursuit of enjoyment;
- It is spontaneous and voluntary;
- It involves active engagement by the player.

But are these definitions over-exclusive? It could be argued that this list excludes sport, as sporting activity involves certain extrinsic goals and inhibition of spontaneous

behaviour, yet sport is still undertaken as an enjoyable leisure pursuit by many human beings. Others might undertake aspects of learning for enjoyment, which could also be seen as 'work' from another individual's perspective. If we see the term 'play' as equivalent to 'having fun', it becomes clear how different individuals and different demographic groups may perceive what is and is not 'play' very differently, and how many diverse behaviours might qualify as 'play'. Play thus appears to be a relative behaviour category. It may be that where an individual reports that they were playing, they probably were: 'it is fruitless to devote time and effort to defining what play is and what it is not... by de-emphasising the label play it might be easier to get on with the problem of studying the development of behaviour' (Meaney and Stewart 1985, pp.11-12).

The first modern ethological study of human R&T was undertaken by Blurton Jones (1967), transferring observation techniques used by Harlow and Harlow (1965) in monkey R&T studies into human developmental research. He reported a pattern of running, chasing and play fighting occurring among his participants that reflected behaviours observed among juvenile non-human primates. Subsequent studies were carried out in non-Western cultures and made similar findings; Konner (1972), Whiting and Edwards (1973) and Fry (1987) found that similarly structured R&T play took place among Zhun-Twa (!Kung) children and the children of Mexico, Kenya, Japan, India, The Philippines and The USA. Historical evidence suggests that R&T also had an important role in children's play in the culture of the past. Groos (1901) referred to the writings of Fitz Stephen who described vigorous play fighting between boys during the reign of

Henry II (1154-1189). The initial evidence thus suggests that R&T is a distinctive, universal form of play, which has been observed in many species, and for which a workable set of definitions can be offered.

In human beings, R&T appears to be a cross-generational and cross-cultural phenomenon, particularly prevalent among young males. However, the term ‘Rough and Tumble’ can be an unsatisfactorily vague description of a diverse set of play behaviours. As more empirical data was gathered, an expanded taxonomy of movements in R&T emerged. Some of the movements identified appeared to be common across primate species, some, mainly those involving language and/ or fantasy components, were identified as particular to human play.

Table 1: Typical movements identified in human R&T play

Play Fighting Movements (contact or mock contact mimicking aggression)	General R&T Movements
Hit/ kick at Light blow Pounce Pile on Hold/ grab/ restrain other child Push Grappling (brief struggle while standing) Kung-Fu/ Karate Colliding Butt Hit and Run Play-bite Wrestle/ pin Trip ‘Shoot’ Boxing (series of light clenched fist punches, may hit lightly or ‘stage fight’)	Chase Carries other child Spinning and swinging Tease/ Taunt Sneak up

(Synthesised from: Power 1999, p.168; Humphries and Smith 1987, p.210; Boulton and Smith 1989, p.70; Pellegrini 1996, p.18).

One immediate question with respect to developing a taxonomy of R&T is whether to include the non-contact aspects of the behaviour or to narrow down the behaviour to actual play fighting, which could be argued to only include points 5 and 6 from Blurton Jones' (1976) original taxonomy, beating at another child with a hand or an object without actually hitting. However, this could lead to breaking down the behaviour into very artificial 'slices'. As such, researchers have tried to study R&T as a complex and composite behaviour, incorporating some elements of social exercise play (e.g., chasing) and some elements of play fighting (e.g., wrestling).

A pressing question when observing children revolves around whether the individuals engaged in what seems to be R&T are really carrying out such actions in fun or in earnest. Initially animal ethologists were more concerned with separating good-natured R&T from the real aggression it was parodying than developmental researchers. Loizos (1976, p.350), in her ethological study of chimpanzee play proposed: 'Although social play and agonistic behaviour share some of their motor patterns.... Social play differs from agonistic behaviour in three major ways:

1. It has its own set of signal patterns
2. It does not end in dispersal of the participating animals
3. The reaction of the recipient of social play is to respond with similar behaviour rather than a different set of patterns altogether.'

In the later study of human R&T, Boulton (1988, 1993a and 1993b) found that groups of children of all ages could broadly agree whether a behaviour was R&T or aggression, and that they used similar criteria to do so. Boulton (1988, p.19) used these children's definitions to guide his own creation of a taxonomy of R&T. Costabile, Matheson and Aston (1991) also carried out a cross-national investigation of how children differentiate R&T from aggression. These researchers found that although older children showed slightly higher consensus, children of all ages used similar criteria to judge physical interaction incidents. This study was carried out by videoing children in schools in England and Italy. It was found that not only did children in both countries apply similar criteria to R&T definition; they also judged incidents to nearly the same standard of consensus when they were shown the tapes of children speaking a foreign language, indicating that judgements may be made on the basis of non-verbal signalling, including subconscious recognition of the human play face, possibly indicating a similar judgement system to those used by non-human animals.

The criteria proposed by Costabile et al (1991) and Boulton (1988) differentiating R&T from aggression, were later synthesised by Power (1999, p.170), and added to his own criteria mainly drawn from work with non-human animals. A composite of the information contained in Power (1999), Costabile et al (1991) and Boulton (1988) differentiating R&T from aggression is summarised and presented in the table below:

Table 2: Differentiating R&T from aggression

Length of episode	R&T lasts longer than ‘real’ fighting. (<i>Costabile et al 1991</i>)
Stay together or separate	R&T partners tend to stay together when the R&T episode is over, combatants almost never do. (<i>Costabile et al 1991, Power 1999</i>)
Facial expression	R&T partners smile and laugh, combatants frown and possibly cry. (<i>Costabile et al 1991, Power 1999, Boulton 1988</i>)
Physical Acts	Were blows actually landed or ‘staged’? (<i>Costabile et al 1991, Boulton 1988</i>)
Crowd	A real fight will typically draw other children, standing in a crowd to watch. Children conversely tend to show little interest in other children’s R&T unless they are actively attempting to join in. (<i>Costabile et al 1991</i>)
Threats	Where language is used it may be quite easy to differentiate real threats from play threats. <i>Power (1999, p.170)</i> refers to ‘shouting’, but none of the previous researchers refer to the <u>content</u> of language used in R&T play.
Intensity	Real aggression will result in higher intensity action than play aggression. (<i>Power 1999</i>)
Tactics	Real fighting will involve tactics where each partner tries to gain the upper hand, making attempts to really hurt the opponent; play fighting will involve role reversals and restrained, stylised ‘aggression’ (<i>Power 1999</i>)
Targets	Play fighting opponents are likely to be friends. Real fighting opponents are likely to be children who dislike one another (<i>Costabile et al 1991, Power 1999</i>)
Consequences	Injury is rare in play fighting, but likely in real fighting. (<i>Power 1999, Boulton 1988</i>)
Age Group	Increasing age is positively correlated with an increasing likelihood that a fight is real rather than in play. Fights between children of high school age are likely to involve some real aggression. (<i>Power 1999</i>)

It would therefore seem clear that R&T is a specific behaviour, easily recognised by children across language barriers, and that separating such behaviour from the serious fighting it enacts can be achieved relatively easily, by using mainly behavioural indicators.

One of the clearest differentiations in all aspects of R&T play appears to be the different amounts of such behaviour found between the genders. Many researchers have concluded that R&T is far more important in the development of males, in both human and non-human animals. Pellegrini and Smith (1998) noted that males of all playing species, including humans of all cultures, exceed females in frequency of R&T, offering a developmental evolutionary explanation: that girls and boys have a natural tendency to play differently in order to prepare them for different roles in reproduction, and that similar patterns can be found in males and females of non-human animal species.

Bio-Evolutionary Perspectives, Gender Differences and R&T

Support for the greater prevalence of R&T play in males across primate species was found by Braggio, Nadler, Lance and Miseyko (1978) in the data gathered for their observational study comparing the behaviour of children, juvenile chimpanzees and juvenile orang-utans. They found that in all three species, males undertook a higher frequency of R&T than female conspecifics. The reason the researchers suggested for this difference was hormonal; the effect of testosterone within male bodies. There is a surge of testosterone in mammalian male bodies in early infancy (the priming or 'organising' effect), then again at puberty (the activating effect). If the priming effect is absent in males, there seem to be corresponding behaviour changes; in particular, reduced R&T has been observed in rats and monkeys. Introduction of testosterone to young females correspondingly creates more R&T play. Meaney and Stewart (1985, p.24) concluded that young male primates rely heavily on R&T to underpin network building

within their peer group, and as such, evolutionary forces determine that ‘play fighting represents one of the few behaviours that is organised by early hormone exposure.’

The importance of testosterone in human gender development was demonstrated by Berenbaum and Snyder (1995) and Hines, Golombok, Rust, Johnston and Golding (2002). Congenital Adrenal Hyperplasia (CAH) is a condition in children that results from accidental pre-natal exposure to male androgens. Berenbaum and Snyder (1995) found that girls with the condition showed a significantly greater preference for boys’ toys and activities. Hines et al’s (2002) study calculated the level of testosterone normally present in individual human expectant mothers’ blood, and subsequently evaluated the behaviour of the resulting child at age 3½, finding that higher levels of maternal testosterone during pregnancy resulted in statistically significant higher rates of physically active play undertaken by the resulting female children. A corresponding finding was made in animal research, in that female rats carried in the uterus next to male rats showed more male-type behaviour (increased mounting). ‘The mere proximity of a testosterone-secreting male foetus in the uterus is sufficient to have an organising effect on the behaviour of females’ (Hall and Halliday 1992, p.116). Overall, there is strong evidence to suggest that testosterone plays a large part in the expressed play behaviours of young mammals, including human beings.

Social Constructionist Perspectives, Gender Differences and R&T

Researchers working in the poststructuralist and feminist paradigms take a different view to those working in the bio-evolutionary area, proposing that ‘gender is socially

constructed and the categories of masculine and feminine are developed in relation to one another' (Marsh 2003, p.59). However, their research tends to generate similar findings to those described by bio-evolutionary researchers. For example, Connolly (2003) found that his studies of children's primary school playground behaviour indicated clear differences between the play styles of girls and boys. O'Donnell and Sharpe (2004) proposed a clear difference between the genders: boys were far more dependent upon their peer group to construct their free play activities, while girls were more inclined to involve female adults. This conclusion directly corresponds with the findings of Meaney and Stewart's (1985) research with non-human primates. O'Donnell and Sharpe (2004, p.90) additionally found that such perceived peer groups appeared to reflect boys' membership of wider social groups, giving them a forum in which to develop feelings of power which 'focuses their sense of nationalism and territory.' This finding does illustrate a singularly human phenomenon- the ability to use language, in which human beings can construct and communicate highly abstract ideas, such as the concept of 'nationalism'.

Some researchers working within the social constructionist perspective have attempted to teach children to challenge the traditional gender roles that they are exposed to within western society. Davies (1989) undertook a project which sought to deconstruct gender concepts by introducing children to fairy stories with alternative feminist constructions, but found that children of both genders showed a strong resistance to such messages. One of her subsequent suggestions was that the human race needs to think beyond the intrinsic connection of biological reproduction and romantic love within traditional gender

narratives. We are left with the question of whether such a radical solution would be possible; given what we know about the evolution of species, and the action of testosterone upon the mammalian foetus, it seems unlikely that the difference that underlies the reproduction of the species would be so casually dependent upon environmental chance, giving human beings no natural, evolved psychological gender attributes at all. The role of language in human society, however, does mediate greater self-consciousness and flexibility of behaviour than is found in other mammalian species. An issue arising is the possibility of existing connections between evolved human biology and gendered ways of producing and understanding language. The following section considers this possibility, reviewing research relating to children's language in play within Western nursery and primary school environments.

The Role of Evolution-Mediated Culture and Narrative

Are human narrative constructs underpinned by evolution? Bruner (1990, p.69) referred to this concept as 'the biology of meaning', in that human beings are creatures who have evolved to critically rely upon sharing the symbolic meanings present in language to live in their socially complex societies. He proposed that human beings understand many, sometimes overtly similar aspects of their world very differently, depending on the story or 'fabula' that they attach to them. Lyle (2000, p.55) correspondingly described human beings as a 'storying animal', making sense of their environments via stories and narratives, meaning that human beings live in 'a largely story shaped world'.

An emergent question is therefore: do the genders construct rather different stories, originating from a gendered setting within an evolved neuronal template? Kyratzis (2000) summarised the current Early Years gendered language research evidence as follows: girls' conversation indicates that they are concerned with being nice, and creating intimacy and solidarity within their friendship groups, wishing to be seen by their friends as moral and loveable, while boys are concerned with being adventurous, risk taking and flouting authority outside the friendship group. They do not seek lovability, but they do have underlying concerns about the cohesion/ solidarity of the group. She emphasised subtle differences between these gender voices: 'narrative is a political activity, serving to establish political alignments by talk' (Kyratzis 2000, p.278), proposing that both genders vie for position in the peer group, boys seeking to be the most dominant, and girls the nicest. In summary, girls' talk has a co-operative surface structure but provides a framework where they can compete for 'likeability'; boys' talk has a competitive surface structure but provides a framework for companionship and group solidarity. Within each gender cohort 'narrative manages power, conflict and social ranking within friendship groups' (Kyratzis 2000, p.295).

A 'warrior discourse' among boys was also identified by Jordan (1995, p.76). She reflected 'we have, as far as I know, little in the way of explanation of how or why these narratives gain such a grip on little boys, but the evidence that they do and have done for generations is inescapable'. It could be suggested that the theoretical missing link in this debate may be the evolved gendered play behaviour described by bio-evolutionary researchers in non-human juvenile animals. It would follow that human boys and girls are

influenced by their underlying biopsychology to build slightly different stories or ‘fabulas’ in active free play, biology and culture playing complementary roles in this process. Tomasello (1999) proposed that the human linguistic capability creates an emergent ability to understand other people as creatures with internal thoughts and motivations like the self, which in turn underpins a form of cultural evolution that is unique to the human species. The following section considers the emergence of a theory that attempts to encompass such developmental complexity.

Bioculturalism

The biocultural approach has its origins within the concept of evolutionary psychology, outlined by Tooby and Cosmides (1992). These authors suggest that evolution did not just shape the physiology of all evolved creatures, but also the psychological architecture. Consequently, it is proposed that the analysis of human and non-human animal behaviour cannot be properly conducted without understanding the action of evolved cognitive structures, and that furthermore, with regard to socially complex human beings: ‘the component parts of the population are individual humans, so any social dynamics must be anchored in models of the human psychological architecture’ (Tooby and Cosmides 1992, p.47), suggesting that collective human social structures are an emergent property of evolved human psychology. Tooby and Cosmides proposed that, in agreement with mainstream anthropological theory, the last major evolutionary changes in human beings occurred to shape our physiology and psychology to cope with a Pleistocene hunter-gatherer lifestyle. This includes subtle differences between the genders, in that it is

proposed that they have evolved along slightly different paths to undertake different roles in reproduction.

Bjorklund and Pellegrini (2002) proposed a further theory of evolutionary *developmental* psychology, averring that evolution has prepared human children with a specific human and gendered ‘template’, which undergoes much further development in interaction with the child’s specific environment during the early years of life. These authors emphasised their opinion that free play experiences are of vital importance within this process, particularly in preparing children for complex social aspects of adult life, arguing that ‘play seems to have been especially adapted for the period of childhood, and is what children are “intended” to do. Remembering this may cause us to think twice before modifying children’s environments to achieve one goal (e.g. more focused learning opportunities at schools) at the expense of play’ (Bjorklund and Pellegrini 2002, p.331).

The developmental systems approach, described by the biologist Oyama also proposed that human development occurs by interactive gene-environment construction rather than by ‘a printout of a pre-existing code’ (Oyama 2000, p1). A further theoretical basis for an ‘equal effects’ approach can be found within the work of philosophers Mallon and Stich (2000) who outlined the concept of ‘bioculturalism’, highlighting and synthesising the roles of biology, evolution and culture in the production of human behaviour.

There is thus a distinct dichotomy emerging from theory that has key relevance for the contemporary study of human R&T:

- That the basic occurrence of R&T play in human children can be shown to have clear evolutionary roots in the non-verbal play of earlier species
- That such play in human beings is likely to show greater variability and complexity than that observed in animals due to human developmental complexity and the human ability to use language, resulting in play actions that use narrative and imagination.

Surely, if there is an evolved, gendered neuronal ‘template’, the indications are that it would not only have an influence upon the physical activities undertaken in play, but also, in human beings, upon the ways that they use language, and the fantasies that they create within free play activities in childhood. My own research was undertaken with the aim of investigating this possibility.

Introduction to the Research

The majority of previous research focusing upon R&T play has been carried out to investigate the physical aspects of boys’ R&T play (e.g., Pellegrini 1993a, Pellegrini 1993b, Dodge, Coie, Pettit, and Price 1990, Coie, Dodge, and Coppotelli 1982, Pettit, Bakshi, Dodek and Cole 1990). However, the research undertaken by the author focused equally upon both the play of both genders, with the purpose of investigating gendered narratives in R&T and chasing behavior. The participant establishment was a medium size primary school located within the suburbs of a large city in Northern England. It was

selected for its relaxed attitude to playground-based R&T play, as it was the researchers' opinion that a school with a more structured approach to playtime (recess) might offer little opportunity to observe children in authentic free play. The participant school had an integral nursery class, which children attended from the September or January following their third birthday, moving up into the Reception class of the main school in the September following their fourth birthday, which is the conventional English practice.

I first met the children who were going to become my research participants in April 2002, towards the end of their nursery year. The principal participants of the research were nine girls and nine boys, born within the six months between September 1997 and April 1998. There was some additional emergent participation from children with whom this focal sample engaged in play within their school playground, and from adults engaged in the daily activities of the child sample.

The research was undertaken in an ethnographic, broadly participant observational fashion. I visited the children in nursery, arranged the necessary ethical permissions and carried out preliminary observations during their final nursery term between April and July 2002, during which time they got used to my presence and the experience of being observed by an adult speaking quietly into a small dictophone. The set of observations used as data for this piece of research were subsequently carried out between September 2002 and November 2003. The children were placed in the Reception class of the main school between September 2002 and July 2003, moving up to Year One (first grade) in September 2003.

I used the approach of modelling my interaction role with the children as much as possible upon a volunteer parent-helper in school, attempting the 'observer as participant' research methodology (Banister 1994, p. 39). I responded to children's requests for help with buttons and shoelaces, and overtures to 'show' objects, while avoiding involvement in any of the directive or play-theme generating adult roles within the playground and the classroom. My gender, age and previous life experience were probably helpful in this respect; in age and appearance I was a fairly typical example of a mother of children within this age group, and added to my professional role as a part-time teacher in a different establishment, I also had previous experience as a volunteer parent-helper at my own children's primary school. After a very short period of initial interest from the children (2-3 weeks) I was treated by the sample as part of their usual classroom adult cohort, being asked for help with various everyday practical tasks, occasionally shown objects of interest and otherwise fairly generally ignored.

I never approached the children on disciplinary matters, and where children initially asked me to referee arguments or deal with disciplinary issues I referred the complainant(s) to other relevant adults. After a few weeks I found that the sample and their classmates did not tend to bring these matters to my attention, or (as far as I was aware) avoid or hide minor behavior violations when I was present. I felt that I had taken a more naturalistic approach than that used by Blurton Jones (1967) who carried out observations of 3-4 year olds in a nursery setting during 1963-4, reporting that his technique was to be as unresponsive to his child participants as possible. I did not find, as

reported by Smith and Connolly (1972) that the frequency of the children's approaches increased when I carried out basic routine interaction with them; however that might be due to my age and gender, as in the studies that Smith and Connolly referred to the researchers were all male, while, in similarity to the environment I was researching, the school staff were all female. Smith and Connolly reflected on the possibility that female observers might elicit less curiosity from the children, and my experience seemed to bear this out, possibly aided by the fact that several of the adults with whom the children regularly interacted in their nursery and reception class environments were volunteer parent (or more accurately, mother) helpers who frequently worked with small groups or individual children on craft or reading activities.

The principal technique used for the observations was that of 'target child' (Sylva Roy and Painter 1994, p.9). The final total of target child observations undertaken was seventeen male and sixteen female target child observations, two observations of fifteen of the focal group, and one observation each of the remaining three. Each child who was the subject of two observations was observed once during a playtime (recess) period (20 minutes) and once during a lunchtime period (approximately 40 minutes, depending on how quickly the child finished his/ her lunch and emerged into the playground). I also experimented briefly with a slightly different methodology; carrying out a target child observation while the child was wearing a radio microphone. The script of the child's speech was recorded on tape and separately transcribed. I carried out 5 additional 'target area' observations (Sylva et al 1994, p.9), focusing on the regular soccer play that took place on the grassed areas during the summer term, mainly involving the Reception and

Year One (equivalent to first grade) boys. My final 6 observations were carried out as ‘theoretical sampling’ (Strauss 1987, p.39) over the autumn term September 03- November 03, directing the investigation flexibly towards specific R&T play that occurred among the sample, rather than focusing whole observation periods towards the interactions of individual children or interactions within specific areas of the playground.

My usual procedure was to walk around the playground dictating my notes quietly into a dictophone, standing approximately 10 yards away from the relevant area or the relevant child and his/ her playmates. If a child reacted by stopping his/ her activities and looking directly at me, I would walk away for a few moments and look elsewhere, returning when the child(ren) were reabsorbed in play. This very seldom happened after the pilot period. When children became very absorbed in play I was usually able to move close enough to hear some of what they were saying; I also made a practice of chatting to them about what they had been playing during that play period as they walked towards their class lines after the bell had gone. I dictated my fieldnotes in an ethnographic style, describing all the target child’s play activities, and associated language during the period of the observation, noting any interruptions, then fully transcribed the tapes. Where I carried out target area observations, I focused on the interactions of the children within the focal sample who were engaged in play within the area. A typical interruption during my observations was caused by the fact that children were allowed to go indoors to use the toilets during lunchtime breaks. I found that this sometimes caused an interruption of individual children’s outdoor play for up to 10 minutes, particularly with respect to the girls who tended to chatter in the hand washing area directly outside the toilet cubicles.

Pellegrini (2005) also noted that girls were more likely than boys to find strategies to avoid being outdoors during stipulated outdoor play periods.

Analysis: Introduction

Each observation transcript was summarised onto an observational data sheet. I then organised the summarised data into gender-based groupings with sub-sets for girls' play, boys' play and mixed gender play. Using these references, I returned to the full set of fieldnotes and collated all the information relating to the children's 'scripting' of their R&T play under the headings of girls, boys and mixed gender play. I found that several such scripts could be divided into over-arching themes (for example boys chasing/ girls fleeing) with more detailed stories being attached to specific episodes of play, which varied from play session to play session. These had a certain pragmatic quality in that the specific story tended to be tailored to the available play environment at the time. For example, in hot, dry weather, part of the process was likely to involve children lying on the grass for short periods of time to signify that they were 'out' of a game, while in wet weather the process was changed so being 'out' was signified in a different way, for example, standing against a wall. This was predicted by the findings of Pellegrini, Huberty and Jones (1995) who found that temperature creates a clear effect upon children's play activities. In order to define an over-arching theme underlying a particular story I deemed this a 'narrative', while the specific story was called a 'fabula', the latter term being taken from Bruner (1986, p.45). Most of the R&T play observed appeared to have some aspect of narrative that engaged the children and directed their play, in the sense that the moment-to-moment activity involved had a specific meaning for the child

or children concerned. Such narratives were not always located in fantasy; sometimes they were related to rule construction and negotiation. In the sections that follow, extracts from my original fieldnotes will be presented in indented italics.

Analysis: Single Gender Play

The rarity of girls only play is the first aspect to remark upon; only four target child observations of a total of thirty three containing R&T play involved girls only. One of these generated (arguably) the most complex and original fabula observed scripting an episode of R&T play, the story of a witch and a magic rabbit:

'The girls invent a story for their chasing and catching game. Portia is a magic rabbit, Emilia is a witch who wants to turn her into wood and Marina is trying to save the rabbit from the witch'.

Fifteen episodes of boys only play were observed during the target child observations; ten of these involved highly active R&T. In single gender R&T the boys tended to rely on current media for fabulas. Beyblades, a Japanese fantasy cartoon about spinning warriors was very popular at the time of my observations, and I observed several boys' spinning activities where they pretended to be the 'Beyblades', sometimes taking on the names of the characters. It was this higher level of energy in boys' only play that separated the genders most distinctly. I observed a sustained all-boys' 'Robot Wars' game, based on a television programme featuring fighting robots. Superficially, this was chasing and catching play, as was the 'witch and magic rabbit' all-girls game. However the pace,

roughness and particularly the nature of the contact between the players indicated subtly different gender orientations to chasing activity:

‘Caliban is play punching Paris with sound effects (pow, pow), Paris is chopping at Caliban. Later they tell me that the chopping motion is Mr Psycho’s hammer’.

‘Portia still has her hands up by the side of her head (rabbit ears). She runs away and then back to Emilia. Emilia puts her hands around Portia and then Marina comes and puts her arms around them both.... The game also seems to involve Portia and Marina getting just so close that Emilia can nearly touch them, then they laugh and pull back’.

There was more direct physical confrontation in most of the boys’ games observed, and less complex and coherent vocalisation than was observed in girls’ play. Competing male claims of ‘toughness’ were also routinely made:

‘Lorenzo says “I’m one boy but I can tackle a thousand men”. Iago answers “I can tackle lots of men.”’

‘When Paris scores, he says “like Beckham”.... When the bell goes he taps Iago on the shoulder and says “winners.. we the winners, 85-nil. We won, 85-100.”’

I noted that when boys took on roles in fantasy play based on current television programmes that the largest and ‘toughest’ characters were most popular; for example two boys chose the role of ‘Mr Psycho’ (the newest ‘toughest’ house robot) in the Robot Wars chasing game. By contrast, the girls seemed more concerned to appear caring. In the witch and magic rabbit fabula, the youngest player was allocated to the most powerful but most villainous role, that of the witch, by the two other players who were several months older and recognised ‘best’ friends. These findings add support to Kyratzis’ (2000) proposal that individuals within boys’ peer groups compete to be the ‘toughest’, while girls vie with each other to be the ‘nicest’.

Analysis: Mixed Gender Play

Fourteen mixed gender R&T play episodes were observed during the target child observations. Eleven were chasing games, eight of which were initiated by girls and three by boys. Girls tended to seek out a boy to offer an invitation to him to chase them. This invitation was typically signalled by a ‘touch and run’ action. The narrative underlying mixed chasing seemed to be quite predictable; boys pretended to be some kind of powerful, frightening creature and girls ran away from them. There was, however, quite wide variation in the specific fabula used, which seemed to be influenced by the weather-mediated play environment.

In the winter months, the child chaser would often pretend to be some kind of ‘monster’. There was a particular stance for this, an expression that can best be described as a grimace, teeth showing, hands up in a clawed position and a slow lumbering walk in the

style of an actor playing Frankenstein's monster. In all the games of 'monsters' I observed, I only observed a girl acting as 'the monster' once, in an all-girl play cohort for a short time before the group went to invite a boy to play. He immediately took over the role of 'monster' and chased them.

Other play fabulas underpinning chasing between the genders observed included a summer grass-based activity I described as the 'Poison Touch' game', where girls touched by the boy chaser laid down and 'played dead' until another girl's touch 'revived' them:

'Caliban growls like an animal... he is sort of guarding his captive's 'body' while the other girls try to get past him to touch her'.

I subsequently observed games with the same underlying narrative scripted by two further fabulas, 'capturers and captives', where boys and girls collaborated in a game where boys pretended to tie girls to a wall with imaginary ropes, where they had to stay until released by another girl, and a 'dodge and catch' game where girls ran past a line of boys while the boys tried to catch them as they ran:

'Titania, Rosalind and Francisca line up by the wall while Corin, Paris and Oberon stand about six feet in front of them. The girls then scatter and run off, dodging the boys as they run. The boys have to try and catch them as they run past'.

While the children invariably described this type of mixed gender interaction as ‘kiss-catch’, I never saw one kiss occur during any observation. There was also an incidence of ‘kiss-catch’ described in dialogue from one of the radio microphone transcripts, generating a description of ‘kissing’ incidents that I did not observe in my simultaneous target child observation. This was very much managed by Titania, the girl wearing the microphone, who called the boy back into play several times, issuing instructions relating to the specific girl that he should be chasing at specific times.

Speech transcript:

Titania: You can try to get Francisca now..... (breathless ? running) mmm, mmm, Rosalind, you've got a kiss. Got (?name's) caught....., Rosalind's a kiss! I've already got a kiss twice. (Breathless) I've already got a kiss, have to catch to get a kiss. Desdemona is playing. You gotta get Desdemona. Desdemona, run!.... It's kiss catch, Desdemona! Run, run, run, run run! (Heavy breathing) Come on, Desdemona, run!.... Hamlet! HAMLET! Umm, umm, umm. La, la, (singing)..... Hamlet.... Uh-oh. (Breathless, running). Ah! Got a kiss. Not time now! Oh, man, I got a kiss all over the place. Got kiss on my cheeks, kiss on my head. Oh, man. Rosalind! (Calls) I just got kissed!

Rosalind: Have yer?

Titania: Yeah, and it were right there, it all went over.

Rosalind: He kissed Francisca right there!

Titania: And mine went all over!

Rosalind: Oh, no.

My simultaneous target child observation recorded that what had actually happened was that the boy had chased Francisca, wrestled her to the ground and had then run off, following which he had been called back into play by Titania and had unsuccessfully chased her and Rosalind for a brief period before going to join an all male group playing a different game. The duality of Titania's behaviour in her seemingly fabricated claims and clear organisation of the chasing process, coupled with the overtones of disgust when discussing the resulting male behaviour, and the appalled 'oh no!' response from Rosalind gives evidence that the children involved in this game were practising complex social skills, simultaneously competing and colluding within a highly gendered, independently directed activity.

Girls' complex orientations to kiss-catch also involved a clear role for the adult within such play. This was raised by one of the children, when I talked to a different group of girls, following another girl-initiated mixed gender chasing game:

Researcher: Will you be playing at chasing again with Lorenzo at lunchtime?

Celia: Yes, if he tries to catch me.

Researcher: If they catch you, do you try to catch them?

Celia: Yes

Researcher: What do you do when you catch them?

Celia: You tell the teacher.

Where I observed adults dealing with situations relating to girls' routine complaints about boys, this often seemed to be part of the fun for both boys and girls, the adult reinforcing the girls' pretended outrage, and the boys being marked in public by the adult remonstrance as a successful 'chaser' in front of both male and female peers. These behaviours seemed designed to ensure that the adult provided a mild admonishment to mark boys out as rule breakers. The female role in this process revolved around 'telling' behaviour, drawing adult attention to perceived male transgressions, often within the frame of one or two girls 'telling' on behalf of another female member of the group. Girls exerted a certain amount of power over boys in this respect, in that their construction of the 'telling' process could be a deciding factor in whether a mild (desired) admonishment was administered, or a more severe admonishment and 'time-out' punishment (undesired) was the eventual adult response:

'Lucius hits one of the girls on the head with his cap. That seemed a fraction rough, and she is holding her head. Rosalind says "I'm telling". She walks off, the boys running behind her saying "no, no".'

This was a game where the girl who threatened to ‘tell’ had been the principal organiser, and had called the boys back into play several times before this incident occurred. Mixed gender R&T seemed to create a ‘risky benefit’ situation for boys, in which they clearly did not enjoy serious reprimands from adults, but appeared to use mild admonishments in passing to enhance their status, hence, when they judged that the adult response would be severe, they collaborated in an attempt to persuade girls not to ‘tell’.

In summary, there appeared to be an intricate web of inter and intra gender co-operation and competition unfolding within such mixed gender chasing, the boys forming a ‘hunting party’ that might engage in protection of its members, but with the underlying competitive purpose of individual recognition as a ‘good chaser’ by peers of both genders and possibly supervising adults. The girls usually initiated the chasing games and subsequently competed to be ‘most chased’, while collaborating to protect one another from the boys’ attention when it became too energetic, marshalling adult assistance when necessary. My findings indicate that not only do boys and girls create *different* stories within single gender play, but also *shared* stories within mixed gender play, that specify highly gendered roles. Moreover, R&T play puts children into real situations where they can simultaneously practice spontaneous, autonomous competitive and co-operative interaction, developing complex social skills that fundamentally underpin primate adult life. While it may be possible for a human adult to directly “teach” concepts relating to social and physical interaction skills via closely adult-directed activity, it is unlikely that the second-hand nature of such an experience will create the intricate neuronal pathways

that will be developed by a child who has the regular opportunity to independently test and recalibrate her interaction skills within the social ‘classroom’ of the playground.

This analysis contradicts the perspectives of some early years researchers, who propose that R&T is a poor developmental activity because such activities ‘seem to evolve spontaneously with no opportunity for planning, feedback or correction’ (Sylva et al 1980, p.64). But this fails to recognise that evolved, socially complex creatures use the feedback provided by playmates to self-correct, and in this way ‘the developing organism functions as a resource for its own further development’ (Oyama et al 2001, p.5). The evidence drawn together within this paper suggests that R&T is a natural and evolved juvenile behaviour that creates a vital socialising experience for all young primates, especially the ‘storying’ human being. The play style allows them to operate spontaneously within a forum which facilitates learning about complex physical and linguistic responses from other children of both genders, allowing the children concerned to create shared narratives through which they can practice independently controlled and motivated behaviour relating to both competition and co-operation within the peer group, whether they are male or female.

Conclusion

It is suggested that R&T is the play-style where we most clearly see culture and biology interacting in the play of juvenile, evolved human primates growing up within a complex human social environment that is highly dependent upon original linguistic constructions. The R&T behaviour structure can be very effectively traced back to earlier mammalian

species, but the uniquely human narratives that children invent to underpin and explain their R&T activities clearly mark the differences between the R&T activities of human and non-human animals. The principal emergent indication is therefore that more professional emphasis should be placed upon researching and facilitating (but not *directing*) the complex social skills that emerge in children's free play. It is hoped that this more holistic approach to human development will eventually lead the professional culture into an era in which children's outdoor free play is considered an equal developmental partner to structured educational activity directed by adults within formal classroom environments.

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