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Differences in the intellectual profile of children with intellectual vs. learning disability

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ABSTRACT

The WISC-IV was used to compare the intellectual profile of two groups of children, one with specific learning disorders (SLDs), the other with intellectual disabilities (ID), with a view to identifying which of the four main factor indexes and two additional indexes can distinguish between the groups. We collected information on WISC-IV scores for 267 children (M_{age} = 10.61 [SD = 2.51], range 6–16 years, females = 99) with a diagnosis of either SLD or ID. Children with SLD performed better than those with ID in all measures. Only the SLD children, not the ID children, revealed significant differences in the four main factor indexes, and their scores for the additional General Ability Index (GAI) were higher than for the Cognitive Proficiency Index (CPI). Children with a diagnosis of SLD whose Full-Scale Intelligence Quotient (FSIQ) was <85 showed a similar pattern. Our findings confirm the hypothesis that children with SLD generally obtain high GAI scores, but have specific deficiencies relating to working memory and processing speed, whereas children with ID have a general intellectual impairment. These findings have important diagnostic and clinical implications and should be considered when making diagnostic decisions in borderline cognitive cases.

1. Introduction

One of the main criteria adopted in the traditional theoretical and clinical approach to specific learning disorders (SLDs) and intellectual disabilities (ID) is an overall measure of intelligence, typically the Full-Scale Intelligence Quotient (FSIQ). A classical criterion for diagnosing ID is an IQ below 70 associated with severe adaptive problems and onset in developmental age, while for SLD it is a discrepancy between a high FSIQ (or an average intelligence) and poor academic performance (American Psychiatric Association, 2000). In Italy, for example, a diagnosis of ID currently requires a FSIQ below 70, whereas a diagnosis of SLD is typically used for cases with a FSIQ above 85 associated with a clear discrepancy between this high FSIQ and a low achievement at school (Istituto superiore di sanità, 2011). This approach has recently been questioned for a number of reasons. For a start, children with a borderline intellectual functioning (Alloway, 2010) are left in an undefined, often residual category. The FSIQ may be too generic and lose important information about a child's intellectual level in clinical populations (e.g. Fiorello et al., 2007). As a consequence, a program of intervention for a given child cannot be supported by a comparison between their intellectual strengths and weaknesses (Ferrer, Shaywitz, Holahan, Marchione, &

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Shaywitz, 2010; Hale, Fiorello, Kavanagh, Holdnack, & Aloe, 2007; Tanaka et al., 2011). These problems help to explain why the DSM-5 (American Psychiatric Association, 2013) omits any reference to the discrepancy between IQ and achievement, only mentioning academic difficulties not explained by an intellectual disability (see also Tannock, 2013).

Given these considerations, the latest version of the WISC battery (WISC-IV) includes the recommendation that we pay less attention to the FSIQ and more to the four factor indexes representing intelligence in verbal comprehension (VCI), perceptual reasoning (PRI), working memory (WMI), and processing speed (PSI). Some authors maintain, however, that switching from earlier versions to the latest version of the WISC has not changed the state of things, and that the FSIQ remains the most informative measure of intelligence – as confirmed, for instance, by a better long-term stability (Watkins, Glutting, & Lei, 2007; Watkins & Smith, 2013).

It has also been suggested that clinicians should focus on other measures instead of the FSIQ or the four IQs. Another two global indexes can be derived from the WISC-IV (Wechsler, 2003), i.e. a General Ability Index (GAI) obtained by combining the VCI with the PRI, and a Cognitive Proficiency Index (CPI) resulting from combining the WMI with the PSI (Prifitera, Saklofske, & Weiss, 2008; Saklofske, Coalson, Raiford, & Weiss, 2010). The GAI has the greatest load on the *g*-factor, so it could be particularly appropriate for diagnosing intellectual disabilities (ID). On the other hand, a study comparing the GAI and FSIQ in a large sample of children found no evidence to justify dismissing the FSIQ in favor of the GAI (Koriakin et al., 2013). It is worth noting, however, that these findings were based more on children with ID than on cases with a specific learning disability (SLD), and focused mainly on their adaptive functioning.

Children with SLD may represent a different case. In particular, it would seem sensible to use the two additional scores obtainable with the WISC-IV (the GAI and CPI) because children with SLD are typically characterized by a marked discrepancy between their good general intellectual abilities (measured by the GAI) and their poor processing skills (measured by the CPI). The processing deficits of children with SLD very often relate to working memory (WM) (Swanson & Ashbaker, 2000; Swanson, 1993), and processing speed (PS) (Proctor, 2012). A measure of IQ that relies too heavily on measures of WM and PS might therefore underestimate the intellectual abilities of children with a SLD. This could have clinical and practical implications in the case of children with a relatively high score on the GAI and a lower one on the CPI because such children often do not meet the criteria for a diagnosis of SLD and they are erroneously included in groups of cognitively borderline or even ID children. That is why the use of IQ measures and discrepancy formulas to diagnose SLD has often been criticized (Siegel, 1988).

A more accurate clarification of the differences in the intellectual profiles of children with ID and SLD could also facilitate the accurate diagnosis of cases with borderline profiles, apparently presenting features of both ID and SLD. Such cases typically have a FSIQ between 71 and 84, and are sometimes included in a particular category, variously defined in the DSM-5, although it is not considered a mental disorder: "borderline intellectual functioning" is coded among the "other conditions that may be a focus of clinical attention". Based on the distribution of IQs, these cases would represent a very important category that would include 13.5% of the normal population. There are few reports on this condition, however, and very little attention has been paid to this population: the category occupies just 7 lines in the DSM-5; and the diagnosis is relatively infrequent (Karande, Kanchan, & Kulkarni, 2008). This is because these cases are frequently associated with a diagnosis of either ID or SLD, without any clear and detailed criteria for establishing which diagnosis is the more appropriate.

The aim of the present study was to examine these issues by taking advantage of a large number of WISC-IV ratings that we collected in groups of children with a clinical diagnosis of SLD or ID. We aimed: to confirm that children with SLD had a clear discrepancy between their GAI and CPI scores that was not found in cases of ID; and to investigate the implications for "borderline" cases, i.e. children with a diagnosis of SLD and borderline IQs.

2. Method

2.1. Participants

Under the sponsorship of the Italian Association for Learning Disabilities (AIRIPA), we invited a group of experts to provide data obtained by administering the WISC-IV to children with a certified clinical diagnosis of learning disorder or intellectual disability, based on the ICD-10 International Coding System. We thus collected information on 267 children and adolescents between 6 and 16 years of age, with a WISC-IV assessment on the 10 principal subtests, 190 with a clinical diagnosis of specific learning disorder (SLD) (M_{age} = 10.74 [SD = 2.47]; females = 61),[1] and 77 with a clinical diagnosis of intellectual disability (ID) (M_{age} = 10.29 [SD = 2.61]; females = 38). Using the SLD group classification (the ICD-10), there were: 39 children with F81.0 (specific reading disorder), 12 children with F81.1 (specific spelling disorder), 9 children with F81.2 (specific disorder of arithmetical skills), 86 children with F81.3 (mixed disorder of scholastic skills), 8 children with F81.8 (other developmental disorders of scholastic skills), 4 children with F81.9 (developmental disorder of scholastic skills, unspecified) and 32 children with two or more of the previous diagnoses within the F81 category: 14 had a diagnosis of F81.0 and F81.1; 4 had a diagnosis of F81.0, F81.1, and F81.2; 2 children had a diagnosis of F81.0 and F81.2; 5 children had a diagnosis of F81.0 and F81.8; 3 children had a diagnosis of F81.0, F81.8, and F81.2; and 4 children had a diagnosis of F81.2 and F81.8.

[1] A child with a diagnosis of SLD and an IQ of 63 was excluded from the analysis.

2.2. Instrument

We used the recently published Italian adaptation of the WISC-IV (Orsini, Pezzuti, & Picone, 2012) that retains the Full-Scale IQ and the four main factor indexes, and also includes the two additional indexes (GAI and CPI). Judging from the WISC-IV Italian test manual, internal consistencies, test–retest and inter-rater stability, and standard errors of measurement are comparable with those of the English version (Wechsler, 2003).

For the purposes of the present study, we examined the scores obtained in the 10 core subtests of the WISC-IV, i.e. Block Design (BD), Similarities (SI), Digit Span (DS), Picture Concepts (PCm), Coding (CD), Vocabulary (VC), Letter-Number Sequencing (LN), Matrix Reasoning (MR), Comprehension (CO), and Symbol Search (SS). We calculated the Full-Scale IQ (FSIQ) from the sum of the ten subtests, and the four factor indexes: the Perceptual Reasoning Index (PRI), which includes BD, PCm, and MR; the Verbal Comprehension Index (VCI), including SI, VC, and CO; the Working Memory Index (WMI) including DS and LN; and the Processing Speed Index (PSI) including CD and SS. We then calculated the scores for the two additional indexes: the GAI, obtained from the VCI and the PRI; and the CPI, obtained from the WMI and the PSI. Additional information on the subtests, main factor indexes and additional indexes are available elsewhere (Flanagan & Kaufman, 2004; Wechsler, 2004).

2.3. Data analysis plan

After calculating the FSIQ and the scores for the main factor and additional indexes, we found that a small group of children diagnosed with SLD actually had a FSIQ below 85. We decided to consider them separately since they might represent a special case according to the criteria typically adopted for the diagnosis of SLD. We therefore divided the SLD group into two subgroups, one called SLD-*typical* comprising children with average-to-high FSIQs ($\geq$85) (n = 155; M_{age} = 10.65 [SD = 2.37]; females = 49), and the other SLD-*borderline* with borderline FSIQs (70 < IQs < 85) (n = 35; M_{age} = 11.14 [SD = 2.88]; females = 12). The SPSS-20 software was used to calculate inferential statistics (e.g. ANOVA). Effect sizes were also calculated using Cohen's *d*, considering effect sizes of 0.2–0.3 as "small", those around 0.5 as "medium" and those from 0.8 to infinity as "large" (Cohen, 1988).

3. Results

Table 1 shows the descriptive statistics for the three groups on the WISC-IV subtests, main factor and additional index scores. Fig. 1 shows the means and 95% CIs for the scores obtained in the factor and additional indexes for the three groups.

3.1. Differences between the SLD-typical and ID groups

As shown in Fig. 1, the groups' mean performance clearly differed in the four factor indexes and all the subtests. The pattern is particularly clear if we compare the SLD-typical group with the ID group in the factor indexes. In a first step, since the SLD-*borderline* group probably represents a more heterogeneous and less clear case, we decided to exclude it and focus on comparing the SLD-typical and ID groups in order to clarify the typical intellectual profiles of children with SLD and ID.[2] To test this difference statistically, we performed a 2 groups [SLD-typical, ID] $\times$ 4 indexes [VCI, PRI, WMI, PSI] mixed ANOVA, finding not only significant main effects of groups and indexes, but also a significant interaction [$F(3, 690) = 27.70$, $p < 0.001$, $\eta_p^2 = 0.107$]. As shown in Fig. 1, the SLD-*typical* group had higher scores in the VCI and PRI than in the other indexes.

Comparisons between cells confirmed this pattern (Table 2). While the difference between the VCI and the PRI in the SLD-*typical* group was small ($M_{\text{diff}} = -1.79$; *Cohen's d* = −0.13), we found a large difference (in the range of 13.55–16.78 points (with *Cohen's d* > 0.97)) between the VCI and the PRI with these two and the other indexes (i.e. the WMI and the PSI) (Fig. 1). Conversely, the difference between all the indexes in the ID group was small (ranging from 0.35 to −2.96, with *Cohen's d* < |0.21|). A further 2 groups [SLD-*typical*, ID] $\times$ 2 additional indexes [GAI, CPI] mixed ANOVA supported this finding, with a significant interaction [$F(1, 230) = 43.56$, $p < 0.001$, $\eta_p^2 = 0.159$]. The difference between the additional indexes in the SLD group was large ($M_{\text{diff}} = 18.21$; *Cohen's d* = 1.53), whereas in the ID group it was small ($M_{\text{diff}} = 4.18$; *Cohen's d* = 0.32) (Fig. 1).

We also calculated the cumulative percentages of the difference between the GAI and the CPI. We focused on children who had a clear discrepancy ($\geq$1.5 SDs, which is equivalent to 23 standardized points) between their GAI (higher) and CPI (lower) scores. The percentage of cases was high in the SLD-*typical* group (61 cases, 39.4%) and very low in the ID group (4 cases, 5.2%). Having a higher GAI than CPI score thus seems to pinpoint *typical* profiles in the SLD-*typical* group, but not in the ID group. It should be noted, however, that not all the children in the SLD-*typical* group met the criterion for a clear discrepancy, even when lower discrepancy values were considered (for instance, only 67.1% of them had a difference of 10 points or more between the GAI and CPI scores).

[2] We first performed a 3 groups [SLD-*typical*, SLD-*borderline*, and ID] $\times$ 4 indexes [VCI, PRI, WMI, PSI] mixed ANOVA, finding main effects of groups and indexes and a significant interaction [$F(6, 792) = 13.80$, $p < 0.001$, $\eta_p^2 = 0.095$] (Fig. 1). To further confirm this finding, we also performed a 3 groups [SLD-*typical*, SLD-*borderline*, ID] $\times$ 2 indexes [GAI, CPI] mixed ANOVA, again finding a significant interaction [$F(2, 264) = 22.22$, $p < 0.001$, $\eta_p^2 = 0.144$].

Table 1
Descriptive statistics for children by SLD (typical and borderline) and ID group.

Scale	SLD-typical (*n* = 155)		SLD-borderline (*n* = 35)		ID (*n* = 77)	
	M	SD	*M*	SD	*M*	SD
Factor index						
VCI	105.54	14.96	87.37	10.81	67.58	11.85
PRI	107.33	12.71	87.66	12.51	67.23	13.54
WMI	90.55	12.35	78.40	10.13	65.91	13.83
PSI	91.99	12.84	80.69	12.42	68.87	13.77
FSIQ	100.24	10.68	79.06	4.30	56.61	12.21
Additional score						
GAI	107.17	12.50	85.86	7.16	63.21	11.32
CPI	88.96	11.35	74.31	9.35	59.03	14.85
Subtest						
SI	10.63	2.85	7.83	2.80	5.13	2.12
VC	10.86	2.98	7.83	2.42	4.52	2.43
CO	11.34	3.27	8.03	2.62	4.14	2.59
BD	10.75	2.52	8.00	2.84	4.61	2.53
PCm	11.51	2.77	8.17	2.50	5.62	2.71
MR	11.16	3.00	8.20	3.08	4.81	2.64
DS	8.14	2.48	6.49	2.59	4.21	2.62
LN	8.65	2.49	6.31	2.01	4.43	2.79
CD	8.09	2.61	6.17	3.17	4.65	3.04
SS	9.20	2.56	7.26	2.48	4.75	2.59

Note: VCI = Verbal Comprehension Index; PRI = Perceptual Reasoning Index; WMI = Working Memory Index; PSI = Processing Speed Index; FSIQ = Full-Scale IQ; GAI = General Ability Index; CPI = Cognitive Proficiency Index; SI = Similarities; VC = Vocabulary; CO = Comprehension; BD = Block Design; PCm = Picture Concepts; MR = Matrix Reasoning; DS = Digit Span; LN = Letter-Number Sequencing; CD = Coding; and SS = Symbol Search.

3.2. Differences between the SLD-borderline and ID groups

We then examined the case of the SLD-*borderline* group. By comparing this group with the group of children with a diagnosis of ID, we explored whether a different WISC profile could describe a difference between the groups. The SLD-*borderline* group revealed much the same pattern of scores in the four main and two additional indexes as the SLD-*typical* group (i.e. the scores were higher for the VCI and PRI than for the WMI and PSI, and the GAI was higher than the CPI; Fig. 1), but the differences were less clear-cut in this case.

We compared the SLD-*borderline* group with the ID group by performing a 2 groups [SLD-*borderline*, ID] × 4 indexes [VCI, PRI, WMI, PSI] mixed ANOVA and found, once again, both main effects of groups and indexes, and a significant interaction [$F(3, 330) = 3.85$, $p = 0.010$, $\eta_p^2 = 0.034$]. As shown in Fig. 1, the SLD-*borderline* group has higher scores in the VCI and PRI than in the others.

Here again, cell comparisons confirmed this pattern (Table 2). The difference between the VCI and PRI scores in the SLD-*borderline* group was very small ($M_{diff} = -0.29$; *Cohen's d* = −0.02), but the differences between the VCI or PRI and the WMI was large ($M_{diff} = 8.97$; *Cohen's d* = 0.86 and $M_{diff} = 9.26$; *Cohen's d* = 0.81, respectively), and the differences between the VCI and PRI and the PSI were medium ($M_{diff} = 6.68$; *Cohen's d* = 0.57 and $M_{diff} = 6.69$; *Cohen's d* = 0.56, respectively) (Fig. 1). A further 2 groups [SLD-*borderline*, ID] × 2 additional index scores [GAI, CPI] mixed ANOVA supported this finding with a significant interaction [$F(1, 110) = 6.41$, $p = 0.013$, $\eta_p^2 = 0.055$]. The difference between the scores for the additional indexes

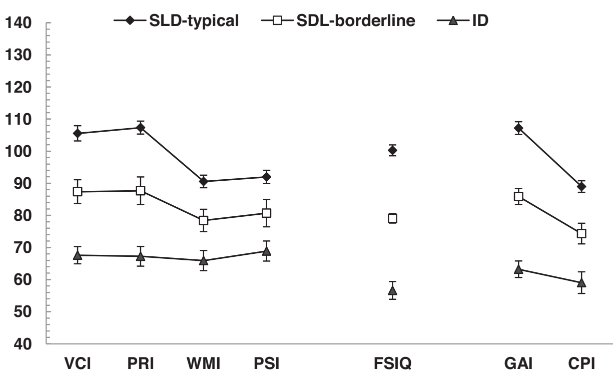

Fig. 1. Means and 95% CIs for the three groups. VCI = Verbal Comprehension Index, PRI = Perceptual Reasoning Index, WMI = Working Memory Index; PSI = Processing Speed Index; FSIQ = Full-Scale IQ, GAI = General Ability Index, CPI = Cognitive Proficiency Index.

Table 2
Standardized differences between the indexes and the special scores within the SLD-typical, SLD-borderline, and ID groups.

	SLD-typical	SLD-borderline	ID
Factor indexes			
VCI-WMI	1.09 [0.85, 1.33]	0.86 [0.36, 1.34]	0.13 [−0.19, 0.45]
VCI-PSI	0.97 [0.73, 1.20]	0.57 [0.09, 1.05]	−0.10 [−0.42, 0.22]
PRI-WMI	1.34 [1.09, 1.58]	0.81 [0.32, 1.29]	0.10 [−0.22, 0.41]
PRI-PSI	1.20 [0.96, 1.44]	0.56 [0.08, 1.03]	−0.12 [−0.44, 0.20]
VCI-PRI	−0.13 [−0.35, 0.09]	−0.02 [−0.49, 0.44]	0.03 [−0.29, 0.34]
WMI-PSI	−0.11 [−0.34, 0.11]	−0.20 [−0.67, 0.27]	−0.21 [−0.53, 0.10]
Special scores			
GAI-CPI	1.53 [1.27, 1.77]	1.26 [0.74, 1.75]	0.32 [−0.003, 0.63]

Note: Standardized differences are expressed as Cohen's *d* with the 95% CI in brackets.

in the SLD-*borderline* group was large ($M_{\text{diff}} = 11.55$; *Cohen's d* = 1.39), while in the ID group the difference was small ($M_{\text{diff}} = 4.18$; *Cohen's d* = 0.32).

Despite the range restriction in the IQs, we found a discrepancy between the two additional indexes (the GAI higher than the CPI) of 23 points or more in 28.6% of cases in the SLD-*borderline* group, a percentage clearly higher than the one found in the ID group (5.2%).

4. Discussion

This study on the relationship between intelligence and developmental disabilities examined the WISC-IV applied to the diagnosis of ID and SLD. Reliance on IQ to classify SLD has sometimes been excessive, but it does seem to provide important additional information. In this study, we focused on the WISC-IV battery for two main reasons: (i) the WISC scales are the most widely used procedures for assessing intelligence in many countries (Evers et al., 2012); and (ii) the latest version of the WISC makes it possible to distinguish between different index scores and includes a measure of working memory, a variable that appears to be strongly involved in SLDs (for a review see Cornoldi & Giofrè, 2014).

Taking advantage of the four factor indexes, and especially of the two additional indexes in the WISC-IV, we found that the profiles of ID and SLD differ considerably, since children with an ID are typically just as weak in all the indexes, whereas children with SLD fail mainly in the indexes comprising the CPI (i.e. the WMI and the PSI). These results further support the evidence of children with an ID having general intellectual weaknesses, while children with SLDs very often have specific problems with working memory and processing speed tasks (Swanson & Ashbaker, 2000; Swanson, 1993). Using the WISC-IV, previous research had already found evidence of this difference, but the results were less clear (Bremner, McTaggart, Saklofske, & Janzen, 2011; Calhoun & Mayes, 2005). In a large group of children with an accurate diagnosis of SLD, the present study was able to show a substantial discrepancy between their various WISC-IV scores. It is worth noting that important deficits on the WMI emerged in a group of 60 French children with a diagnosis of dyslexia, though their impairments on the PSI did not reach significance, probably due to a statistical power problem (De Clercq-Quaegebeur et al., 2010). Judging from the present evidence, the GAI would seem to be more useful than the FSIQ as an index of intellectual abilities when diagnosing SLD with the aid of the WISC-IV. In the case of children with ID, on the other hand, it seems appropriate to rely on the more powerful measure represented by the FSIQ, since similar scores are observed in the four factor indexes (Koriakin et al., 2013).

These results provide further insight on the cognitive mechanisms of human intelligence. An abundant body of research has shown that processing speed (Coyle, 2013; Jensen, 1998) and WM (Cornoldi, Orsini, Cianci, Giofrè, & Pezzuti, 2013; Demetriou et al., 2013; Giofrè, Mammarella, & Cornoldi, 2013) are involved in intellectual functioning. The present evidence confirms that this relationship may differ, however, in particular groups – as already suggested in the case of children with ADHD, who may struggle with WM tasks despite a high level of intelligence (Cornoldi, Giofrè, Calgaro, & Stupiggia, 2013).

Clearly delineating the typical intellectual differences between children with SLD and cases of ID also provides a clinical input useful for diagnosing children with a sub-average FSIQ. We found that children diagnosed with SLD despite an IQ below 85 had a relatively high GAI, while their FSIQ was reduced by their low CPI. It may be that their diagnosis was based on intuitive considerations concerning this particular intellectual profile, though clinicians presumably also consider the absence of serious adaptive problems when excluding a diagnosis of intellectual disability or a borderline profile. This is an aspect that was beyond the scope of the present study (due to the difficulties of obtaining comparable standardized indexes of adaptive skills), but should be considered in future research. The importance of bearing the WISC profile in mind when making diagnostic decisions concerning children with a FSIQ between 71 and 84 also emerges when we consider the few cases that, based on the SE of the measurement (roughly five IQ points), might be diagnosed as ID despite a FSIQ above 70 (American Psychiatric Association, 2013). The sample considered in the present study also included a small subsample of cases in the ID group whose FSIQ, based on the WISC-IV, was $\geq$70 (from 70 to 75), making them ID-*borderline* cases ($n = 11$; $M_{\text{age}} = 10.55$ [SD = 1.29]; females = 6): the mean profile for the four indexes in this group was flat, with means in the range of 76.5–81.5, while the means in the additional indexes were 75.2 and 75.0 for the GAI and CPI, respectively.

Within the group of SLD with a borderline cognitive profile, it seems that children with a substantial discrepancy between their GAI and CPI scores should first be considered for a diagnosis of SLD, whereas children with a FSIQ slightly above 70 and no discrepancies between these indexes should first be considered for a diagnosis of borderline intellectual functioning or "ID" (Bremner et al., 2011). On the other hand, the fact that many SLD children did not have a discrepancy between their scores on the GAI and CPI shows that this discrepancy is not a necessary condition for SLD, though it may represent a crucial diagnostic element when considering borderline cases.

Any diagnostic decision should be made bearing other information in mind, however, and particularly the child's adaptation (Lanfranchi, 2013) and clinical history. Based on more information, standardized adaptation measures and larger samples, future research should provide more evidence on these issues for example focusing on the differences between children with SLD who presented or not a discrepancy between the GAI and the CPI in the WISC-IV.

It has been demonstrated that many predictors should be considered for an accurate diagnosis of SLD (Pennington et al., 2012). There is also an abundance of evidence indicating that a deficit in the basic cognitive processes can predict response to intervention (Al Otaiba & Fuchs, 2002; Frijters et al., 2011). It has to be said, however, that assessing a large set of indicators to measure basic cognitive processes in SLD can be very expensive and time-consuming (Compton, Fuchs, Fuchs, Lambert, & Hamlett, 2012), so it may be necessary to be selective. Among the various predictors, processing speed and WM seem particularly important (Johnson, Humphrey, Mellar, Woods, & Swanson, 2010), and that is why we believe that a discrepancy between GAI and CPI scores may offer crucial information on the basic cognitive processes of SLD. These scores are easy to obtain because the WISC-IV is often used in the diagnostic workup in children with SLD. Future research is needed to understand whether a large discrepancy between the GAI and CPI can predict response to intervention.

In conclusion, a discrepancy between GAI and CPI scores distinguishes cases of SLD (in children with a normal or borderline IQ) from children with ID. In the sample described here, this discrepancy is high in children with both SLD-typical and SLD-*borderline*, but not in children with ID. Since the GAI is a good index of general intelligence, it should be used with SLD children not only to confirm their diagnosis, but also to identify their potential general abilities, which might be underestimated on the basis of their FSIQ. Finally, a discrepancy between the GAI and the CPI may provide very important information on the cognitive profile of children with a diagnosis of SLD and should also be considered when planning intervention for these children.

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