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ARTÍCULOS DE INVESTIGACIÓN

Identification of two SLI profiles through WISC-IV, CELF-4 and FON

Identificación de dos perfiles de TEL mediante el WISC-IV, el CELF-4 y el FON

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Summary

This work has two objectives. First of all, to offer psychometric instruments that help more precisely identify and differentiate children with specific language impairment (SLI) in the educational field and, secondly, to establish profiles of the two cases that illustrate the two current subtypes of SLI: phonologic-syntactic SLI and lexical-syntactic SLI. According to bibliographic reviews, the following tests are ideal for its identification: on the one hand the CELF-4, because language should be significantly the most affected area, the WISC – IV, an optimum test for the determination of the level of non-verbal reasoning, verbal comprehension, working memory and processing speed, and the FON, on a phonetic level, due to the level of analysis of the errors found. The results obtained in both cases corroborate a Perceptual Reasoning measured with WISC - IV, above 75, and the presence of a 1.5 deviation below average, in one of the three main scales of the CELF-4 (three in two cases: basic linguistic skills, receptive language and comprehensive language).

Keywords: Identification of SLI, phonologic-syntactic deficit, lexical-syntactic deficit, non-verbal IQ morpho-syntax.

Resumen

El presente trabajo tiene un doble objetivo. En primer lugar, ofrecer instrumentos psicométricos que ayuden a identificar y diferenciar con mayor precisión a los niños con Trastorno Específico del Lenguaje (TEL) en el ámbito educativo y, en segundo lugar, establecer perfiles de los dos casos que ilustran los dos subtipos de TEL vigentes en la actualidad: TEL fonológico-sintáctico y TEL léxico-sintáctico. La revisión bibliográfica sitúa como pruebas idóneas para su identificación: por un lado, el CELF-4, ya que el lenguaje debe ser la dimensión significativamente más afectada; el WISC-IV, prueba óptima para la determinación del nivel de razonamiento no verbal, la comprensión verbal, la memoria de trabajo y la velocidad de procesamiento, y el FON, a nivel fonético, por el nivel de análisis de los errores encontrados. Los resultados obtenidos en ambos casos corroboran un Razonamiento Perceptivo medido con el WISC-IV, por encima de 75, y la presencia de una 1.5 desviaciones por debajo de la media, en una de las tres escalas principales del CELF-4 (en las tres en los dos casos: habilidades lingüísticas básicas, lenguaje receptivo y lenguaje comprensivo).

Palabras clave: Identificación de TEL, déficit fonológico-sintáctico, déficit léxico-sintáctico, CI no verbal-morfosintaxis.

Introduction

Specific Language Impairment (SLI) is a very heterogeneous disorder that includes alterations in one or many of language components (phonetics and phonology, morphology and syntax, lexical and semantics, and/or pragmatics) with different degrees of affectation, the morpho-syntactic dimension being necessarily affected for it to be determined, because there are authors who restrict their studies to a subgroup. Such is the case of the grammatical Specific Language Impairment (SLI- G), defined by Van der Lely and collaborators.

Looking for an up-to-date definition, we followed the recommendations of the AELFA – IF 2015 experts committee , and we considered that children suffering from SLI show a significant alteration in language acquisition and development which is not justified by any physical, neurological, intellectual or sensorial cause, in socially ideal conditions (AELFA – IF 2015 expert committee).

While it is true that we have a more or less clarifying definition of these children's singularity, the enormous heterogeneity which characterizes SLI has caused an increase in the interest of several languages in correctly classifying the impairment, thus dividing it into several subtypes. In spite of this efforts, neither of these proposals is entirely satisfactory (Acosta, Ramírez & Hernández, 2013; Leonard, 2009).

Besides, several authors question the specific nature of the SLI and propose the elimination of the "S" for "specific" and, therefore, the use of the term "language disorder" (DSM-V, 2013). Others have coined the term "language learning disorder", "primary language disorder" (v.gr. Kohner & Ebert, 2010; as cited in Acosta, Ramirez & Hernández, 2013), or "language development disorder" (Norbury, Tomblin & Bishop, 2008); Valdizán, Rodríguez-Mena & Díaz–Sarid, 2011; as cited in Acosta, Ramirez & Hernández, 2013).

We will analyze the main proposals that have formed its typology, using the term SLI:

Table 1.

SLI classification based on diagnostic categories.

<table>
<tr><td colspan="6">The first, and perhaps the most used classification at an international level, is the Rapin and Allen Classification (1983), which has six diagnostic categories.</td></tr>
<tr><td colspan="2">Expressive language disorders</td><td colspan="2">Expressive and receptive language disorders</td><td colspan="2">Higher order processing disorders</td></tr>
<tr><td>Phonologic programming disorder</td><td>Verbal dyspraxia</td><td>Phonologic syntactic disorder</td><td>Verbal auditory agnosia</td><td>Semantic pragmatic disorder</td><td>Lexical syntactic disorder</td></tr>
<tr><td>Articulatory problems
Normal comprehension</td><td>Fluency problems
Articulatory problems
Normal comprehension</td><td>Receptive-expressive deficit
Fluency problems
Morpho-syntactic deficit
Better comprehension than expression
Speech problems
Difficulties appear in complex syntax (narrative speech)</td><td>Verbal deafness
Fluency problems
Articulatory problems
Very low comprehension</td><td>Normal speech , fluency and morpho-syntax acquisition
Severe comprehension problems
Pragmatic difficulties</td><td>Evocation problems, which generate faltering, hesitation, reformulations…
Important morpho-syntax problems
Comprehension difficulties appear in more complex statements (narrative speech)</td></tr>
<tr><td colspan="6">Later, Bishop (2004) stated the presence of four categories:</td></tr>
<tr><td colspan="2">Grammatical SLI</td><td>Auditory agnosia</td><td>Phonologic output</td><td colspan="2">Pragmatic problems</td></tr>
<tr><td colspan="2">Enormous grammatical deficit
Lexical semantic problems
Some limitations in non-verbal skills</td><td>Severe disorder at a receptive level</td><td></td><td colspan="2"></td></tr>
<tr><td colspan="6">Botting and Conti - Ramsden (2001), based on Rapin and Allen (1987), summarizing them into five categories:</td></tr>
<tr><td>Lexical syntactic deficit</td><td>Verbal dispraxia</td><td>Phonologic programming deficit</td><td colspan="2">Syntactic phonologic deficit</td><td>Semantic pragmatic deficit</td></tr>
</table>

Grammar comprehension deficit Difficulties in Reading words No difficulties in phonology No difficulties in expressive vocabulary	Problems with grammatical comprehension Texts reading Phonology Narrative production Adequate expressive vocabulary	The same as verbal dispraxia, but with effects at vocabulary level	Difficulties at all language areas	Problems in narrative production and when using language in social contexts

Van Dall, Verhoeven, van Balkom (2004), state four categories:

Receptive expressive disorder	**Phonological production disorder**	**SLI with grammatical problems**	**Auditory perception problems**
Comprehension and expression problems both in words and sentences Severe lexical problems Lexical access problems	Expressive problems, especially in articulation	Limitation in the comprehension of complex sentences Difficulties in auditory sequential processing	

Also, Haskill and Tyler (2007), state two categories:

Syntactic SLI	**Phonologic syntactic SLI**
Difficulties in comprehension Difficulties in moprho-syntactic production	Difficulties in comprehension Difficulties in moprho-syntactic production Deteriorated phonology

Finally, Acosta, Ramirez and Hernández (2014), according with the DSM IV, state two categories:

Expressive SLI – E SLI	**Expressive-Receptive SLI (ER SLI)**
Morpho-syntax and speech deficit Moprho-syntactic comprehension deficit when dealing with complex or decontextualized syntactic structures Statements decontextualized due to complications in sequential order Severe problems in speech fluency Different problems related to working memory	Higher lexical and syntactic comprehension deficit Severe damage in the processes involved in lexical and semantic identification Lexical semantic limitations Sever problems in working memory

DSM fifth edition, DSM–V, including the category of Communication disorders and, among them:

Language disorders	**Speech disorders**	**Social communication disorders**

SLI AELFA – IF Committee by Mendoza, Aguado, Serra, Coloma, Montes, Martínez, Navarro (2015)

Phonologic-syntactic SLI	**Lexical-syntactic SLI**
With the characteristics described by previous researchers	With the characteristics described by previous researchers

While it is true that DSM manuals have a wide tradition in medicine and psychology practice, the diagnostic categories referring language disorders have not strongly been considered by the professionals engaged in language disorders, because they do not represent the children who suffer from these disorders. According to the last classification stated and the existent scientific agreement, we can assume that, nowadays, there are two SLI types: the phonologic-syntactic deficit and the lexical-syntactic deficit.

Most currently published scientific papers regarding SLI use the exclusion/inclusion criteria (Leonard 1998) and the AELFA-IF Experts Committee update, 2015.

Table 2.

Diagnostic exclusion and inclusion criteria

Leonard, 1998	AELFA – IF, 2015
Linguistic capacity: language tests score 1.25 standard deviation or lower	Linguistic capacity: language tests score 1.5 standard deviation or lower
Non-verbal intelligence: manipulative IQ 85 or higher	Non-verbal intelligence: manipulative IQ 75 or higher Cognitive capacity is excluded
Hearing: conversational levels are exceeded through screaning	Deafness is excluded
Otitis media with repetitions, without recent episodes	
Neurological malfunction: no evidence of strokes, cerebral palsy or injuries	Injuries or neurological damage are excluded
Oral structure: absence of structural abnormalities	
Oral mobility: exceeds the screaning by using evolutionarily appropriate items	
Physical and social interactions: absence of symptoms of an altered reciprocate social interaction and activity restriction	Autism is excluded

Accordingly, the following process is established in two stages:

Step 1: The importance of non-verbal IQ, measurement of intelligence.

The absence of cognitive deterioration or Intellectual Disability Disorder (DSM-V, 2014), has been considered as one of the excluding characteristics of children with SLI. Due to its importance, a review which will allow us to determine the current state of this criterion will be carried out in order to determine SLI. The meta-analysis developed by Gallinat and Spaulding (2014) regarding researches that took place between 1995 and 2012, related to the importance of determining the non-verbal IQ as a measurement for the diagnosis of a child with SLI, leads to the following conclusions:

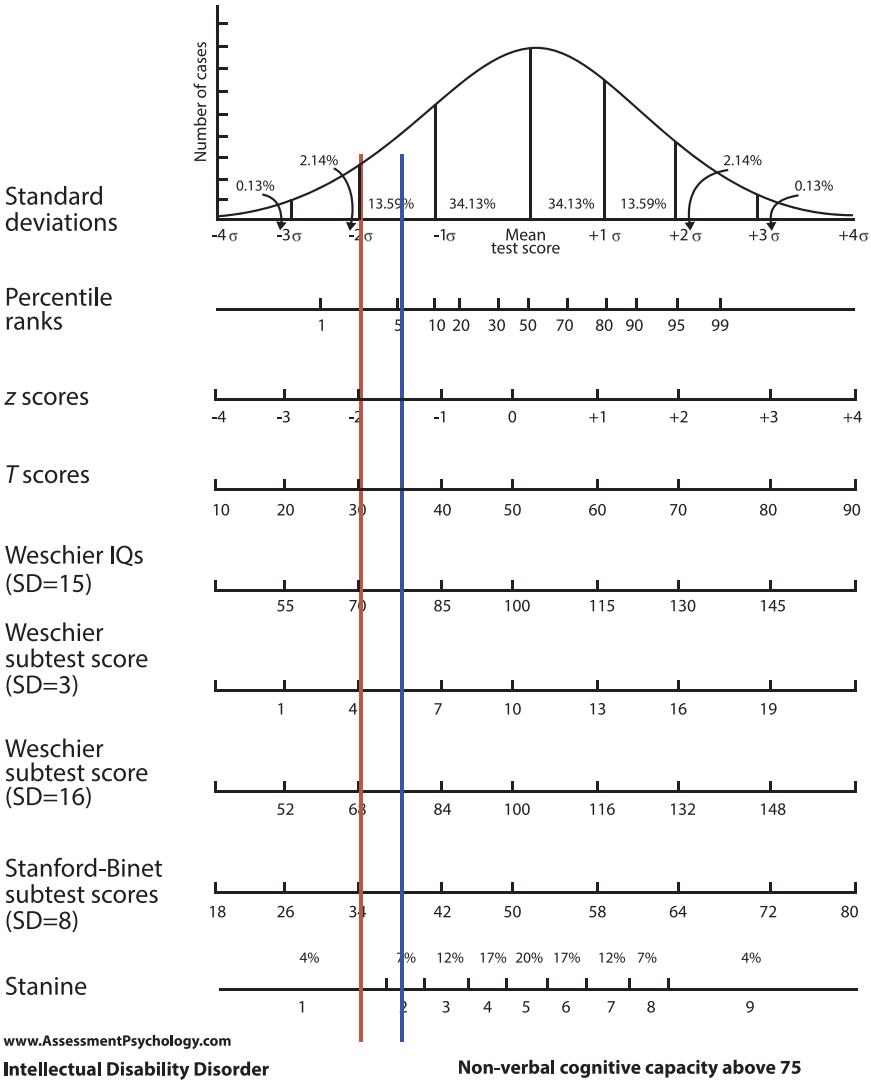
Through 138 samples from 131 studies by Gallinat and Spaulding (2014), it is concluded that children with SLI obtained 0.69 typical score lower than children with typical development, once the differences between the diverse tests used were adjusted. Taking into account tests which measurement range has an average of 100 and a deviation of 15, the results obtained put these children slightly 10 points below versus children of the same age with a typical development. The explanations given to the difference regarding non-verbal IQ vary in authors such as Newton (2010) and Spaulding, 2010 (as cited in Gallinat & Spaulding, 2014) who state the possibility of the existence of non-linguistic deficits associated to those children. Others pose the existence of common mechanisms in the verbal and non-verbal IQ development, such as procedural memory, storage and recovery of sequential information (Lum Bleses, 2012; as cited in Gallinat & Spaulding, 2014).

Children with SLI show a lack of stability in non-verbal IQ scores as they grow up (Aram 1984; Botring, 2005; as cited in Gallinat & Spaulding, 2014). They also have a significant metalanguage delay (Lindstone, Meins, Fernyhough, 2012; as cited in Gallinat & Spaulding, 2014). The interaction between language and cognition is complex and indirect.

Following the recommendations of the Experts Committee, and based on the consensus, the absence of Intellectual Disability Disorder is assumed in this disorder, when the non-verbal IQ is, at least, of 75.

As a test for measuring this variable, we have used the WISC-IV (Wechsler Intelligence Scale for Children-4th Edition) (Weshsler, 2003), because it includes current research regarding cognitive development, intellectual evaluation and cognitive processes, which makes it a unique instrument, different from its predecessors. At present, it its widely accepted that intelligence has a hierarchical structure with different specific skills grouped into wider cognitive fields. The current version of WISC-IV test for the evaluation of intellectual skills consists of 15 tests organized in four indexes (verbal comprehension, perceptive reasoning, working memory and processing speed) and in a total IQ. The intelligence construct underlying the test states that cognitive skills are organized hierarchically, with specific skills related to different cognitive fields.

In order to determine the presence of a SLI, the perceptive reasoning must be, at least, of 75 (composite scale score). Verbal comprehension and working memory indexes are expected to be low (especially when the vocabulary test has a score below average). We will pay special attention to the conceptual strength present in the matrixes subtest, which, even though it is part of the perceptive reasoning index, has an important linguistic component in category formation. The processing speed index, on the other hand, is expected to be normal. The total IQ in this type of students is not relevant, because we have to look for a detailed analysis of the profile shown by the WISC-IV as a whole and not to focus on a possible total IQ of 80 obtained by a student with a limit intellectual capacity and quite a heterogeneous profile to be deeply studied.



Picture 1. Intellectual disability cut off point.

Step 2: Language must be the most significantly affected dimension, specifically its morpho-syntactic dimension.

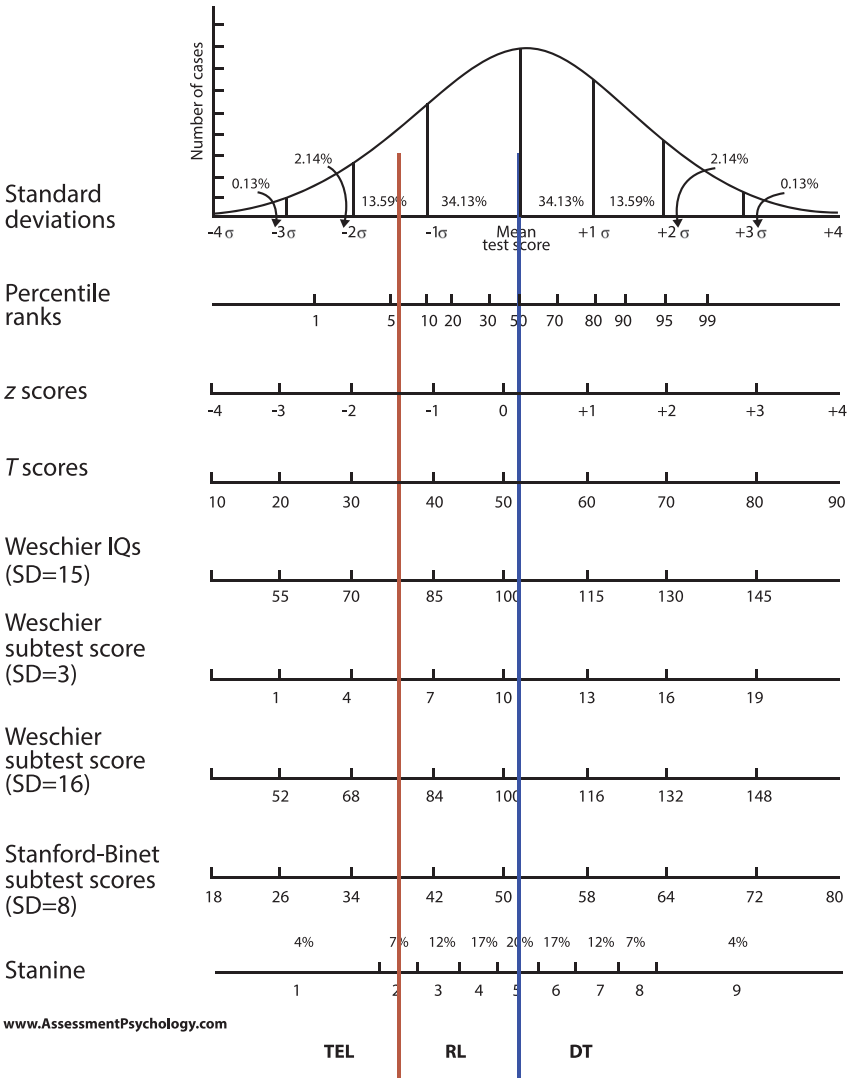
Population with SLI has different language deficits and severity profiles. Their linguistic skills show alterations at a language processing level, depending

on the linguistic level (phonetic, phonologic, morphologic, syntactic, semantic or pragmatic), or on the type of language used (comprehension and/or production), which could be selectively compromised (Verhoeven et al., 2011) and, therefore, the language profiles of these children show great heterogeneity. This situation leads to the search of language tests which measure the aforementioned variables and which have a high sensibility and specificity level. Among those which are currently available, we have chosen the CELF–4 (Clinical Evaluation Of Language Fundamentals) (Semel, Wiig & Secord, 2006), a psychometric evaluation instrument elaborated in the United States for the population living in that country and which mother tongue is spanish, in which standardization children with SLI have been included. The objective of this instrument is to evaluate the language development from ages 5 to 21. The test has a total of 18 subtests which allow to evaluate the development of fundamental language, as well as the development of more specific skills in different linguistic areas, allowing the detection of possible linguistic alterations or difficulties in the child. It offers three levels of analysis:

- On a first level, the establishment of an individual profile obtained with the scale scores of each of the subtests.
- On a second level, through determining the individual profile in the composite scales, which will determine the existence of a possible disorder, its nature and the indications for the intervention, analyzing in depth each of the subtests' mistakes.
- A third level which allows to continue with the evaluation.

It is recommended for the cut off point for the determination of the SLI to be above 1.25 (Tomblin 2008, p. 95). Following the Experts Committee indications stated in 2015 and according to the CELF 4, we decided that the scores in at least one of the central scales of the CELF4 should be, at least, in

a typical deviation of 1.5 (TD) below average (the three central scales of the CELF 4 are: basic linguistic skills, expressive language, and comprehensive language), that is to say, as long as the scale composite score in at least one of the three scales is below 77.5 (40-160 range, average range: 100 +/- 15), which is the cut off point where typical deviations of 1.5 below average appear, because in said cut off point, an acceptable sensitivity (.86) and a very good specificity (.95) converge.



Picture 2. Cut off point of the Specific Language Disorder – Language and typical development delay.

According to the Technical Manual of CELF – 4, special attention will be given to the following subtests: (1) word structure, (2) directions concept and follow up, (3) remembering sentences. On a practical level, as a result of the experience acquired, it is advised to pay attention to the sentence formulation subtest.

In case of a phonologic-syntactic disorder, it becomes necessary to evaluate the phonology and phonetics, for which Laura Bosch's FON has been selected, due to its suitability with the measurement, because it brings a process of identification and analysis of all the speech segments establishing gravity, risk and normality areas by age, from three to seven years old, ages in which the phonetic repertoire is complete.

Step 3: Exclusion/comorbidity criteria.

A necessary element for an accurate diagnosis, other than the absence of cognitive disability, is the absence of: autism, neurological injury or damage and deafness. Other disorders, such as ADHD, dyslexia, and auditory processing disorder (APD) must not be excluded and must show up in the reports as comorbid disorders. That said, we must take into account that many children change as they grow up from a "specific" to a "non-specific" in the clinical form of their Language Disorder (Conti-Ramsden et al., 2001), because the deteriorated variables increase.

Method

Once the term which concerns us has been conceptually defined, this work's goals have been, on one hand, to offer psychometric instruments which will help to identify and differentiate more precisely children with SLI in the educational field after the review of the main researches on the subject and, on the other hand, to establish profiles of the two cases illustrating both current SLI subtypes: phonologic-syntactic SLI and lexical-syntactic SLI,

taking into account the research carried out by Rodríguez and Ramírez (2014, as cited in Acosta, Ramirez & Hermandez, 2013) case studies in alumni with a specific language impairment, using CELF – 3, Peabody, and two ITPA subtests, as well as the K-BIT as an intelligence measurement. Through the analysis of this research, the measurement instruments considered most suitable are CELF 4, WISC 4 and FON, due to the description given in the introduction.

Instruments for the selection of children with SLI.

The identification process for children with SLI in the educational field is included in a wider general process which, in this case, is the psycho-pedagogical evaluation regulated by the Act of September 19th 2002, which rules the process of the psycho-pedagogical evaluation and the school law, specified in the September 10th 2012 Notice of the General Directorate of Participation and Equity, which establishes criteria and orientation for the data record and updating of the census with alumni with specific needs of educational support in the "Seneca" information system, amended by the Instructions dated June 22nd 2015, of the General Directorate of Participation and Equity, which establishes the protocol of detection, identification of the alumni with specific needs of educational support and organization of the educational response, the tutor of the student refers to the Orientation Services of the Center to be studied. This is because the student shows difficulties in the teaching process which exceed the usual and the tutor is not able to find the necessary tools to help them in the class group. Both students' psycho-pedagogical evaluation shows the presence of Learning Difficulties due to limited intellectual capabilities.

Both cases attend elementary school, one in the first grade and the other in the third grade. In both cases the mother tongue is Spanish, they are not bilingual children, the parents' socio-economic level is medium, and the cultural level is high.

The evaluation of both children took place outside of their educational field, in the afternoon, with the parents' permission to participate in a SLI Identification Process in collaboration with the University of Granada, given the difficulties detected in the educational centers, "Learning Difficulties: due to limited intellectual capacity" but with no previous SLI diagnosis. The same office was used in at the same time except in different days of the week, and the professional who administered the test was the same in both cases. In both cases, the students did not know this person.

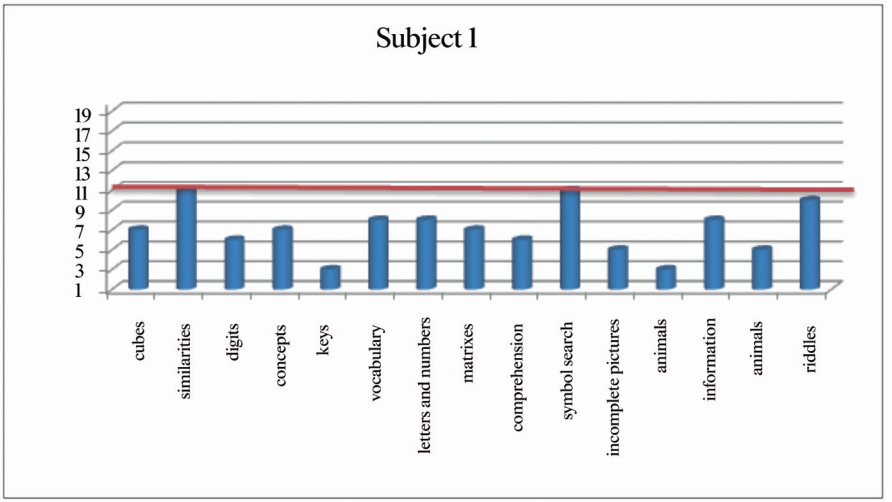
Results

Application to real, practical cases.

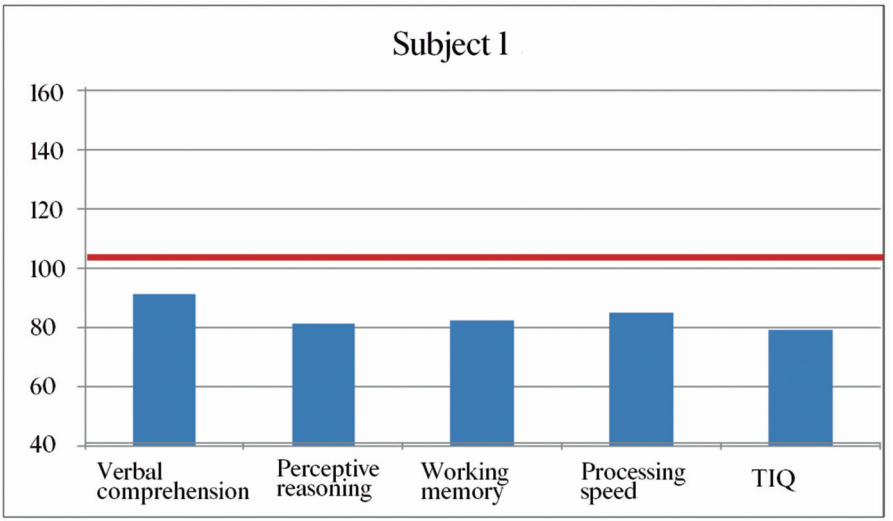
The application of the aforementioned proposals to two different practical cases is presented below.

Case 1 of phonologic-syntactic SLI (the subject is eight years and four months old).

Step 1. Intellectual level determination by using WISC-IV Scales. As we have shown in previous paragraphs, it is considered that, in order for a SLI to exist, minimum non-verbal IQ must be 75. In this case we refer to the perceptive reasoning which is 81, as observed, with a trust level between 79 and 91 (cf. following charts). The verbal comprehension index, according to the Key manual for evaluation with Flanagan an Kaufman's WISC-IV (2006), cannot be interpreted, because it has a difference of five points or more between the highest scale score, 11, and the lowest one, 6, with a very heterogeneous index which does not permit a global interpretation.



Picture 3. Scale Scores obtained in the WISC IV



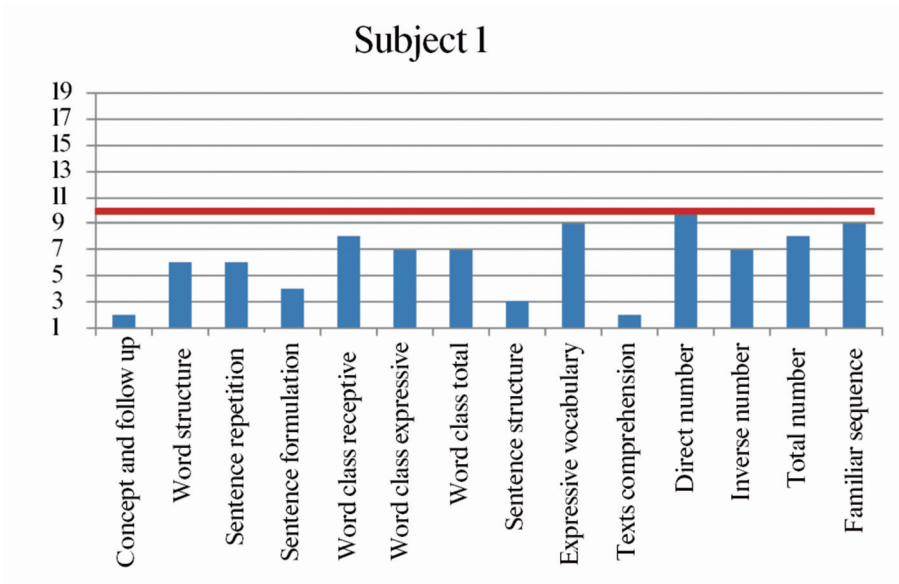
Picture 4. Scales composite scores in WISC IV.

Step 2. Language must be the most significantly affected dimension using CELF-4 and observing phonologic alterations through FON (Bosch, 2004). In this case, the three main scales: basic linguistic skills, expressive language and comprehensive language are in 1.5 TD below average. This, in

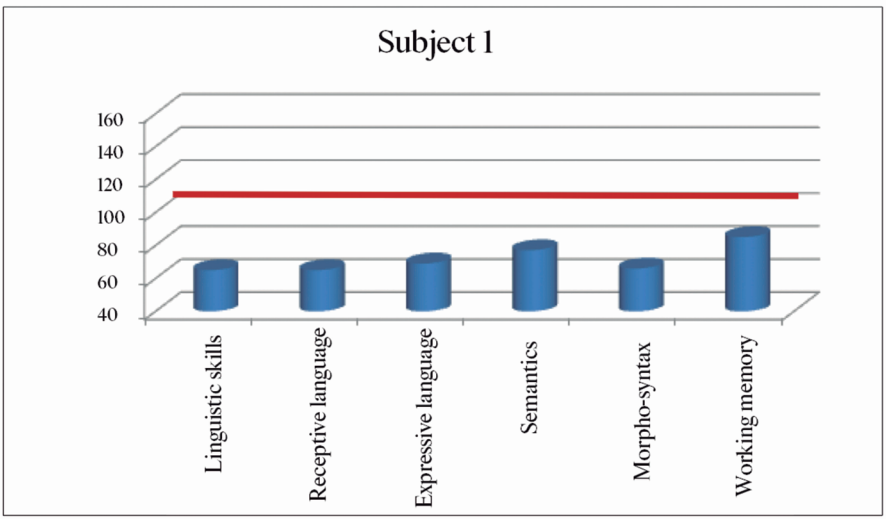
composite scores, equals a score below 77.5 (40-160), the largest influence being on a morpho-syntactic level, as shown by the corresponding pictures, which are presented below. A detailed analysis of the different subtests, taking into consideration that they vary within a range of 1-19, with an average range of 10 +/- 3, has the following weaknesses:

- Concepts and directions follow up: scale score = 2
- Word structure: scale score = 6
- Remembering sentences: scale score = 6
- Formulation of sentences: scale score = 4
- Structure of sentences: scale score = 3
- Comprehension of paragraphs: scale score = 2

Indeed, as it is seen, it is mostly affected on a morpho-syntactic level, as shown in the initial discrepancies analysis. Taking Bosch's FON test (2004) is determined when presenting mistakes on an expressive phonologic level. According to the analysis carried out after the phonologic evaluation, the presence of systemic processes will be detailed, specifically, the lateralization of the trill liquid consonant (*cara*/*cala*), the absence of multiple trill consonants (*gorro*/*goro*) and the simplification of the complex onset (*piedra*/*pieda*). This mistakes belong to a gravity area due to the age of the subject.



Picture 5. Scale score obtained in CELF-4.



Picture 6. Composite scale scores obtained in CELF-4.

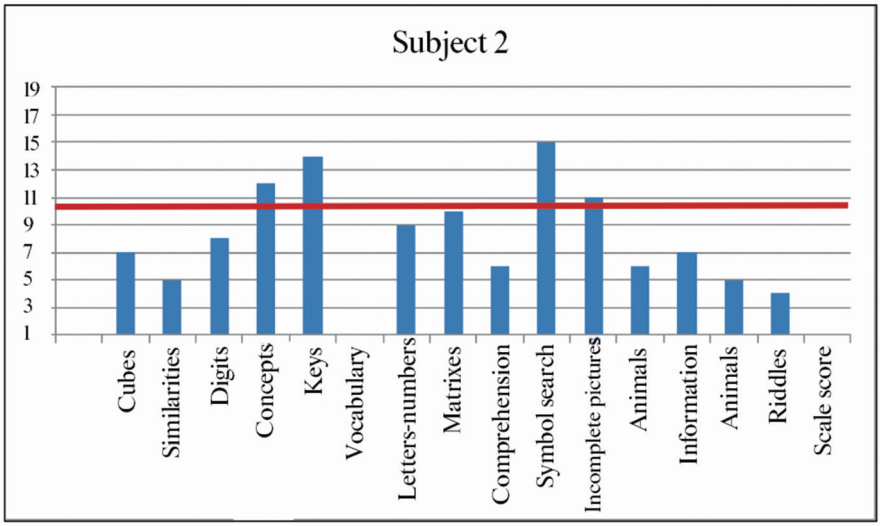
A more detailed analysis of the different tests can be found in Exhibit A of this paper.

Step 3. Exclusion/Comorbidity criteria. Regarding this, it is noted that the subject has no auditory disabilities, no autism and no neurological alterations. In order to determine these criteria the family was asked for a neurological or neuropediatric report which would confirm the absence of said alterations. Likewise, a tonal audiometry was conducted. Both reports ruled out the presence of the exclusion criteria of step 3.

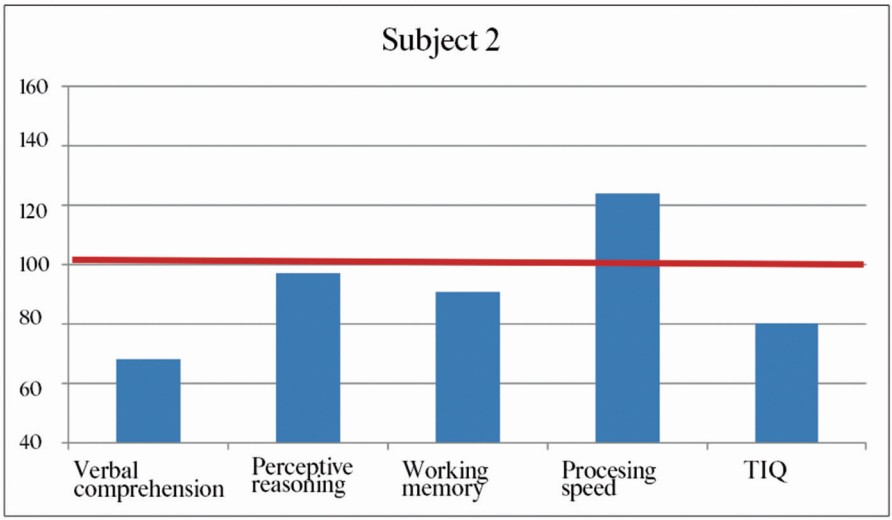
Step 4. Conclusion. With the data obtained from psychometric tests the presence of a SLI can be confirmed. The most affected area is the expressive level and, within the language dimensions, the most affected ones are phonology and morpho-syntax, originating a phonologic-syntactic type SLI.

Case 2 of lexical-syntactic SLI (the subject is 6 years and 10 months old).

Step 1. Determination of the intellectual level using Scales (WISC IV). Likewise, it is considered that, in order for a SLI to exist, minimum non-verbal IQ must be 75. In this case, we refer to the perceptive reasoning, which, as we can observe in the following charts, is 97, with a trust level between 89-106. The verbal comprehension index is significantly below the perceptive reasoning index, with the vocabulary subtest as an extremely weak point.



Picture 7. Scale scores obtained with WISC-IV.



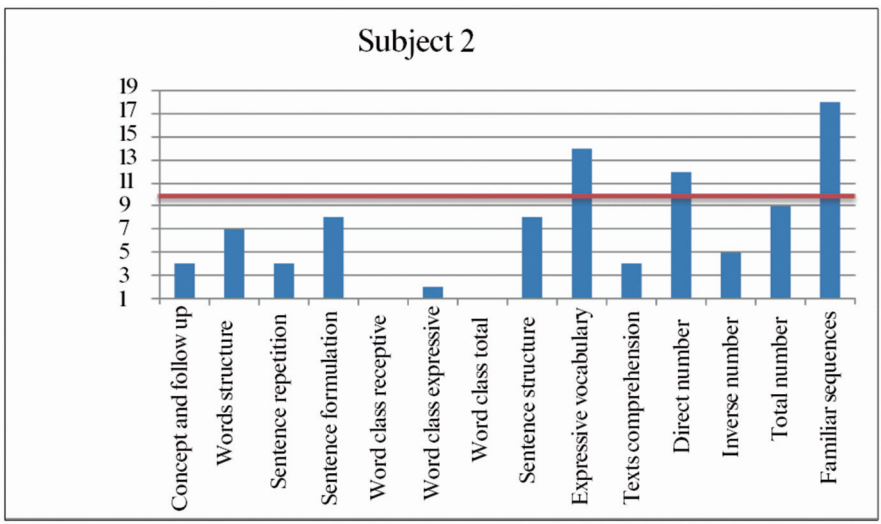
Picture 8. Composite scale scores obtained in WISC-IV.

Step 2. Language must be the most significantly influenced dimension using CELF-4 and observing phonologic alterations through FON (Bosch, 2004). In this case, the three main scales: basic linguistic skills, expressive

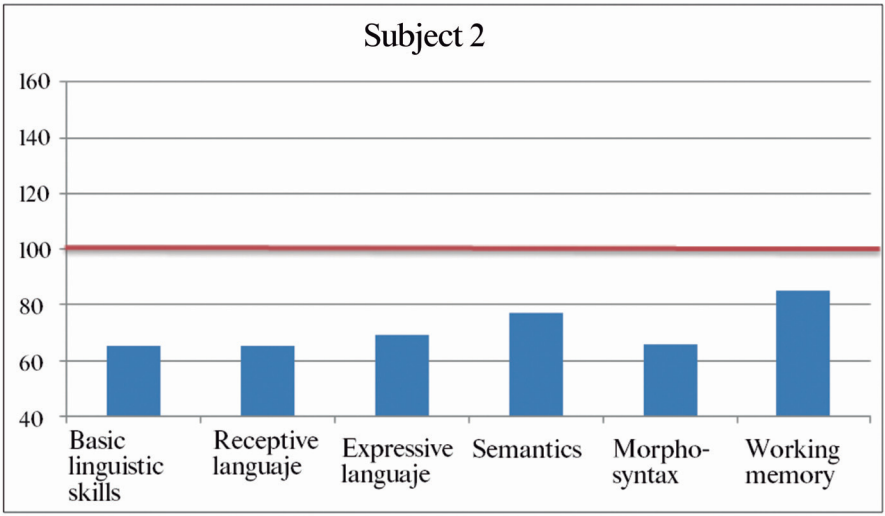
language and comprehensive language are in 1.5 TD below average. This, in composite scores, equals a score below 77.5 (40-160), being equally affected on an expressive-receptive, semantic and morpho-syntactic level. A detailed analysis of the different subtests, taking into consideration that they vary within a range of 1-19, with an average range of 10 +/- 3, has the following weaknesses:

- Word structure: scale score = 7
- Concepts and directions follow up: scale score = 4
- Remembering sentences: scale score = 4
- Formulation of sentences: scale score = 8
- Word class receptive: scale score = 1
- Word class expressive: scale score = 2

The most significant affectation can be seen on a lexical and morpho-syntactic level.



Picture 9. Scales scores obtained in CELF-4.



Picture 10. Composite scale scores obtained in CELF-4.

Step 3. Exclusion/Comorbidity criteria. In this case there is no auditory disability, and no autism, although, at the age of two, the child was diagnosed with a pervasive developmental disorder not otherwise specified. He also shows no neurological alterations. In order to determine these criteria the family was asked for a neurological or neuropediatric report which would confirm the absence of said alterations. Likewise, a tonal audiometry was conducted. Both reports ruled out the presence of the exclusion criteria of step 3 at present.

Step 4. Conclusion. With the data obtained from psychometric tests the presence of a lexical-syntactic type SLI can be confirmed, in which both comprehension and expression are altered.

A more detailed analysis of the different tests can be found in Exhibit B of this paper.

Discussion

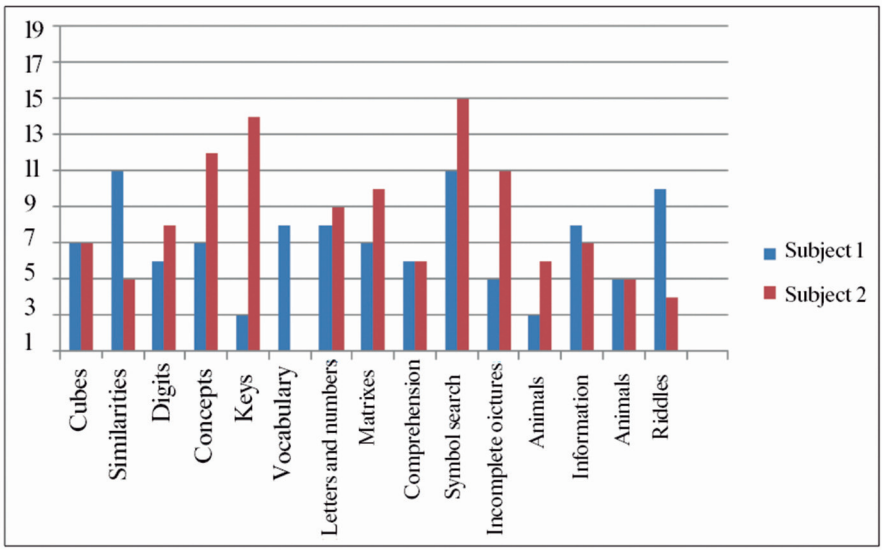
The results obtained lead us to conclude that we have two students of different ages with the same initial diagnosis, which is: learning difficulties due to limit intellectual capacity. There is only the measurement of one variable: the development of intelligence and, within this variable, the TIQ. Both students have very heterogeneous intellectual profiles, which indicates that the measurement of said variable will not be really representative of the student's skills without a previous language evaluation that would have allowed us to determine their needs more adequately.

Offering an evaluation method with an exclusively psychometric instrumentation has great disadvantages, because we have excluded clarifying qualitative and confirming information of the given diagnosis. On the other hand, it offers an approach to the identification and valuation of the students who may present a Specific Language Impairment by tutors who are non-related to "language", or who may feel insecure because they do not have enough specific information or clinical practice observed regarding this concern, which decreases responsibilities in the identification process of these type of students.

When comparing psychometric scores obtained by both subjects, Subject 2 shows a very strong vocabulary deficit. On a qualitative level, in this subtest we can see evocation problems, circumlocutions, and invention of words and similarities, because their comprehension difficulties are greater in complex enunciates, like the examples aforementioned: it is usually a complex task for the students to determine the similarity of objects that are significantly different with no visual support. These aspects do not coincide with Subject 1, whose greatest difficulty is in the expressive level and the speech.

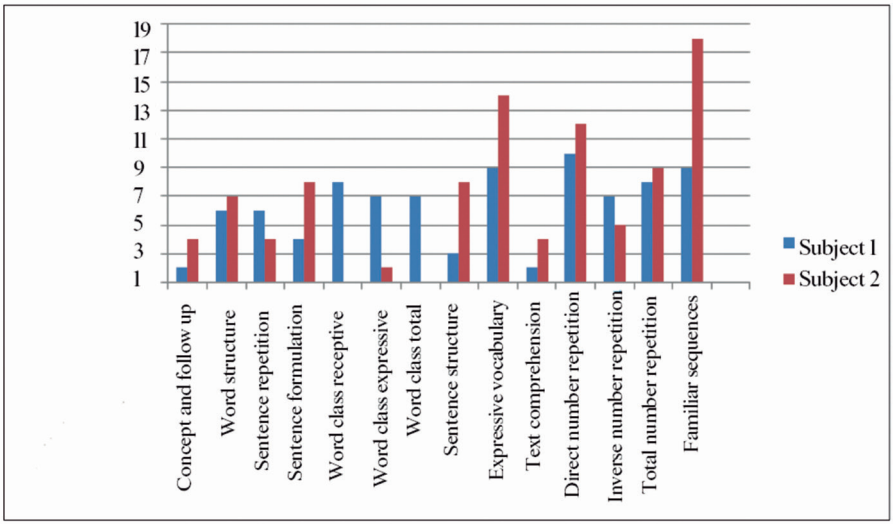
Besides, we can see that Subject 2 obtained the highest scores in subtests with visual components as keys, symbol search, incomplete pictures and concepts, due to the student's great visual memory.

Both students obtained a similar score in the letters, numbers and digits subtest, which allows us to infer the limited short term memory capacity both of Subject 1: phonologic syntactic, and Subject 2: lexical syntactic, and in the comprehension subtest, where the pragmatic aspect and the social connotation are evident.



Picture 11. Scale scores obtained by both subjects in WISC-IV.

Likewise, if a comparison is made, special attention will be paid to the subtests of: (1) *word structure*, (2) *concept and directions follow up*, (3) *remembering sentences*, where both types of SLI obtain similar scores, which are very low compared to the typical development. However, if we analyze the subtest (4) *sentence formulation*, there is an improvement in syntactic lexical (Subject 2) versus the phonologic syntactic (Subject 1). This tendency is reversed in word classes both on a receptive and an expressive level, where concept difficulties on a lexical level become more evident.



Picture 12. Scale scores obtained by both subjects on CELF-4.

The real implication of these profiles is the design of adequate intervention programs for each one of the aforementioned subjects which will allow us to advance in the development of every evaluated skill and to emphasize on the fact that, in the presence of "atypical" or very "heterogeneous" profiles regarding intelligence, it becomes necessary to make a more detailed analysis of all the dimensions conforming our students, language being in a preferential position.

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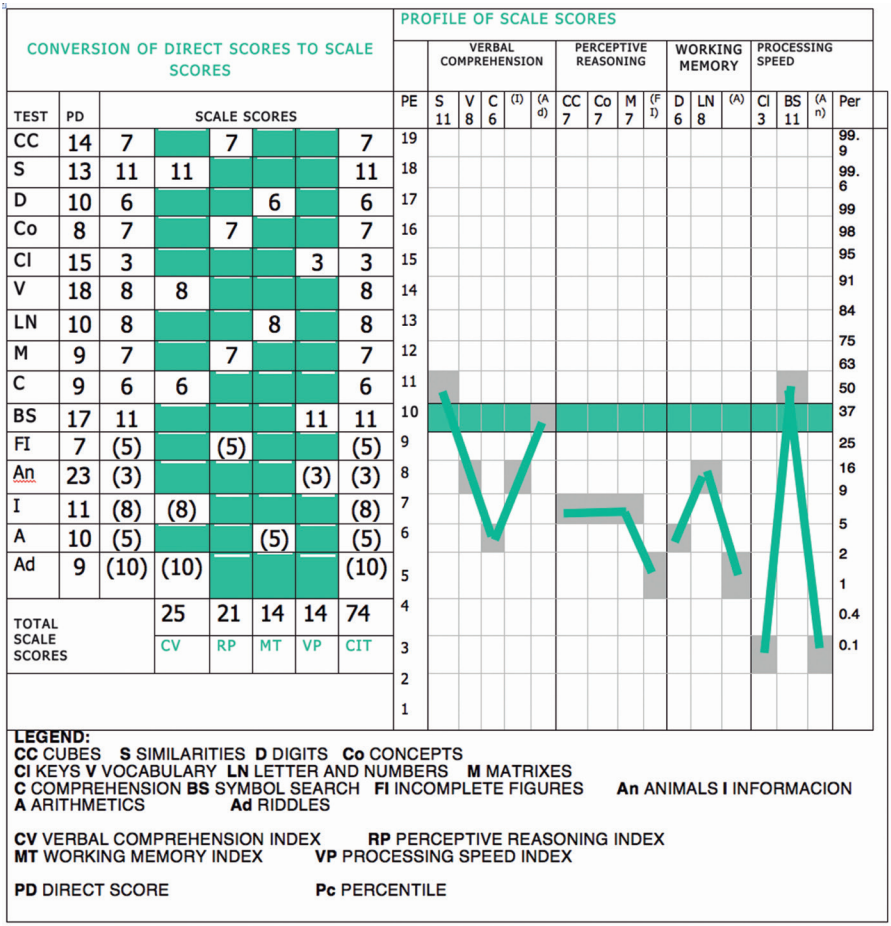
Exhibit A: Subject 1



CONVERSION OF DIRECT SCORES TO SCALE SCORES

TEST	PD	SCALE SCORES					
CC	14	7		7			7
S	13	11	11				11
D	10	6			6		6
Co	8	7		7			7
CI	15	3				3	3
V	18	8	8				8
LN	10	8			8		8
M	9	7		7			7
C	9	6	6				6
BS	17	11				11	11
FI	7	(5)		(5)			(5)
An	23	(3)				(3)	(3)
I	11	(8)	(8)				(8)
A	10	(5)			(5)		(5)
Ad	9	(10)	(10)				(10)
TOTAL SCALE SCORES			25 CV	21 RP	14 MT	14 VP	74 CIT

PROFILE OF SCALE SCORES

	VERBAL COMPREHENSION					PERCEPTIVE REASONING				WORKING MEMORY			PROCESSING SPEED			
PE	S 11	V 8	C 6	(I)	(Ad)	CC 7	Co 7	M 7	(FI)	D 6	LN 8	(A)	CI 3	BS 11	(An)	Per
19																99.9
18																99.6
17																99
16																98
15																95
14																91
13																84
12																75
11																63
10																50
9																37
8																25
7																16
6																9
5																5
4																2
3																1
2																0.4
1																0.1

LEGEND:
CC CUBES **S** SIMILARITIES **D** DIGITS **Co** CONCEPTS
CI KEYS **V** VOCABULARY **LN** LETTER AND NUMBERS **M** MATRIXES
C COMPREHENSION **BS** SYMBOL SEARCH **FI** INCOMPLETE FIGURES **An** ANIMALS **I** INFORMACION
A ARITHMETICS **Ad** RIDDLES

CV VERBAL COMPREHENSION INDEX **RP** PERCEPTIVE REASONING INDEX
MT WORKING MEMORY INDEX **VP** PROCESSING SPEED INDEX

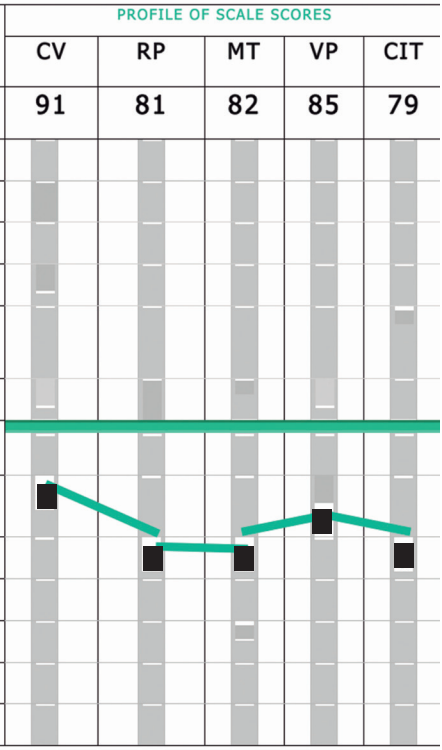
PD DIRECT SCORE **Pc** PERCENTILE

CONVERSION OF SCALE TOTALS INTO COMPOSITE SCORES

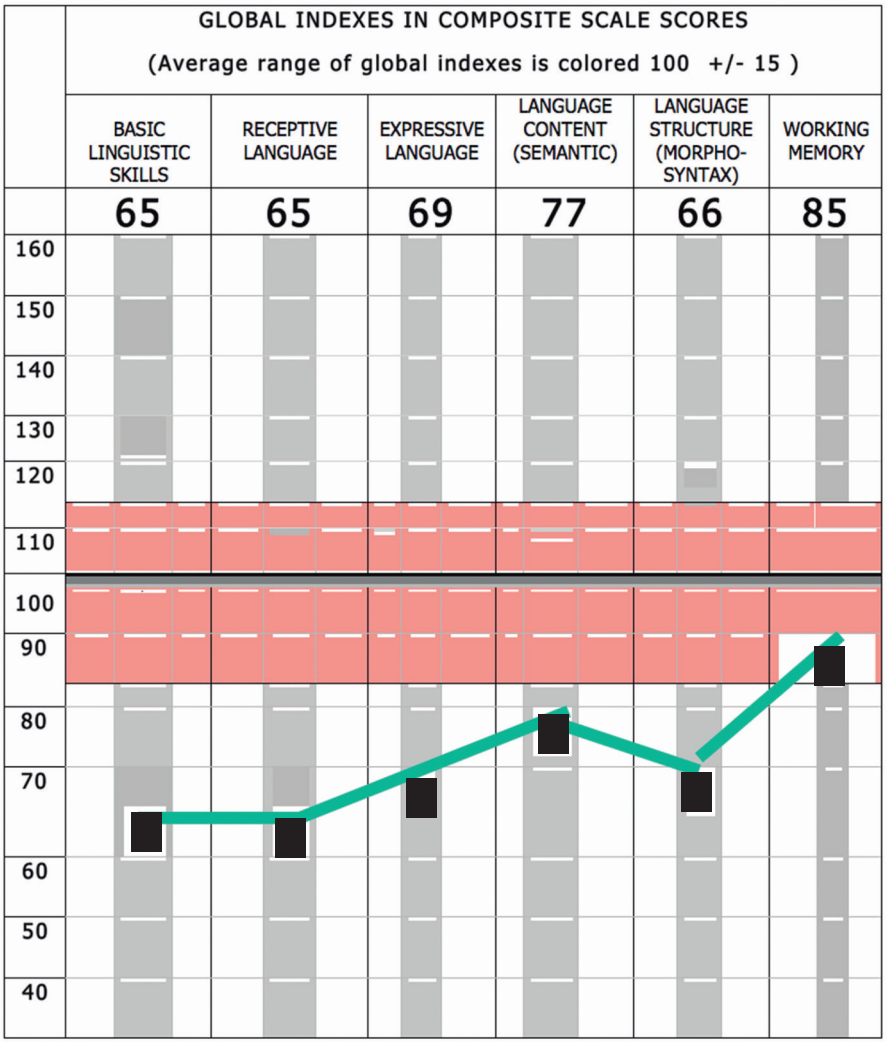
IND	SCALE TOTAL	COMPOSTE SCORE		Pc	TRUST LEVEL
CV	25	CV	91	28	84-100
RP	21	RP	81	11	75-91
MT	14	MT	82	11	75-93
VP	14	VP	85	16	77-97
CIT	74	CIT	79	8	74-87

OBSERVATIONS

	VERBAL COMPREHENSION	PERCEPTIVE REASONING
SCALE SCORE TOTAL	25	21
TEST NUMBER	3	3
AVERAGE	8.33	7



DISCREPANCIES AND COMPARISONS	Higher score	Lower score	Difference	Critical value	Significant difference
RECEPTIVE-EXPRESSIVE LANGUAGE	69	65	4	11	NO
SEMANTIC-MORPHO-SYNTAX	77	66	11	9	YES


GLOBAL INDEXES IN COMPOSITE SCALE SCORES
(Average range of global indexes is colored 100 +/- 15)
BASIC LINGUISTIC SKILLS
RECEPTIVE LANGUAGE
EXPRESSIVE LANGUAGE
LANGUAGE CONTENT (SEMANTIC)
LANGUAGE STRUCTURE (MORPHO-SYNTAX)
WORKING MEMORY
65
65
69
77
66
85
160
150
140
130
120
110
100
90
80
70
60
50
40

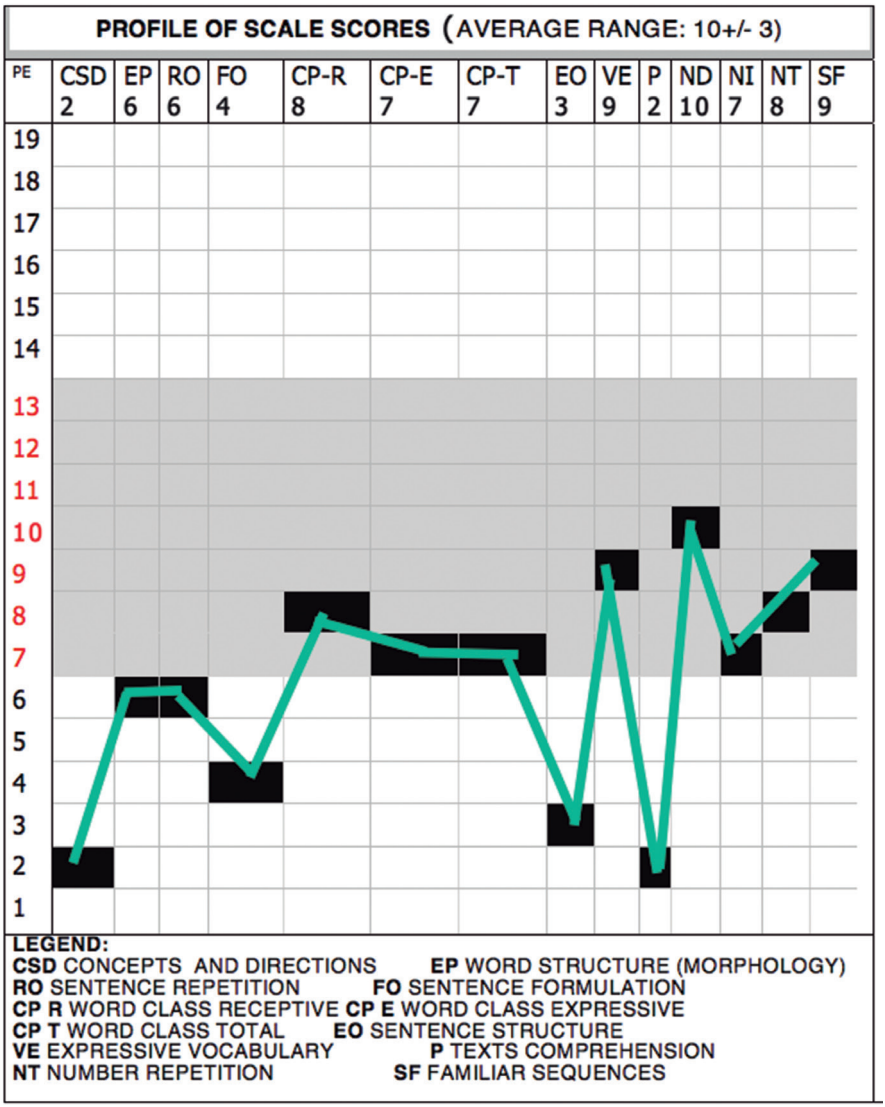
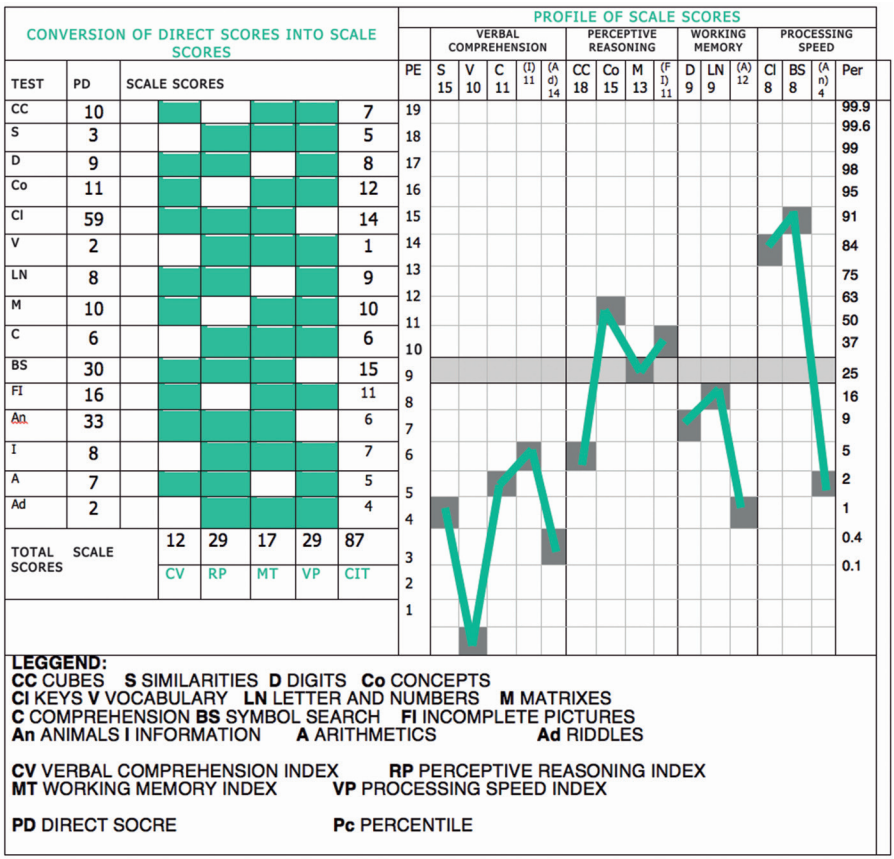

PROFILE OF SCALE SCORES (AVERAGE RANGE: 10+/- 3)
PE
CSD 2
EP 6
RO 6
FO 4
CP-R 8
CP-E 7
CP-T 7
EO 3
VE 9
P 2
ND 10
NI 7
NT 8
SF 9
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
LEGEND:
CSD CONCEPTS AND DIRECTIONS
EP WORD STRUCTURE (MORPHOLOGY)
RO SENTENCE REPETITION
FO SENTENCE FORMULATION
CP R WORD CLASS RECEPTIVE
CP E WORD CLASS EXPRESSIVE
CP T WORD CLASS TOTAL
EO SENTENCE STRUCTURE
VE EXPRESSIVE VOCABULARY
P TEXTS COMPREHENSION
NT NUMBER REPETITION
SF FAMILIAR SEQUENCES

Exhibit B: Subject 2.



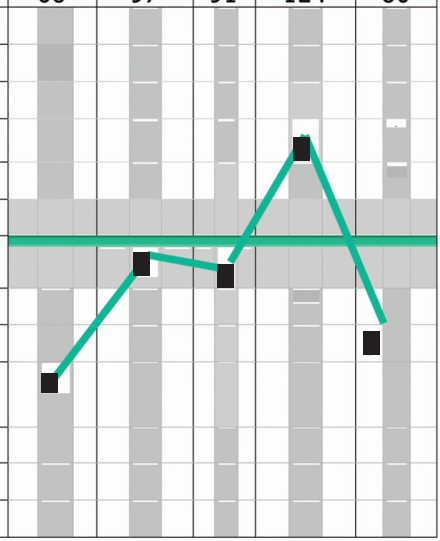
CONVERSION OF SCALE TOTALS INTO COMPOSITE SOCRES

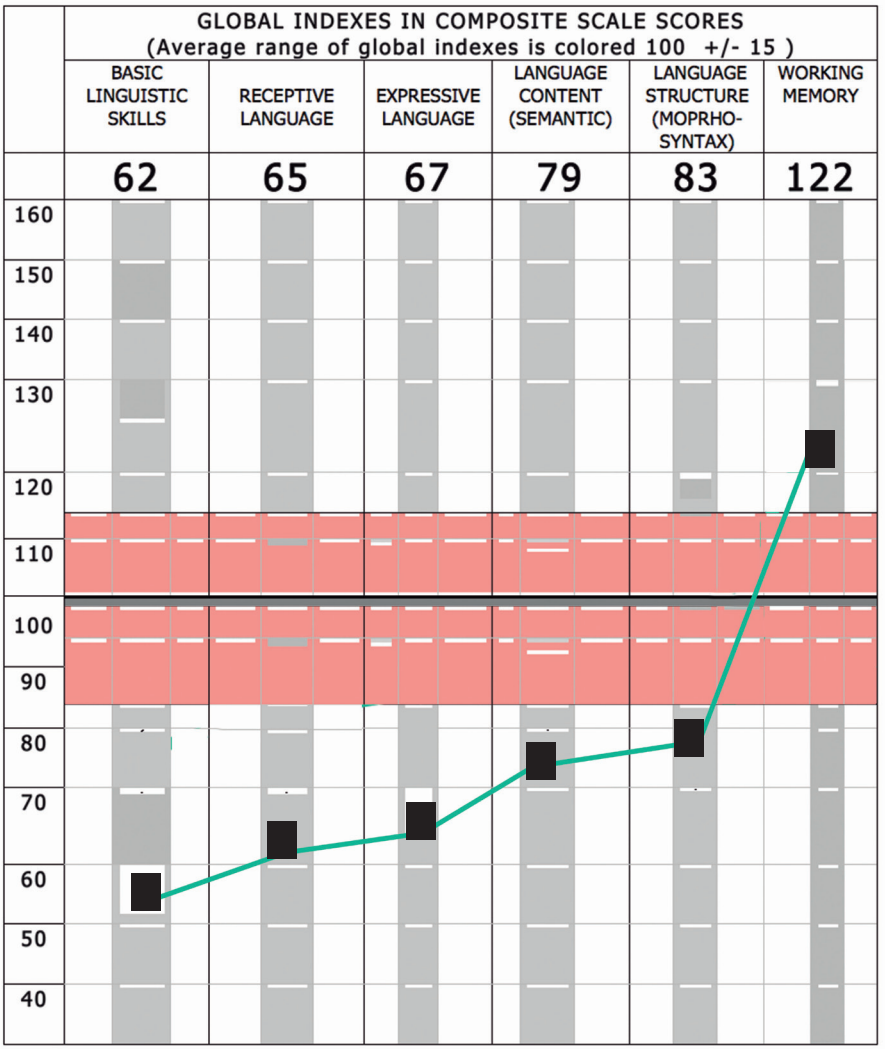
IND	SCALE TOTAL	COMPOSITE SCORE		Pc	TRUST LEVEL	C.D
CV	12	CV	68	2	62-78	Very low
RP	29	RP	97	43	89-106	Medium
MT	17	MT	91	27	83-101	Medium
VP	29	VP	124	95	111-130	High
CIT	87	CIT	88	22	83-95	Normal-low
		ICG	80	9	74-87	Normal - low

	VERBAL COMPREHENSION	PERCEPTIVE REASONING
SCALE SCORE TOTAL	12	29
TEST NUMBER	3	3
AVERAGE	4	9,66

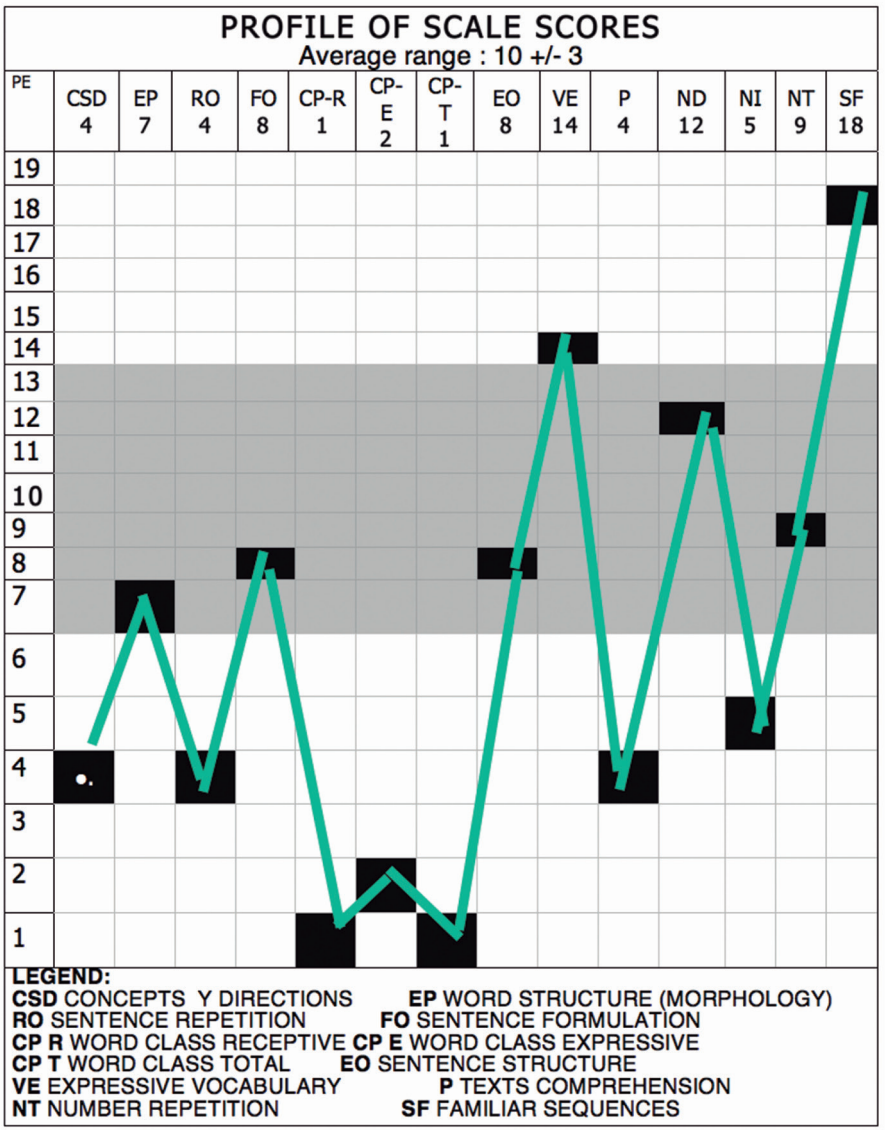
PROFILE OF SCALE SCORES

VERBAL COMPREHENSION	PERCEPTIVE REASONING	WORKING MEMORY	PROCESSING SPEED	ICG COEFFICIENT
68	97	91	124	80





DISCREPANCIES AND COMPARISONS	Higher score	Lower score	Difference	Critical value	Significant difference Yes	No
RECEPTIVE-EXPRESSIVE LANGUAGE	65	67	2	7		.
SEMANTIC-MORPHO-SYNTAX	79	83	4	6		.


PROFILE OF SCALE SCORES
Average range : 10 +/- 3
PE
CSD 4
EP 7
RO 4
FO 8
CP-R 1
CP-E 2
CP-T 1
EO 8
VE 14
P 4
ND 12
NI 5
NT 9
SF 18
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
LEGEND:
CSD CONCEPTS Y DIRECTIONS
EP WORD STRUCTURE (MORPHOLOGY)
RO SENTENCE REPETITION
FO SENTENCE FORMULATION
CP R WORD CLASS RECEPTIVE
CP E WORD CLASS EXPRESSIVE
CP T WORD CLASS TOTAL
EO SENTENCE STRUCTURE
VE EXPRESSIVE VOCABULARY
P TEXTS COMPREHENSION
NT NUMBER REPETITION
SF FAMILIAR SEQUENCES