



## THE ROLE OF PLAYING IN THE SOCIO-COGNITIVE DEVELOPMENT OF CHILDREN FROM 3 TO 5 YEARS OF AGE: AN OBSERVATIONAL STUDY

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**INTRODUCTION** Playing is essential for the development of higher psychological functions; indeed games may serve to show, develop and improve the exploration of the environment, the manipulation and representation of objects, as well as fostering the first social interactions. The purpose of this study is to show that playing constitutes an essential step in the socio-cognitive development of children by describing playtime as the indicator of the gradual, step-by-step overcoming of self-centred thinking, with a view to acquiring new social adjustment strategies.

**METHOD** Participants The research activity included 64 children, from nursery schools in the city of Turin (average age: 4.3).

**Tools** The research work was based on the direct and video-recorded observation of spontaneous playing among children at school. Two coding systems were applied (*Play Observation Scale*, integrated by a coding pattern devised by the authors). These two methods made it possible to analyse the variations as regards ideation, exploration, socialising and imitation activities.

**RESULT DISCUSSION AND CONCLUSIONS** The preliminary results seem to confirm that playing provides a framework within which it is possible to articulate and express the progress made by a child, in terms of both social development and cognitive skills. The individual maturity level affects, on the one side, the social-interaction features and the thought patterns on the other. The mutual adjustment of the development of these two processes is also shown in the stepwise changing of the way in which conflicts are negotiated: the overcoming of self-centred thinking, therefore, is also expressed by a gradual change in perspective as regards the individual child.

**Keywords:** child observation, children's play, socio-cognitive development, behaviour play, evolution of play

### INTRODUCTION

Playing is an essential opportunity for children in order to develop and apply their higher psychological functions: indeed games provide one of the first ways of exploring the environment, as well as fostering the ability to handle and represent objects, creating and developing the first forms of social interaction.



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For children, playing is an important form of experience, through which they learn to represent themselves and the surrounding world, at the same time taking a distance from it, by escaping to the world of fiction and dreams and reverting to their most deeply-rooted wishes and fears. Already Freud and Piaget studied playing, although they considered it as being nothing more than one of the many expressions of child behaviour, with an essentially instrumental function. For example, Piaget (1962) sees playing as an assimilation behaviour, which therefore does not imply changing a subject's mental patterns and structures with respect to outside data. This definition, however, basically excludes all those playing situations characterised by *problem solving*, which require the subject to change (or, at least, to adjust) his/her mental structures. In other words, if playing is considered merely in terms of assimilation, there is a risk of denying the important function which it has from a cognitive development perspective, in the sense that it allows children to explore several alternatives to establish a relationship with reality (Sutton-Smith, 1966). According to the most important cognitive development theories (Piaget, 1962; Vygotskij, 1966), playing is characterised essentially as a cognitive process which is activated in a voluntary way: it supposedly contributes to the development of important faculties such as creative thinking, the attitude to innovation and flexibility, as well as *problem solving* skills and effective adaptation to the environment.

Loizos (1966) describes playing as the reproduction of behavioural patterns which supposedly constitute action models; the latter, however, are separate from the setting where they usually take place, from the motivations and intentions which generally guide them.

Groos (1913) talks about playing in evolutionary terms, underlying its adaptive purpose: it supposedly emerges in a spontaneous way from the repeated activation of instincts and exercises, from which it differs because of its intrinsic pleasantness: «when an act is performed solely because of the pleasure it affords, there is play» (ibid., p. 5). By the same token, Hall (Hall, 1920) underlines the specificity of playing in evolutionary terms: in this way children can learn and exercise those basic functions which the human species has developed in the course of phylogenesis (recapitulation theory). Going back to the origins of psychological thinking, mention should be made of the interpretation given by Spencer (1878) in terms of an energy surplus: a child has excess energy which needs to be expressed through playing.

In the modern age, alongside the cognitive adjustment approach mentioned above, several theories have been developed as regards playing, which is nowadays also considered from a psycho-dynamic perspective (Freud, 1961; Erikson, 1985): in this respect it supposedly provides the appropriate setting to express and elaborate subconscious experiences, characterised by wishes, fantasies, as well as by fears, anguish, suffered traumas. It is therefore also important to bear in mind the description given by Winnicott (1951) in terms of "intermediate experience area", that is to say an area included between the internal world of the individual, consisting of the most intimate and personal aspects, on the one hand and the external world on the other (one could also add, society in the broadest sense of the word), which is ruled by precise and objective laws. For children, therefore, playing is an important opportunity to acquire deeper knowledge of their interior world, on the one hand, and of external reality on the other, thus gradually acknowledging the existence of both realities. Other authors (Waelder, 1923; Peller, 1954) have underlined its cathartic function, which supposedly makes it possible to adjust super-ego issues to environmental pressures and to issues related to the Es, thereby shaping and elaborating the child's subconscious experiences. The intrinsic gratification of playing, in this sense, would allow for the exercising of new functions and skills, both of a cognitive and motion kind. At the same time, an intrinsically gratifying activity is expected to efficiently contribute to individual self-esteem.

Other approaches (Berlyne, 1960; Ellis, 1973; Hutt, 1985) focus in particular on exploration which supposedly modulates the state of arousal by facing children with situations which are always new and stimulate their desire to discover. Playing and exploration have subsequently been attributed several specific features, with a view – in one case – to underline the creativity of the child and – in the other – to highlight the knowledge of an objective reality.

According to the social and socio-cultural perspective (Vygotskij, 1966; Mead, 1934; Bateson, 1955) playing has an essential role in the socialisation process because it allows children to learn about roles and standards within the setting of the various interaction forms with their peer group. More



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specifically, also in recent years, several studies have underlined how the prevalence of solitary playing behaviours is usually positively correlated with a more immature and impulsive behaviour from a social perspective (Coplan & Rubin, 1998), as well as with a reduced ability to adjust emotions and performance at school (Coplan et al., 1994).

It is therefore difficult to define playing univocally: traditional theories (developed especially in the 19<sup>th</sup> century) and modern approaches (20<sup>th</sup> c.) have certainly contributed to underlying, from different perspectives, the specific mental functions associated with playing, and the important role which playing has in a child's development. However, it has gradually become necessary to try and achieve a univocal definition of this concept, especially as regards methodology, thus making it possible to compare the studies on the subject. Over the last few decades, agreement has essentially been reached in respect of some characteristics which make playing behaviours unique. First of all, some studies emphasised its motivation which is mostly intrinsic, in other words it is to be found in the action itself. Children play because it gives them pleasure, because they like to be actively and spontaneously engaged, creating situations which are always new and unexpected. Moreover, playing is characterised by being an activity which is essentially adjusted by the individual child, in order to understand reality while, at the same time, transcending it (Stewart et al. 1991; Bracegirdle, 1992; Goodman, 1994; Bundy, 1997; Parham & Primeau, 1997). In this respect, playing is associated – as mentioned earlier – with active exploration because it allows children to get to know, but also to handle and represent, according to their own wishes, the various objects around them, overcoming the obstacles posed by objective reality. Pellegrini and Galda (1993) have underlined that they consider five elements of playing: the intrinsic motivation, the (positive) effect of this behaviour, the non-literal nature of the action, the focus on the means as opposed to the ends, and its flexibility (Pellegrini and Galda, 1993; Smith et al., 1985).

In line with these assumptions, this study focused on the role which playing has especially as regards two sets of processes: ideation and imagination on the one hand, and social processes on the other side. The purpose of the work, in fact, is to underline the role of playing as an essential moment for a child's socio-cognitive development: in this respect playtime is the ideal setting for the observation of cognitive and social processes. The goal is therefore to describe those playing moments which best indicate the gradual overcoming of self-centred thinking with a view to achieving new social interaction strategies.

The purpose is to survey the characteristics which qualify the playing activities of children between 3 and 6 years of age, observed in a school setting during free and spontaneous playing in order to highlight the types of games that are chosen most frequently, the ways of interacting with the group of peers, as well as the dominant or subordinate position taken by the individual in respect of the latter. More specifically, the aim is to study the ideation and exploration processes, making a distinction, as regards the various aspects outlined, between those related to imitation, exploration and imagination, then describing the development of the playing behaviour. The survey is therefore aimed at: i) observing the spontaneous behaviour at play of children between 3 and 6 years of age, in a setting they know, such as nursery school; ii) within the playing situations outlined, choosing and outlining the behaviours of an exploration, imitation and imagination nature; iii) finding those behaviours which can be regarded as specific indicators of imagination fluidity and symbolic production in children; iv) defining possible correlations between variables such as age and gender of the child and they kind of game preferred; v) describe the development of the symbolic and imagination function of playing with respect to the child's age.

## METHODOLOGY

### *Participants*

The study involved 64 children, from several nursery schools in the city of Turin, all of them aged between 3 and 6 (age range: 36 - 72 months; average: 52.4 months; sd: 10.41); the group is balanced in terms of gender (31 males, 33 females).



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### *Tools*

The research was based on the live and video-recorded observation of spontaneous playing among children in a school setting. Two coding systems have been applied: the *Play Observation Scale* (Rubin 1989; Italian version by Cassibba & D'Odorico, 2001), integrated by another coding system devised by the authors. These two methods made it possible to analyse the variables related to the creative, exploration, imitation and social aspects of playing.

The *Play Observation Scale* is useful both for the observation of free play situations (as in this case), and to observe structured playing situations. The procedure is based on observation during a time sample, and it consists of several behaviour items, defined by the authors according to the categories suggested by Parten (1932) in relation to social involvement in playing, and by Smilansky (1968), having regard to the cognitive aspects of playing. First of all a distinction is made between playing and non-playing behaviours (including: transition, unoccupied, spectator, aggressive behaviour, conversation with the teacher or the other children). The playing behaviours are divided into three groups: solitary, parallel and group games. As regards the cognitive process which are applied to each category, a distinction is then made between functional playing, exploration, reading, constructive playing, dramatisation, games with rules. It is therefore a classification which includes and synthesises both the social involvement level in the play situation, and the complexity of the cognitive processes it implies. The system used here is based on the Italian version presented by Cassiba (2001), which differs in respect of the original because some behavioural categories have been added (e.g.: pro-social behaviour, talking to the teacher / to friends, quarrelling, looking for a toy, crying fits). Compared to the original, consideration is also given here to the emotional quality (positive, negative, neutral) of the behaviours under examination, which can now also be defined based on their emotional characterisation; the time sample includes a total of 30' of observation, divided into intervals of 1' each. The version of the *P.O.S.* used by the authors is shown in the Annex (see fig. 1).

Moreover, a further coding grid has been designed and applied with a view to assessing playing behaviours which last longer than those considered by the *P.O.S.* The coding pattern suggested by the authors, in fact, analyses behaviour sequences lasting 5' each, divided into 20 time intervals. Unlike in the *P.O.S.*, consideration is given here also to behaviours of an imitation, ideation and creative kind. More specifically, mention should be made of the following behaviour categories: spectator, parallel playing, games played individually, in pairs or as a group, activities pertaining to exploration, dialogue, imitation of sounds, gestures and postures, imitation using objects, management of the game (in pairs or as a group), performing assignments indicated by others, negotiating other children's requests, protagonist role in the game, "directing" position (dramatizing play situation), interaction with imaginary characters, dispute over the possession of a toy, dispute over how to organise the game. For each interval analysed, moreover, the fictional contents of the various dramatising play situations have been recorded; for each symbolic plot, moreover, the complexity level was assessed using a 4-point scale.

### *Procedure*

The observations were related to free playtime in a school setting (nursery schools in the province and city of Turin); the various play sessions were video-recorded, covering a total of thirty hours taped. The coding was then completed by two independent assessors (Cohen's K: 0.89).

## RESULTS

The collected data were analysed with a view to verifying any correlations between variables of a behavioural nature (identified by the categories of the two coding patterns chosen) and the other variables considered (age, gender, ideation fluidity and symbolic complexity in playing). The analysis also included the mutual correlations between the different behaviours, in order to check whether specific behaviours tended to appear together during the time span considered. The data were analysed using the statistical software SPSS 15.0.



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First of all significant correlations emerged between specific playing behaviours and the age of the children (see table 2). The individual age appears to be correlated in a negative way with the “unoccupied” and “spectator” behaviour: in other words, as the age of the child increases, there seems to be a regression in those behaviours which reveal failed involvement in the game. In this respect, there could be an influence on the part of aspects such as the increased knowledge of the environmental and social framework (which supposedly encourage the child’s willingness to be actively involved in the play situations). Moreover, the age of the children appears to be correlated in a negative way also with solitary playing of a functional-sensomotory kind; on the contrary there emerges a positive correlation in respect of solitary playing of a constructive kind. The tendency to solitary playing, therefore, appears to be a constant element within the various development phases, which is expressed in different ways, however, depending on the child’s age. In the early development phases, solitary playing appears to be associated mostly with the aim of handling and getting in touch with the world of concrete objects. In subsequent development phases, on the other hand, the child presumably uses it for the purpose of affecting, in an active and personal way, the surrounding environment.

The age of the child is, once again, correlated in a negative way with two specific kinds of functional - sensomotory playing, as regards both parallel and social games: in other words, as the individual age increases, there is a reduced tendency to sharing (even if in a parallel way, that is to say without real interaction, as in the first case) the handling and sensory exploration experiences. On the other hand, there appears to be a positive correlation with the other kinds of social playing: constructive, symbolic, with rules. In these cases there appears to be an increasing tendency on the part of older children towards sharing in playing activities with their peers.

As regards exploration and imitation aspects, it should be underlined that in both cases there is a significant correlation in respect of the child’s age. The exploration activities, however, tend to decrease as the individual age increases. The propensity to imitating other children, on the contrary, is positively correlated with the individual age. Therefore, in one case, an activity geared exclusively towards the knowledge of the environment, is expressed to the full in the earliest development phases, when the child still has to get to know (and learn how to represent) the external world. There appears to be a less relevant propensity towards considering the observation, and mimicking, of other children’s actions as central. As the child develops, however, the knowledge of the external environment is consolidated and new strong social issues start to emerge: the individual activity is now mostly aimed at creating a model, by mimicking the characteristics of the behaviour of other children. A possible conclusion is that, in the course of development, attention is gradually shifted from unanimated objects to individuals which the child acknowledges as similar and with whom an interaction can be established. These statements are confirmed by the observations concerning the frequency of stereotyped behaviours and discourse interaction with peers: also in the latter case, indeed, there appears to be a positive correlation with the individual age. An important aspect in the child’s development, therefore, seems to be the increasing consideration of other people, which translates into the modelling of individual behaviour (imitation, as mentioned above, and stereotyped playing) and direct interaction with others.

The frequency of imitation behaviours (especially as regards typical turns of phrase) is also correlated with gender: boys seem to be more prone than girls to using specific phrases while at play ( $X^2=4.039$ ;  $df=2$ ;  $p=0.01$ ). Girls, on the other hand, are more prone to following instructions from others ( $X^2=3.004$ ;  $df=1$ ;  $p=0.01$ ) in social play situations; as regards symbolic playing, it is more frequent for girls than for boys to direct the action of invented characters ( $X^2=4.172$ ;  $df=1$ ;  $p=0.01$ ), or to interact with an imaginary subject ( $X^2=3.004$ ;  $df=1$ ;  $p=0.01$ ).



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	Total amount of unoccupied behaviour during the observation of free play	Total number of situations where the child simply observes the others without participating	Total number of solitary functional-sensomotor playing activities	Total number of solitary constructive playing activities	Total number of solitary symbolic activities	Total number of playing activities with rules	Total number of parallel functional sensory playing activities	Total number of parallel constructive playing activities	Total number of parallel symbolic activities	Total number of parallel playing activities with rules
Age	<b>-.324(*)</b>	<b>-.299(*)</b>	<b>-.526(*)</b>	<b>.249(*)</b>	<b>-.016</b>	<b>.160</b>	<b>-.434(**)</b>	<b>.061</b>	<b>-.067</b>	<b>-.067</b>
	<b>.010</b>	<b>.016</b>	<b>.000</b>	<b>.049</b>	<b>.903</b>	<b>.206</b>	<b>.000</b>	<b>.630</b>	<b>.599</b>	<b>-.067</b>
	Total number of social functional-sensomotor playing activities	Total number of social constructive playing activities	Total number of social symbolic playing activities	Total number of social playing activities with rules	Total number of exploration activities	Total number of imitative behaviours	Total number of stereotyped playing activities	Total number of interaction start situations	Total number of pre-social behaviours	Total number of conversations with friends
Age	<b>-.611(**)</b>	<b>.305(*)</b>	<b>.451(*)</b>	<b>.411(**)</b>	<b>-.667(**)</b>	<b>.543(**)</b>	<b>.533(**)</b>	<b>.015</b>	<b>.204</b>	<b>.279(*)</b>
	<b>.000</b>	<b>.014</b>	<b>.000</b>	<b>.001</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.907</b>	<b>.106</b>	<b>.026</b>
	Total number of dispute episodes	Total number of crying fits	Total amount of quarrelling behaviours							
Age	<b>-.029</b>	<b>.095</b>	<b>-.023</b>							
	<b>.817</b>	<b>.457</b>	<b>.858</b>							

Table 2: Correlations Age/Behaviour at play. Coefficient used: Pearson's r. The significant values are in bold type. \*\*: p<0.01; \*: p<0.05



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## DISCUSSION AND CONCLUSIONS

The results show that playing is indeed, for any child, an essential setting for development and training: as such it is affected in a variety of ways by the different aspects which characterise individual progress. More specifically, this survey concentrated on the variations in playing behaviour with respect to age and gender. As regards the former, it has been noted that, as the child's age increases, there is a gradual reduction in behaviours centred exclusively around the individual's activities, as in the case of solitary playing. On the other hand there is a positive correlation between maturity and being socially outgoing: the opportunities and search for interaction with other children gradually becomes a more apparent need, with the playing behaviour of older children being characterised by social games (in various forms), with a view to achieving concrete and direct interaction among peers.

At the same time, other children are not only a target for action (or rather inter-action): they constitute the models of the actions itself, of the behaviours which are now based on the direct observation of peers. Stereotyped behaviours, like the imitation of observed gestures, expresses a propensity which increases with development: the tendency to modelling individual behaviour according to the observation of one's peers. In other words, individual behaviour is changed with a view to looking more and more like external models, towards which children increasingly direct their attention as time goes by.

On the other hand, the increasing use of imitation corresponds to a decrease in exploration activities. The earlier development phases are thus characterised by activities which are totally geared towards recognition and knowledge of the external world. The more familiar the setting becomes, the more resources will be available for the child to establish a contact and understanding with respect to peers. There is therefore a different level of involvement on the part of the child during the various development phases, with activities ranging from a greater development in exploration, during early development phases, to increasingly constant imitation activities in more advanced development phases.

As regards the possible correlation with gender, it can be concluded that there are no significant variations: boys and girls of pre-school age do not appear to differ significantly as regards playing behaviours. There is one exception: the tendency to actively adjust the actions of imaginary characters who are involved in the game, and to interact with the latter. Such tendencies are in fact encountered more frequently in the female group, which confirms that the latter group is more involved in ideation and fictional elements.

The exploration character of this study was actually aimed at presenting the various features of such a relevant behaviour as playing: the detailed categorisation offered by the coding schemes applied has made it possible to quantify the variables under examination. In this way it has been possible to empirically confirm several assumptions as regards children of pre-school age at play. More specifically, conclusions have been drawn as to the importance, and at the same time significant variability of typical aspects of playing behaviours, such as solitary playing, parallel playing and social playing, which led to an understanding of their relevance (and development) from a socio-cognitive perspective. Playing, once again, appears to be an essential element of development in a cognitive and social sense; it is certainly a setting within which it is possible to progress in terms of symbolic and creative acquisitions. Most importantly, as regards social and relational maturation, playing appears to be the first, essential introduction to the interactive and symbolic aspects of the individual's reference community.

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**Annex**

Fig. 1: Italian version (proposed by Cassibba, 2001) of the *P.O.S.* used by the authors

<b>Categories</b>
Unoccupied behaviour
Behaviour as spectator
Solitary functional/sensomotory playing
Solitary constructive playing
Solitary symbolic playing
Solitary playing with rules
Parallel functional/sensomotory playing
Parallel constructive playing
Parallel symbolic playing
Parallel playing with rules
Social functional/sensomotory playing
Social constructive playing
Social symbolic playing
Social playing with rules
Negative emotional quality
Positive emotional quality
Neutral emotional quality
Interaction start
Talking
Quarrelling
Talking to the teacher
Crying
Pro-social behaviour
Looking for something

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