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### **ATTENTION DEFICIT AND HYPERACTIVITY IN THE CLASSROOM: ASSESSING CHILDREN'S PERCEPTION THROUGH THEIR DRAWINGS**

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Per il bambino che presenta difficoltà a prestare attenzione e a controllare il proprio comportamento, l'aula si rivela spesso un ambiente "disadatto" (Kos *et al.*, 2006).

Il presente studio coinvolge 124 studenti frequentanti il primo, il secondo e il terzo grado di alcune scuole primarie piemontesi. I soggetti sono suddivisi in due gruppi: un gruppo sperimentale (GS), composto da 60 bambini che, secondo gli insegnanti prevalenti, presentano difficoltà di attenzione e comportamenti iperattivi, e un gruppo di controllo (GC).

Al fine di rilevare il comportamento e la qualità delle relazioni caratterizzanti la vita in classe dei due gruppi partecipanti, sono stati utilizzati differenti test (STRS, SDQ, Class Play, Prova di attribuzione). In questo articolo si riportano, nello specifico, i risultati emersi attraverso la somministrazione del test grafico "Il disegno della classe" (Quaglia, Saglione, 1990). Tale strumento, in linea con gli altri test nel confermare i dati della relativa letteratura, oltre a evidenziare la qualità del rapporto insegnante-allievo, considera le difficoltà del bambino con tale "disturbo" con riferimento a specifiche aree del comportamento: in particolare l'area della socializzazione e dell'affettività.

**Parole chiave:** DDAI, Scuola primaria, Disegno infantile.

For children in general, and in particular for pupils who find it difficult to manage their attention level and behaviour, the classroom may prove to be an "unsuited" environment (Kos *et al.*, 2006).

This study involved 124 students from the first, second and third year in some primary schools in Piedmont. The participants were divided into two groups: one experimental group (EG), consisting of sixty children who, according to prevalent teachers, showed attention deficits and hyperactive behaviour, and one control group (CG).

In order to assess the behaviour and quality of relationships characterising the life in the classroom of the two groups involved, various instruments were used (STRS, SDQ, Class Play, Attribution Test). This paper is based specifically on results from the administration of the graphic



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test "Class Drawing" (Quaglia & Saglione, 1990). This method, although in line with other tools used for confirming data from the relevant literature, apart from highlighting the quality of the teacher-pupil relationship, considers the difficulties of the child suffering from such a "disorder" with reference to specific behavioural areas, namely socialisation and affectivity.

**Keywords:** ADHD, Primary school, Children Drawing.

## INTRODUCTION

The school environment is one of the most important settings for the cognitive, social and emotional development of a child (Birch & Ladd, 1996; Aureli *et al.*, 2008). Even though it is aimed at being the "natural venue" for child growth, this setting is not always devoid of difficulties. In the classroom it is necessary to abide by the rules, to meet educational requirements and to perform the assigned tasks.

For children in general, and in particular for pupils who find it difficult to manage their attention level and behaviour, the classroom may prove to be an "unsuited" environment (Kos *et al.*, 2006).

Teachers are well aware of the extent to which learning relies on the attention capacity of a child (Tournaki, 2003) and of the importance of good behaviour for success at school (Witek & Little, 1996), however they often do not have appropriate tools, nor are specifically trained to interact effectively with subjects who present difficulties in these respects.

It is important to underline that, more and more often, teachers complain of problems and difficulties associated with attention disorders and hyperactivity. In every class there seem to be at least two cases of such children (Di Pietro *et al.*, 2001), where ADHD is often not diagnosed; on the other hand, also if it is diagnosed, there are no specific legal provisions mandating the presence of a support teacher.

Normally, therefore a teacher is required to establish a relationship with some children with the following characteristics (Cornoldi *et al.*, 2001):

- *sustained attention deficit*: the child finds it difficult to focus on only one source of information and is easily distracted by outside stimuli; he/she does not seem to listen when you address him/her directly, often failing to follow instructions; these children's work looks untidy and incomplete, they appear unable to manage and organise their material.

- *hyperactivity*: the pupil moves and talks excessively, keeps shifting from one activity to another, never stops moving, is intolerant to any form of restraint, especially when he/she is tired;

- *impulsiveness*: the subject tends to act before thinking sufficiently (answering before the question has been completed, speaking out of turn, interfering with other people's conversations, making comments that are out of place). These children may engage in dangerous actions without considering the consequences. Their work lacks in effort and care.

The aspects described above generally tend to take on different nuances depending on gender-related traits: boys mainly show difficulties associated with movement control, girls show reduced capacities especially in terms of attention and organisation (Abikoff *et al.*, 2002). Among girls, moreover, impulsiveness mostly appears in the form of verbal as opposed to physical hyperactivity (Marzocchi, 2003). As regards the cognitive aspect, even though their intellectual capabilities are normal, the school results of these subjects are often compromised (APA, 2000; Marshall *et al.*, 1997). Attention deficits and behavioural disorders, however, create even more problems on the level of social adjustment, with serious consequences for the integration of the child in the school setting. In terms of social adjustment, indeed, children suffering from attention disorders often appear anxious, introverted and shy; as a consequence it seems that they take on – as a sort of



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defence mechanism— a confrontational and aggressive attitude (Carlson, 1997). These elements have a negative impacts as regards their relationship with both their teachers (Birch & Ladd, 1998; Pianta *et al.*, 1995) and peers (Barkley, 2004; Mikami, 2010).

Many teachers complain that they feel powerless when interacting with pupils who are distracted or impulsive, even though they employ all their resources (Kos *et al.*, 2006). It is not infrequent for the teacher to react to this failure in didactic-educational terms by increasing the punitive control and sometimes adopting an aggressive attitude. Most of the teachers, furthermore, acknowledge that they are pessimistic as to the possibility of academic success for these children (Kauffman *et al.*, 1989). Also pupils suffering from ADHD note that the teachers devote more time to their classmates, while to them they more frequently address orders and control requests (Peter *et al.*, 1983).

It is highly probable that the attitude adopted by adults also influences the perception which classmates have of the child in question (Hughes & Kwok, 2006). The distracted and/or impulsive child is often rejected by his/her peers due to his/her impulsive and aggressive attitude and inability to interpret and respond adequately to other people's social signals (Erhardt & Hinshaw, 1994). Friendship bonds are generally weak and do not last long (Kellner *et al.*, 2003).

The daily failures experienced by the child in the school setting have a negative impact in terms of self-esteem, thereby increasing as in a vicious circle any form antisocial and maladjusted behaviour.

In spite of the multiple effects which this "disorder" has on the child's wellbeing, not much research has been done on analysing the events and feelings experienced by pupils in the school setting (Francescato *et al.*, 2002).

This work, therefore, is aimed at highlighting any differences encountered between those who are pointed out by teachers as being especially distracted or hyperactive and those who seem to be well adjusted to school requirements. The behavioural areas under consideration refer to the main dimensions which constitute the school setting (Classroom, Teachers and Classmates), as highlighted in "Class Drawing".

## METHOD

### Instruments

In order to measure the frequency with which children reveal hyperactive or attention deficit behaviours, the two prevalent teachers in each classroom filled out the SDAI, *Scale for Attention Deficit and Hyperactive behaviours* (Cornoldi *et al.*, 1996). The test consists of 18 items defined on the basis of DSM-IV diagnostic criteria (APA, 2000). Nine items assess the hyperactivity-impulsiveness dimension, nine others the attention deficit level. For each statement the respondent is asked to score the frequency with which the said behaviours appear (0=never, 1=sometimes, 2=quite often, 3=very often). A score of at least nine on an individual scale is considered an indication of "risk" cases.

The instrument used here to study the elements under examination is "Class Drawing", a graphic semi-projective method designed by Quaglia and Saglione in 1990. This tool makes it possible to analyse the child's perception of his/her "wellbeing" at school, with specific reference to the various elements characterising life in the classroom: the teacher, the classmates, the classroom. With each of these elements, the subject establishes a relationship as a pupil. The test has been subjected to studies aimed at investigating its validity and has revealed good psychometric qualities (Longobardi *et al.*, 2009; Pasta & Quaglia, 2010; Pasta, 2011). The specific assignment is: "Draw your classroom; draw it any way you wish". The children were interviewed individually after finishing their drawings in order to determine what each child had represented and the reasons for any omissions.

As the authors suggest, the drawings were interpreted at the level of content. The forms of devaluation (suppressing, depicted without care, moving away, reducing size) are to be interpreted



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as attempts at defense and reassurance when faced with distressing and problematic situations to which the child is unable to adapt. Conversely, the elements of the class that are represented accurately and valorized (subjects present physically, depicted with care, close, proportionately dimensioned) are interpreted as showing positive affective investment, and the child thus exhibits a relationship of trust in them.

In order to have a coding of the products which was as analytical and schematic as possible, the scaling up or down was referred to four Total scores, one for each aspect of the drawing (Self, Classmates, Teacher and Classroom). Adding up all of these, the Total Drawing score is obtained. Higher scores are considered associated with a qualitatively better perception of the child's relationships with the various aspects of life at school, therefore more wellbeing in the classroom. Some of the nominal scales (presence, care, position, size, perspective, etc.) provide further insight as to the value attributed by the subject to the individual elements in the classroom.

The dimensions of school experiences studied using the classroom drawing were also highlighted through other instruments whose results will be briefly outline in order to provide a general overview of the participants' characteristics. The teachers were asked to fill out individually the STRS (Fraire *et al.*, *in press*) and together the SDQ (Marzocchi *et al.*, 2002). The pupils' social and academic capabilities were assessed by their classmates using the Class Play technique (Masten *et al.*, 1985). Finally, each of the pupils had to fill out a Attribution test (De Beni *et al.*, 1998) which served to highlight the prevailing cause attributed to success or failure situations.

### Participants

The study involved 124 Italian pupils, 82 boys and 42 girls, whose average age was 7.83 (SD=.80). The students came from twenty classes (from first to third grade) in primary schools of the Piedmont region.

Those subjects which, according to the average evaluation of their classroom teachers, had a score higher than nine in the SDAI for at least one of the two scales, were placed in the experimental group (EG); among the remaining pupils in each classroom, four children were randomly chosen (two boys and two girls) for the control group (CG). The sample therefore consisted of 51.6% pupils who showed no attention deficits or hyperactivity (GC) and 48.4% children from the experimental group. In most cases (76.7%) the members of the EG produced scores which put them into the category considered "at risk" both in the subscale related to attention deficit, and in the one related to hyperactive and impulsive behaviour. Eleven children showed only attention deficits; in three cases, on the contrary, the problems were exclusively associated with hyperactivity.

The main personal and school data regarding pupils, measured by means of an ad hoc questionnaire filled out by the teachers, are listed in Table 1.

Table 1. The main personal and school data regarding EG and CG.

Descriptive statistics		EG	CG
		(n=60)	(n=64)
Age in months	Mean	96.56	93.93
	SD	8.801	10.976
Gender	Males	83.3% (50)	50% (32)
	Females	16.7% (10)	50% (32)
Grade	The 1st	11.7% (7)	18.7% (12)
	The 2nd	28.3% (17)	31.3% (20)
	The 3 <sup>rd</sup>	60% (36)	50.0% (32)
Academic achievement	Low	78.3% (47)	17.2% (11)
	High	21.7% (13)	82.8% (53)
Effort at school	Low	93.3% (56)	21.9% (14)
	High	6.7% (4)	78.1% (50)



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Compared to the CG, the SG consists more of boys ( $\chi^2=14.389$ ;  $df=1$ ;  $p<.001$ ), of pupils showing low academic achievement ( $\chi^2=47.976$ ;  $df=1$ ;  $p<.001$ ) and making little effort at school ( $\chi^2=63.500$ ;  $df=1$ ;  $p<.001$ ). These data confirm the literature regarding the prevalence of the disorder with reference both to the male sample and to learning difficulties.

### Procedure

Data were analyzed using PASW 18 statistical analysis software.

## RESULTS

The two groups (EG and CG) scored significantly different results in all the dimensions assessed through the tests administered (Table 2). The data – subject to more in-depth analysis – further confirmed the long-standing research results on this topic.

The relationships with distracted and/or hyperactive pupils are experienced by teachers as much more confrontational with respect to relations with other pupils. The children suffering from attention deficits and/or hyperactivity, as a matter of fact, appear very ambivalent towards adult figures: on the one hand they show dependence and need to be accepted, on the other they seem incapable of establishing intimacy in relationships. The teachers' judgements in respect of the SDQ confirm the highly problematic behavioural and emotional levels in the EG. Also the data provided by the peer group show that pupils in the EG – compared to those in the CG – find it much more difficult to adjust within the community and school setting. Finally, distracted and impulsive pupils have a tendency, more frequently than children in the CG, to point to external help as the cause for their success or failure, thus confirming the tendency to take on maladjusted attributing styles (Boscolo, 2006; Cornoldi, 2007).

Table 2. Significance of differences between medium values (EG, CG).

Test Dimensions	Sig.
STRS Conflict	<.001
STRS Closeness	<.001
STRS Dependency	<.001
SDQ Emotional Symptoms	<.001
SDQ Conduct Problems	<.001
SDQ Hyperactivity and Attention Deficit	<.001
SDQ Peer Problems	<.001
SDQ Prosocial Behaviour	<.001
SDQ Total Difficulties	<.001
CLASS PLAY Prosocial Aspect	<.001
CLASS PLAY Antisocial Aspect	<.001
CLASS PLAY Scholastic Aspect	<.001
CLASS PLAY Asocial Aspect	<.05
ATTRIBUTION TEST External Help	<.05

Student's *t* test: \*  $p < .05$ ; \*\*  $p < .001$

As regards the drawing of elements constituting the school environment (Classroom, Teacher, Classmates), there emerged significant differences between CG and EG in the Total Class Drawing scores ( $t = -3.995$ ;  $df=122$ ;  $p<.001$ ). The EG subjects show a smaller number of elements referring to a wellbeing perception in the classroom, more specifically with respect to two dimensions in the drawing: the Teacher ( $t = -4.016$ ;  $df=122$ ;  $p<.001$ ) and the Classroom ( $t = -4.624$ ;  $df=122$ ;  $p<.001$ ).





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If we analyse the methods used by pupils in the two groups to depict the classroom furniture and the teacher's figure, there emerge two different "graphic styles" (Table 3).

Table 3. Class Drawing Descriptive statistics: Means (Standard Deviation), Percentage Frequency (EG, CG).

Elements of Class Drawing	EG	CG
<b>CLASS DRAWING TOTAL**</b>	<b>6.98 (2.873)</b>	<b>9.10 (3.03)</b>
SELF TOTAL	1.084 (1.07)	1.26 (1.034)
<i>Presence and care</i>		
Absent	42.4%	32.3%
Element (ex.: drawer's desk, schoolbag)	16.9%	20.0%
As a person not carefully drawn	30.5%	36.9%
As a person carefully drawn	10.2%	10.8%
<i>Position Self-Classmates</i>		
Far away	63.1%	32.1%
Near	36.9%	60.1%
Contact	-	7.8%
<i>Size Self-Classmates</i>		
Lower	10.5%	
Equal size	89.5%	100%
<b>CLASSMATES TOTAL</b>	<b>1.88 (1.34)</b>	<b>2.24 (1.40)</b>
<i>Presence and care</i>		
Absent	18.6%	15.4%
Element	30.5%	23.1%
All classmates not carefully drawn	3.4%	1.5%
Some classmates not carefully drawn	39%	41.5%
Some classmates carefully drawn	8.5%	18.5%
How many classmates	2.51 (4.356)	3.25 (4.334)
<b>CLASSROOM TOTAL**</b>	<b>2.74 (1.138)</b>	<b>3.55 (.791)</b>
<i>Care**</i>		
No care	5.1%	-
Low care	59.3%	26.2%
High care	35.6%	73.8%
<i>Where</i>		
Outside the school	5.1%	-
Closed	20.3%	9.2%
Open	74.6%	90.8%
<i>Perspective**</i>		
From above	33.3%	7.8%
Frontal	66.7%	92.2%
<i>Teacher's desk. Presence and care**</i>		
Absent	30.5%	20.0%
Low care	50.8%	32.3%
High care	18.6%	47.7%
<i>Blackboard. Presence and care**</i>		
Absent	30.5%	10.8%
Low care	50.8%	43.1%
High care	18.6%	46.2%
<b>TEACHER TOTAL**</b>	<b>1.27 (1.047)</b>	<b>2.04 (1.095)</b>
<i>Presence and care**</i>		
Absent	28.8%	13.8%
Element (ex.: teacher's desk, bag)	30.5%	15.4%
As a person not carefully drawn	25.4%	23.1%
As a person carefully drawn	15.3%	47.7%
<i>Position Teacher-Pupils*</i>		
Far away	78.2%	70.0%
Near	21.8%	30.0%
<i>Size Teacher-Pupils*</i>		
Lower	-	5.1%
Equal size	36.4%	51.3%
Higher	63.6%	43.6%

Student's t test or Chi-squared test: \* p < .05; \*\* p < .001



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In the drawings of children from the EG, more frequently than in those from the CG, the classroom is drawn from above ( $\chi^2=15.328$ ;  $df=2$ ;  $p<.001$ ) and rather carelessly ( $\chi^2=19.551$ ;  $df=2$ ;  $p<.001$ ). The drawing from above places the person drawing outside the picture and, in our case, outside the classroom, as if to underline a sense of freedom or foreignness. In any case, children from the EG seem to try and distance themselves (emotionally and physically) from a setting which they consider hostile, unwelcoming, possibly feared. The classroom, indeed, entails a long set of rules to be followed and various assignments to be completed. Paying attention, remaining seated, organising one's work, following the instructions received: these turn out to be obligations which a child who is hyperactive or suffers from attention deficits finds it absolutely impossible to abide by. The classroom space in the drawing therefore becomes a place of constriction and thus of suffering; the drawing, through the scarcity of graphic elements identifying the classroom, then becomes an expression of the malaise experienced by the child in the EG.

By the same token, the figure of the teacher, i.e. the person in charge of ensuring order and respect of the rules, appears more scaled down in drawings by children in the EG compared to those in the CG. Children showing attention deficits and hyperactive behaviours significantly omit the teacher as a character ( $\chi^2=11.466$ ;  $df=2$ ;  $p<.005$ ) or their drawing is done in a hurry and carelessly ( $\chi^2=16.589$ ;  $df=2$ ;  $p<.001$ ). The teacher's picture, moreover, is more often drawn at a distance from the class ( $\chi^2=6.765$ ;  $df=2$ ;  $p<.05$ ) and it is considerably larger in size than the pupils' figures ( $\chi^2=9.085$ ;  $df=3$ ;  $p<.05$ ). In other words, he/she is seen as an unapproachable and looming "person". Also in this case, the graphic test reveals problem issues pertaining to the relationship between teacher and hyperactive/distracted pupil.

The teacher's desk and the blackboard, elements which respectively evoke the role of the teacher and the cognitive dimension, are more often omitted or drawn carelessly by pupils in the SG; more specifically by those who suffer from attention deficits. Explicit attempts are made, according to the test readings of the "Class Drawing", to devalue the teacher's figure through the elements which identify it graphically.

Experimental group and Control group show no statistically significant differences as regards the representation of the self and of classmates which are, in fact, depicted by the two groups with similar frequency. This result might seem contradictory considering the scarce value of the graphic element attributed to the classroom; in actual fact it translates the great need a hyperactive child has to be among other people.

We are convinced, however, in spite of the graphic similarities, that the two groups express a different emotional situation. The hyperactive child is incapable of being *with* someone else, that is to say of working together on a project; the others are mainly presences which help overcome a feeling of loneliness. The frequency distribution of graphic indices related to the position and size chosen by the child to depict the self seem to confirm this assumption. It is possible to conclude, indeed, that children in the EG tend – more than those in the CG – to draw themselves further away and smaller in size compared to the figures portraying their age peers, thus highlighting a less involved and less "equal" relationship. Another set of data which emerges from analysing the index frequencies of "Class Drawing" is that children in the EG are more careless than those in the CG when drawing their classmates. This result, which may be interpreted simply as the impossibility for a hyperactive subject to concentrate on an assignment, due to the stereotyped drawing of classmates' figures and especially to the absence of any interaction with these characters, may also be interpreted as detachment or emotional distance from the others.

It is finally worth noting the attitude which the two groups showed with regard to the graphic test: children in the EG appeared more anxious, nervous and confrontational, both at the moment the assignment was explained ( $\chi^2=11.737$ ;  $df=1$ ;  $p<.005$ ), and while drawing the picture ( $\chi^2=17.024$ ;  $df=1$ ;  $p<.001$ ). Relevant differences were also recorded with reference to the time spent drawing



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( $\chi^2=25.083$ ;  $df=1$ ;  $p<.001$ ), to the type of trait used ( $\chi^2=14.322$ ;  $df=1$ ;  $p<.001$ ) and to the pressure applied on the sheet of paper ( $\chi^2=7.698$ ;  $df=1$ ;  $p<.01$ ).

## CONCLUSIONS

The "Class Drawing", with regard to the experimental group, highlighted relational aspects and behavioural traits associated with subjects suffering from attention deficit and hyperactivity symptoms. This research, in fact, was aimed at underscoring the graphic qualities of distracted/hyperactive children, as well as the sensitivity of the "Class Drawing" with regard to the graphic translation of the behaviour of subjects with these characteristics. The drawing used, with the request to portray your classroom, your teacher and your classmates, forces the distracted/hyperactive child to confront his/her malaise and expression forms. The malaise expressions – that is to say the problems in relations with peers, school issues, the difficulties in managing the relationship with authoritative figures – are indeed the contents of the drawing. The analysis of such contents, conducted mainly on graphic index characters, may provide some elements to integrate – when assessing possible changes in conduct – the data obtained by means of observation or through other tools. The assignment of "drawing your classroom" is not an invitation to reproduce a class photograph, but rather to graphically communicate to *what* extent and *how* one's classroom is *interesting*. The graphic indices may highlight both the level and the quality of this interest, and together provide indications as to the most important source of malaise. According to a currently accredited concept for the interpretation of drawings (Corman, 1967; Tambelli *et al.*, 1995), namely that the element causing the greatest malaise is omitted from the drawing, it is easy to find which element does not feature in the "classroom". If it is the teacher, then the greatest attention should be paid to relationships with the parents. It is not infrequent that subjects with this kind of disorder have families with a limited sense of parental skill and confrontational interactions (Ammaniti, 2001). If the classroom is missing, then attention should be paid to cognitive malfunctions. In this case the most serious problems could affect school activities. If it is the classmates that are missing, the subject may be wishing to communicate a malaise linked to rejection from the peer group.

Contrary to widespread belief, children suffering from this disorder are anything but superficial and careless with respect to others; on the contrary, these children are unable, as a consequence of events whose origin is yet unknown, to relate to others and to get their attention.

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