

## CHILD LANGUAGE ASSESSMENT TOOLS: APPLICABILITY TO HANDICAPPED

### *Instrumentos de avaliação de linguagem infantil: aplicabilidade em deficientes*

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#### ABSTRACT

The purpose of this study is to analyze tests and assessments tests of child language in order to discuss the applicability of the population with physical, sensory, mental and multiple disabilities. In the second half of 2011, was researched about the deficiencies and direct evaluations of children's oral, gestures and writing language, national or translated. Articles and theses were consulted in online databases, also books and evaluations published. Were selected 28 measurements, which were grouped by goals application, described as stimulus and expected achievement, and analyzed by following criteria: modality of evaluation, required skills and code conversion. There were found 23 evaluation forms, which analysis suggests that individual who are able to use vision, upper limb and mind, and who can understand and use image and oral or written Portuguese codes, will probably have greater range of evaluation that meets. The dimensions semantic and pragmatic appeared to be the most accessible, supporting the application found in the literature. On the possibility of complete evaluation, was observed that only a couple of skills "vision/upper limb" would allow this. A survey of information about the examinee's communication profile compared to the profile required to assess communicative aids in the decision on the compatibility of these and subsequent applicability. In general, considering the particularities of cases and assessment instruments pre-selected can so be applicable to individuals with disabilities. However, it may happen that, for some patients, cannot perform a complete evaluation instruments using only the direct type.

**KEYWORDS:** Evaluation; Child Language; Language Tests; Language Development; Communication Barriers; Communication Disorders

#### ■ INTRODUCTION

The best indicator of child evolution, taking into account not only motor functions, but also the so called higher nervous functions, can be considered the appearance of language, as far from simply reflecting a neurological maturational process, the achievement of language expresses communication skills, social, emotional and intellectual significantly evolved and complex<sup>1</sup>. It plays an essential role in perceptual organization and the receipt and structuring of information, learning and social interactions

of human being<sup>2</sup>. Early identification of changes in the development process of receiving verbal expression prevents later adverse educational and social consequences<sup>3</sup>.

Language and speaking skills depend on the child's neuromuscular integrity, sensory system, environment influences and emotional conditions<sup>4</sup>. Thus, although it is not possible to generalize the degree of disability and disadvantage that will be present, <sup>5</sup> children with physical<sup>6</sup>, hearing<sup>2</sup>, visual<sup>7</sup>, mental<sup>8</sup> or multiple<sup>9</sup> disability can present changed communication skills.

According to Fieber *apud* Van Dijk<sup>10</sup>, all disabled children communicate, but not always using symbolic behaviors, in other words, at least a pre-verbal communication usually happens. Van Dijk<sup>10</sup> classified the receptive pre-verbal

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manifestations into four categories: 1) tactile / kinetic signs, 2) vocal / visual signs, and 3) signs or coercive models and 4) natural gestures. While the expressive pre-verbal communication was divided into two general categories: 1) vocal signs, and 2) physical signs.

As to the verbal communication, in spite of speech to be the most known and widely used, in the case of many disabled people, because of the inability or limitation of their own, they cannot use it to communicate with others<sup>11</sup>. Still, regardless their physical, sensory, cognitive or emotional conditions, they need and have the possibility to socialize, interact, exchange, learn, play and be happy, then sometimes resorting paths or different ways<sup>12</sup>, including the communicative modalities.

Augmentative and/or Alternative Communication Resources (AACR) have been used with have been used with a proven positive impact on language and quality of personal and family life of individuals with severe disabilities<sup>13</sup>. In the literature, the following possibilities of verbal communication used by the disabled have been found, among others, enumerated such as follows via sensory<sup>14</sup> and motor<sup>15</sup> pathways, alternative or not: 1) Tactile: tactile lip reading (tadoma), tactile signaling (tactile Libras), tactile orthographic writing (braille); 2) Visual: orofacial visual reading, visible signs (LIBRAS), orthographic visible writing (conventional writing), visible sign writing (sign writing); 3) Hearing: audible speech; 4) Motor: communication systems by direct selection or scan, low, medium, or high technology, with or without support.

With all these peculiarities in language development, handicapped children are usually part of the demand of the speech therapist.

Thus, Limongi<sup>16</sup> points out that regardless of the theoretical model that provides the substrate for clinical practice, any therapeutic action will be both more appropriate and effective as best are made the identification of changes and their evaluation. And spells out that the evaluation takes character of vital importance to the success of therapeutic intervention, as it will be, in the course of the therapeutic process, the reference that will allow to observe the evolution of the individual, in degree and speed; responsible for the definition, maintenance or changes for better matching of the

chosen strategies; the determining factor in establishing priorities and objectives to be achieved. This so important task is due to the speech therapist, raising more specific data possible concerning the expressive and receptive language of disabled individuals.

However, Paura and Deliberato<sup>17</sup> draw attention to the fact that the application of standardized testing in people with alternative communication needs is limited, as most of them are based on the assumption that the person can draw, see, hear, understand, speak and manipulate various types of materials, answer questions or follow instructions. On the other hand, Capovilla<sup>14</sup> argues that such tests, which evaluate directly the speech production and comprehension are superior to usual inventories and scales to be filled by caregivers of the child, so subject to bias.

The purpose of this study is to analyze and test of evaluation of children's language to discuss the applicability in the population with auditory, visual, mental and multiple disabilities.

## ■ METHOD

In the second half of 2011, there has been a literature review in articles, theses and books about child language assessment through: a) consultation of scientific databases online, where it drew information from quotes and descriptions; b) handling of some of the reviews published.

Direct assessments (and test) of metalanguage and receptive language and/or expressive, normalized or translated into application in the Brazilian population have been selected.

Evaluative indirect tools, such as inventories and scales, have been excluded; the ones without purpose of assessment of metalanguage or child language; those which were not standardized nor translated into application to the Brazilian population.

The assessments based on the dimensions of the language described by Acosta et al have been organized<sup>18</sup> – phonology, morphology and syntax, semantics and pragmatics –, separated from the ones involving written language – that require formal instruction – and showed them briefly as to stimuli provided and expected (Figures 1 and 2).

1) Language dimensions		
1.1) Form of language		
1.1.1) Phonology		
Assessment	Stimulus	Achievement
Phonological Discrimination Test (TDF) <sup>22</sup>	A couple of pictures with difference in just a phoneme; the applier points at one of the pictures.	Select the named picture.
ABFW – Phonology <sup>23</sup>	<i>Imitation test.</i> Applier says words.	Repeat orally.
	<i>Naming Test</i> Figures.	Name orally.
Word and Pseudo-words Repetition Test (TRPP) <sup>22</sup>	Applier pronounces sequences of 2 to 6 words or pseudo-words, with a one-second time interval between them. All words are pseudo-words and disyllabic, syllabic consonant-vowel structure.	Repeat orally the words in the same sequence.
Test of Phonological Awareness by Oral Production (PCFO) <sup>22</sup>	<i>Subtest syllabic synthesis</i> Spoken syllables of a word.	Say the word formed.
	<i>Subtest phonemic synthesis</i> Spoken phonemes of a word.	Say the word formed.
	<i>Rhyme subtest</i> Three spoken words	Say the two that rhyme.
	<i>Alliteration Subtest</i> Three words	Say the two that begin equal.
	<i>Syllabic segmentation subtest</i> One spoken word	Say the syllables that make up the word.
	<i>Phonemic segmentation Subtest</i> One spoken word	Say the phonemes that make up the word.
	<i>Syllabic handling subtest</i> Pieces of words to be added or subtracted of syllables	Say the made up word.
	<i>Phonemic manipulation subtest</i> Words to add or subtract phonemes	Say the made up word.
	<i>Transposed syllabic subtest</i> Disyllabic word	Reversing the syllables forming a new word to be said.
	<i>Transposed phonemic subtest</i> Spoken word	Reverse the order of phonemes, forming new word to be said.
Phonological Awareness Test by Choice of Figures (PCFF) <sup>24</sup>	<i>Rhyme subtest</i> One spoken word and 5 figures	Mark with an X the figure whose name ends with the same sounds.
	<i>Alliteration subtest</i> One spoken Word and 5 figures	Mark with an X the figure whose name ends with the same sounds.
	<i>Syllabic addition subtest</i> Additional spoken word and syllable; 5 figures	Mark with an X the figure whose name corresponds to the addition of the syllable to the word.
	<i>Adding phonemic subtest</i> Additional phoneme and word spoken; 5 figures	Mark with an X the figure whose name corresponds to the addition of the phoneme to the word.
	<i>Syllabic subtraction subtest</i> Word and syllable spoken; 5 figures	Mark with an X the figure whose name corresponds to the least heard syllable word.
	<i>Phonemic subtraction subtest</i> Word and spoken phoneme; 5 figures	Mark with an X the figure whose name corresponds to the least heard phoneme word.
	<i>Transposed syllabic subtest</i> Spoken word	Reverse the order of syllables and mark with an X the figure whose name corresponds to the result.
	<i>Phonemic Transposition Subtest</i> Word and syllable spoken	Reverse the order of phonemes and mark with an X the figure whose name corresponds to the result.
	<i>Pun subtest</i> Two words	Swap the order of initial phonemes and mark with an X the figure whose name corresponds to the result.

1.1.2) Morphology and syntax		
Assessment	Stimulus	Achievement
Syntactic Awareness Test (PCS) <sup>22</sup>	<i>Grammatical Judgment</i> Grammatical and non-grammatical phrases (presenting morphemic anomalies and order inversion) said orally live	Oral judgment whether the sentence is correct or not.
	<i>Grammatical Correction</i> Non-grammatical phrases spoken orally and live	Phrases corrected orally
	<i>Grammatical correctness of phrases with Grammar and Semantics Inaccuracies</i> Sentences with inaccuracies both semantics and grammar said orally live	Oral correction of grammar phrases, keeping the semantic errors.
	<i>Categorization of Words</i> Charts with written words which, if necessary, can be read by the evaluator	Charts handling packing them by similar category word column (noun, adjective or verb).
1.2) Language content		
1.2.1) Semantics		
Assessment	Stimulus	Achievement
Vocabulary Test by Images Peabody (TVIP) <sup>22</sup> and Vocabulary Test by Figures USP (TVfusp) <sup>25</sup>	Word spoken live; 4 figures as option	Mark with an X the figure corresponding to the word heard.
Auditory Vocabulary Test (TVAud) <sup>19</sup>	Word spoken live; 5 figures as option	Mark with an X the figure corresponding to the word heard.
Receptive Vocabulary Test in Libras (TVRSL) <sup>20</sup>	Can be applied with live signals issued by the examiner or with the display of standardized signs with overhead projector and transparencies; 4 figures as option	Mark with an X the corresponding figure.
Lip Reading Assessment Dória model (Plof-D) <sup>19</sup>	Examiner articulates word; Board with 12 figures, each on an array of three rows and four columns, as option.	Mark with an X the corresponding figure
Lip Reading Assessment Articulatory-Phonetic model (TVplof- FA) <sup>19</sup>	A movie is shown presenting the lips of a speaker saying a word without sound; a strip of 4 alternative figures for choice.	Choose the target articulated figure using the mouse
Sign Language Assessment Tool (IALS) – sub-items comprehensive language <sup>21</sup>	<i>Phases I and II: tasks 1 to 5</i> On a computer or television screen, a deaf professor signals in Libras; 3 figures.	Select the corresponding figure, catching it.
	<i>Phase III: task 1</i> On a computer or television screen, a deaf professor signals a story in Libras; 4 figures.	Select, picking up the figures that combine with the history and removing those that don't match. Put the pictures in the same sequence the story was seen.
Token Test <sup>26</sup>	Live oral commands; colorful geometric solids	Manipulate geometric solids as stated.
Auditory Comprehension Test for Sentences (TCAS) <sup>19</sup>	Evaluator says a sentence (increasing order of difficulty) aloud; 5 figures as option	Mark with an X the figure which best corresponds to the sentence heard.
ABFW- Vocabulary <sup>27</sup> and Expressive Vocabulary Test (TVExp) <sup>19</sup>	Figures	Appoint orally.
1.3) Use of language		
1.3.1) Pragmatics		
Assessment	Stimulus	Achievement
ABFW – Pragmatics <sup>28</sup>	Free 30 minutes interaction with a familiar adult.	Free interaction with adult.
1.4) Various dimensions of language in the same evaluation		
Assessment	Stimulus	Achievement
Sign Language Assessment Tool (IALS) – sub item expressive language <sup>21</sup>	Watch twice to a cartoon cutout (Tom & Jerry), with a duration of 1 ' 10 ".	Narrating the story in Libras to someone who did not watch it.

Figure 1 – Table for presentation of evaluative tools surveyed, organized by language size

1) Written language		
1.1) Reading		
Assessment	Stimulus	Achievement
Assessment of Reading Processes Test (PROLEC) <sup>29</sup>	IDENTIFYING LETTERS	
	<i>Name or sound of the letters:</i> Random letters printed	Name the letter or sound.
	<i>Equal-different in words and pseudo-words:</i> Pairs of written words and/or pseudo-words	Say whether they are equal or different.
	LEXICAL PROCESSES	
	<i>Lexical decision:</i> List with words and pseudo-words.	Read aloud only the actual words.
	<i>Word Reading:</i> List of words	Read aloud.
	<i>Reading pseudo-words:</i> List of pseudo-words	Read aloud.
	<i>Reading words and pseudo-words:</i> List of words and pseudo-words	Read aloud.
	SYNTACTIC PROCESSES	
	<i>Grammatical structures:</i> One drawing and three sentences	Say which sentence corresponds to the drawing.
	<i>Punctuation marks:</i> Text (joke)	Reading aloud with clarity and good intonation.
	SEMANTIC PROCESSES	
	<i>Sentences comprehension:</i> Written orders and figures.	Complete or mark the drawing as the read statement.
<i>Texts comprehension:</i> One sentence for each three figures	Choose the figure corresponding to the sentence.	
Reading Competency Test for Words and Pseudo-words (TCLPP) <sup>30</sup> or Silent Reading Competency Test (TeCoLeSi) <sup>31</sup>	Pairs consisting of a figure and a written word or pseudo-word.	Circle the correct items and cross with "X" the incorrect ones.
Sentence Reading Understanding Test (TCLS) <sup>20</sup>	Written sentence; 5 figure options	Read the sentence and mark with an "X" the corresponding figure.
Reading Aloud Evaluation (PLVA) <sup>32</sup>	A total of 96 real words (RWs) and 96 non-words (NWs). The RWs vary in frequency of occurrence, in orthographic regularity and in length. The NWs vary in length (4-7 letters) and were built with the same spell structure and the same length of the stimuli used in the lists of PRs.	Reading aloud.
Picture-Print Matching Test (TNF-escolha) <sup>20</sup>	Figure; 4 choices of written words	Choosing the corresponding written word, among 4 options.
Sign Naming by Choice Test (TNS-escolha) <sup>20</sup>	LIBRAS live or in the form of illustrated signs; 4 options of words written.	Select among 4 written words, the corresponding one
1.2) Writing		
Assessment	Stimulus	Achievement
Written Test under Word and Pseudoword Dictation (Pesd-PP) <sup>28</sup>	Dictation of 72 psicolinguistics items. Such items vary in terms of lexicality, regularity, frequency and length.	To write the dictation.
Picture Naming by writing Test (TNF-escrit) <sup>20</sup>	Figure	Freehand writing the name corresponding to the figure.
Sign Naming by free-writing Test (TNS – escrita) <sup>20</sup>	LIBRAS live or in the form of illustrated signs.	Freehand writing the name corresponding to the sign.

Figure 2 – Table for presentation of surveyed assessment tools that involve written language

Before discussing the applicability in disabled people, it was required to establish analysis criteria of the evaluations that classified possible aspects to be correlated with the individual communicative manifestations of this heterogeneous population. The establishment of these criteria was done as described below.

Based on the review of the particularities of the direct assessments regarding stimulus and realization in order to delimit the variety of *evaluation modalities*, the essence of the tools was extracted by means of observation of the combination reception-expression involved (Figure 3). Therefore, for example, if the stimulus contained a form, it was not considered the amount or type of it (except when it was illustratedLibras), classifying the reception as “figure”; If the achievement involves catch or mark the corresponding written expression summarized the classification “select text”. It is important to emphasize that there was a separation between oral andLibras on the Portuguese form of presentation, live or not, because of the difference

it makes to the tadoma or tactileLibras users who need to touch the interlocutor.

From the modalities, we analyzed the corresponding combinations of *sensory/physical motor skills-required* (Figure 4). For example: “figure-select writing” modality involves “vision” for the reception of conventional figure and writing, in addition to writing “higher members” to express themselves by selecting writing, forming the double “vision/upper limbs”. The procedures that contain live interlocutor allow the use of touch as an option via receptive sensory without requiring adaptations for users of tadoma or tactileLibras, for this reason sometimes the sensory ratings appeared as “vision and hearing or touch”, “hearing or touch” and “vision or touch”.

The assessment modalities have also been analyzed as for *code conversion requested* (reception code – expression code) (Figure 4). Thus, for example, the mode “figure – select writing”, requests the conversion “image- written Portuguese”.

Assessment Modalities (reception-expression)	Assessment Tools
Free interaction-free interaction	ABFW – Pragmatics
Figure- oral Portuguese	ABFW-Vocabulary, ABFW- Phonology (subtest naming), TVExp
Figure – select writing	TNF-escolha, TCLS, TCLP, TCLPP, PROLEC (grammar structures)
Figure – Freehand writing	TNF- escrita
Cartoon (non-verbal) – retell in Libras	IALS (sub-item expressive language)
Live oral Portuguese– Select figure	TDF, TVIP, TVfusp, TVAud, TCAS, PCFF
Oral live-Portuguese – handle colored geometric solids	Token Test
Oral live-Portuguese Portuguese oral	PCS (subtests 1, 2 e 3), TRPP, ABFW-Phonology (subtest repetition), PCFO
Oral live Portuguese–freehand writing	Pesd-PP
Articulated Portuguese live no voice-select figure	Plpf-D
Articulated Portuguese in vídeo no voice – select figure	TVplpf- FA
LIBRAS signs illustrated– Select figure	TVRSL*
LIBRAS signs illustrated– Select writing	TNS-escolha*
LIBRAS signs illustrated– freehand writing	TNS-escrita*
LiveLibras – Select figure	TVRSL*
LiveLibras – Select writing	TNS –escolha *
LiveLibras – freehand writing	TNS –escrita*
Libras in vídeo – Select figure	IALS (comprehensive language – phases I to III)
Writing – select figure	PROLEC (texts comprehension)
Writing – complete or select figure	PROLEC (sentences comprehension)
Writing – manipulate written file	PCS (subtest 4)
Writing –oral Portuguese	PROLEC (letter identification)
Writing – reading aloud	PLVA, PROLEC (lexical processes, punctuation marks)

\* Two options of the application already provided in the manual.

**Figure 3 – Table of the modalities of assessment found, with respective assessment tools**

Assessment modality (reception-expression)	Skills required (sensory / motor-physical, and psychic, that is always present)	Code conversion (reception code – code of expression)
Free interaction-free interaction	Free choice	Free choice-free choice
Figure- oral Portuguese	Vision/speech organs	Image – oral Portuguese
Figure – select writing	Vision/ upper limbs	Image – written Portuguese
Figure – Freehand writing	Vision/ upper limbs	Image – written Portuguese
Cartoon (non-verbal)-retell in pounds	Vision/ upper limbs	Image –Libras
Oral live Portuguese – select figure	Vision and hearing, or touch/ upper limbs	oral Portuguese – Image
Oral live Portuguese – manipulate colourful geometric solids	Vision and hearing, or touch/ upper limbs	oral Portuguese – object
Oral live Portuguese – Oral Portuguese	Hearing or touch / speech organs	oral Portuguese – oral Portuguese
oral Portuguese – freehand writing	Hearing or touch / upper limbs	oral Portuguese – written Portuguese
Articulated Portuguese without voice – select figure	Vision or touch / upper limbs	oral Portuguese – Image
Articulated Portuguese in video without voice – select figure	Vision / upper limbs	oral Portuguese – Image
IllustratedLibras Signs – figure	Vision / upper limbs	IllustratedLibras – Image
IllustratedLibras Signs – select writing	Vision / upper limbs	IllustratedLibras – written Portuguese
Sinais deLibras IllustratedLibras Signs –freehand writing	Vision / upper limbs	Libras ilustrada – written Portuguese
LiveLibras – select figure	Vision or touch / upper limbs	Libras – Image
LiveLibras – select writing	Vision or touch / upper limbs	Libras – written Portuguese
LiveLibras – freehand writing	Vision or touch / upper limbs	Libras – written Portuguese
Libras on video- select figure	Vision / upper limbs	Libras – Image
Writing – select figure	Vision / upper limbs	written Portuguese – Image
Writing – complete or select figure	Vision / upper limbs	written Portuguese – Image
Writing – manipulate written file	Vision / upper limbs	written Portuguese – written Portuguese
Writing – naming letter	Vision/ speech organs	written Portuguese –oral Portuguese
Writing – reading aloud	Vision/ speech organs	written Portuguese – oral Portuguese

**Figure 4 – Correspondence among modalities of assessment, required skills and code conversion**

Established the three criteria of analysis of the evaluative instruments (methods of instruction-reply, skills required e conversion of codes that require) with their proper subgroups, the tests and exams available were resumed and organized within these criteria and objectives (Figure 5), making them ready to discuss proposal.

#### ■ LITERATURE REVIEW

Twenty eight (28) evaluative direct tools have been chosen for this study. Among them, it can be seen that 08 (eight) were standardized to a specific audience of disabled: the deaf. These tools are: Lip Reading Assessment Dória model (Plof – D)<sup>19</sup>, Lip Reading Assessment Articulatory-Phonetic model (TVPlof-FA)<sup>19</sup>, Receptive Vocabulary Test in Libras (TVRSL)<sup>20</sup>, Picture-Print Matching Test (TNF–escolha)<sup>20</sup>, Picture Naming by writing Test (TNF-escrita)<sup>20</sup>, Sign Naming by Choice Test (TNS – escolha)<sup>20</sup>, Sign Naming by free-writing Test (TNS- escrita)<sup>20</sup> e Sign Language Assessment

Tool (IALS)<sup>21</sup>. Among the 20 (twenty) remaining tools (Expressive Vocabulary Test or TVExp<sup>19</sup>, Auditory Vocabulary Test or TVAud<sup>19</sup>, Auditory Comprehension Test for Sentences or TCAS<sup>19</sup>, Sentence Reading Understanding Test or TCLS<sup>20</sup>, Phonological Discrimination Test or TDF<sup>22</sup>, Word and Pseudo-words Repetition Test or TRPP<sup>22</sup>, Test of Phonological Awareness by Oral Production or PCFO<sup>22</sup>, Syntactic Awareness Test or PCS<sup>22</sup>, Vocabulary Test by Images Peabody or TVIP<sup>22</sup>, ABFW-Phonology<sup>23</sup>, Phonological Awareness Test by Choice of Figures or PCFF<sup>24</sup>, Vocabulary Test by Figures USP or TVFusp<sup>25</sup>, Token Test<sup>26</sup>, ABFW-Vocabulary<sup>27</sup>, ABFW-Pragmatics<sup>28</sup>, Written Test under Word and Pseudoword Dictation or Pesd-PP<sup>28</sup>, Assessment of Reading Processes Test or PROLEC<sup>29</sup>, Reading Competency Test for Words and Pseudo-words or TCLPP<sup>30</sup>, Silent Reading Competency Test or TeCoLeSi<sup>31</sup> and Reading Aloud Evaluation or PLVA<sup>32</sup>), i.e., that do not have specific disabled as target public, in scientific articles, only the tests ABFW-Vocabulary<sup>27</sup>

Assessment modality	Objective					
	P	M/S	S	P	R	W
Free interaction-free interaction				21		
Figure – oral Portuguese	1		9, 10			
Figure – select writing					22, 23, 24, 25, 26	
Figure – Freehand writing						34
Cartoon (non-verbal) – retell in Libras	38	38	38	38		
oral live Portuguese– select figure	2, 3		11, 12, 13, 14			
Portuguese oral live – handle colored geometric solids			15			
Oral live Portuguese – oral Portuguese	4,5,6	7				
Oral live Portuguese – freehand writing						35
Articulated live Portuguese without voice – select figure			16			
Articulated Portuguese in video without voice – select figure			17			
Illustrated Libras Signs – select figure			18			
Illustrated Libras Signs – select writing					27	
Illustrated Libras Signs – freehand writing						36
Illustrated Libras Signs – select figure			19			
Live Libras – select writing					28	
Live Libras – freehand writing						37
Libras on video- select figure			20			
Writing – select figure					29	
Writing – complete or select figure					30	
Writing – manipulate written file		8				
Writing – naming letter					31	
Writing – reading aloud					32, 33	
Skills required	Objective					
	P	M/S	S	P	R	W
Free choice/free choice				21		
Vision/speech organs	1		9, 10		31, 32, 33	
Vision/upper limbs	38	8, 38	17, 18, 20, 38	38	22, 23, 24, 25, 26, 27, 29, 30	34, 36
Vision or touch/ upper limbs			16, 19		28	37
Vision and hearing or touch / upper limbs	2, 3		11 12, 13, 14, 15			
Hearing or touch/ upper limbs						35
Hearing or touch/ speech organs	4, 5, 6	7				
Code conversion	Objective					
	P	M/S	S	P	R	W
Free choice – Free choice				21		
Image – Oral Portuguese	1, 2, 3		9, 10, 11, 12, 13, 14, 16, 17			
Image – Written Portuguese					22, 23, 24, 25, 26, 29, 30	34
Image – Libras	38	38	19, 20, 38	38		
Oral Portuguese– Object			15			
Oral Portuguese – Oral Portuguese	4, 5,6	7				
Oral Portuguese – Written Portuguese					31, 32, 33	35

Code conversion	Objective					
	P	M/S	S	P	R	W
Illustrated Libras – Image			18			
Illustrated Libras – written Portuguese					27	36
Libras – written Portuguese					28	37
Written Portuguese – Written Portuguese		8				

LEGEND: (P) Phonology; (M/S) Morphology and Syntax; (S) Semantics; (P) Pragmatics; (R) reading; (E) writing; (V) multiple language levels

Numbers corresponding to assessments:

- |  |   |
|--|---|
| 1) ABFW-Phonology (subtest naming)     | 20) IALS (comprehensive language – phases I to III) |
| 2) TDF                                 | 21) ABFW-Pragmatics                                 |
| 3) PCFF                                | 22) TCLS  |
| 4) TRPP                                | 23) TeCoLeSi  |
| 5) ABFW-Phonology (subtest repetition) | 24) TCLPP   |
| 6) PCFO                                | 25) PROLEC (grammar structures)                     |
| 7) PCS (subtests 1, 2 e 3)             | 26) TNF-escolha                                     |
| 8) PCS (subtest 4)                     | 27) TNS- escolha (illustrated LIBRAS)               |
| 9) ABFW-Vocabulary                     | 28) TNS- escolha (live Libras)                      |
| 10) TVExp                              | 29) PROLEC (texts comprehension)                    |
| 11) TVIP                               | 30) PROLEC (sentences comprehension)                |
| 12) TVFusp                             | 31) PROLEC (letter identification)                  |
| 13) TVAud                              | 32) PROLEC (lexical processes, punctuation marks)   |
| 14) TCAS                               | 33) PLVA  |
| 15) Token Test                         | 34) TNF-escrita                                     |
| 16) Plof- D                            | 35) Pesd-PP   |
| 17) TVPlof- FA                         | 36) TNS- escrita (illustrated LIBRAS)               |
| 18) TVRSL(illustrated LIBRAS)          | 37) TNS- escrita (live Libras)                      |
| 19) TVRSL (live Libras)                | 38) IALS (sub-item expressive language)             |

**Figure 5 – Assessment tools organized by assessment modality, required skills and code conversion, separated by application objective**

and ABFW-Pragmatics<sup>28</sup> were found being applied to the public concerned being the first in the deaf<sup>33</sup> and individuals with Down syndrome<sup>12</sup> and the second on deaf<sup>34</sup> individuals with Down syndrome<sup>35</sup>, autistic<sup>36,37</sup> and individuals with pervasive developmental disorder not otherwise specified with mental disabilities<sup>37</sup>.

Considering the needs of adaptations to improve accessibility assessments, in addition to the traditional versions, some tests (TCLPP, TCLS, TNF, TNS and TVRSL, for instance) have received computerized versions, incorporating multimedia resources as a stimulus, such as digitized voice and graphic animation. As to the form of achievement in order to allow an assessment of people with the most severe motor disturbances, employ the paradigm of multiple alternatives that enable the examining to make choices directly via touchscreen or mouse, or indirect via serial scanning of alternatives and selection by devices sensitive, to groans, to blow, to moving any part of the body or to the change in the direction of the look. The temporal parameters of touch screen reading and scanning of alternatives can be adjusted specifically to the degree of residual motor ability of examining<sup>38</sup>.

Analyzing the 28 direct searched reviews, following the three criteria previously exposed to trace the profile of them, are found:

- 23 different modes. Since sometimes it was necessary to dismember the evidence to contain more than one modality, thereby generating 38 instruments at all it was necessary to dismember the evidence because of containing more than one modality, thus generating 38 instruments at all (Figure 3);
- 7 combinations of possible required skills. It is important to emphasize that a minimum of psychic ability is fundamental, because direct assessments depend on active participation, i.e., psychic ability is required in all modes (Figure 4);
- 11 types of double code conversion, without considering the direction of conversion (Figure 4).

In search of an overview on the applicability of direct assessments in disabled, the total number of modalities (n=23) was taken as the basis, unlike the total amount of assessments, avoid considering those very similar.

Regarding skills required, the duo that appeared among the possibilities of assessment modalities found were “vision/upper limbs” (11; 49%). And, as explained earlier, 100% of the modalities need a minimum of psychic ability. (Figure 4)

As to the code conversion, the most frequent doubles were “image/ oral Portuguese” and “image/ written Portuguese” (4; 17% each). Analyzed individually, most requested codes were: for reception, the “oral Portuguese” (6; 26%) and for expression, “image” and “written Portuguese” appeared in same amount (8; 35% each). (Figure 4)

Thus, the analysis suggests that individuals who have the possibility of use of vision, of upper limbs and mind, and who can understand and use image and oral or written Portuguese as codes, will probably have greater range of direct evaluations that meet their needs.

With the organization regarding modalities and objectives, you can check that evaluations of phonology appeared in 4 different modalities, morphology and syntax in 3, semantics in 9, pragmatic in 2, reading in 7 and writing in 4 (Figure 3). Being so, the evaluation of semantic dimension seemed to be the most accessible by offering greater variety of benchmarking options, but it is important to note that, as one of the reviews of pragmatic dimension lies in the “free interaction-free interaction”, this should also be considered as quite affordable, which corroborates with the application found in the scientific literature.

About the possibility of full assessment (language dimensions + written language) using the same type of modality or double of skill or code conversion, it was possible to verify that only the duo of skills “vision/ upper limbs” would allow this completeness. The mode that most managed to encompass different goals (evaluating the dimensions of language, but not coming to assess reading and writing) was “cartoon – retell in Libras”, consequently the code conversion which also did this was “image/ LIBRAS”, both because of the richness of data collection allowed by sub-item expressive language of “Sign Language Assessment Tool – IALS”<sup>21</sup>; for the aspects of reading and writing, 4 options of conversion were regularly available: “LIBRAS/ written Portuguese”, “LIBRAS illustrated /written Portuguese”, “oral Portuguese /written Portuguese” and “written Portuguese/written Portuguese”. (Figure 3).

## ■ CONCLUSION

In general, on the applicability of direct assessments to disabled people, the deaf are at an advantage on the possibility of using direct assessments with tools specifically designed for them and the physically and motor handicapped can benefit from automated versions, which allow adaptations to residual abilities.

As to the applicability of direct assessments to meet the individuality of the disabled, considering the fact that there is no fixed correspondence between the type of disabilities and the degree of incapacity, or the degree of disadvantage, or the present communicative (ies), it is not possible to generalize and offer ready list on which repertoire of evaluative instruments will be more appropriate. Including such a statement is still valid that the evaluation instrument has been specifically created for certain disabilities. As an example, it may be cited the case of deaf individuals, who may or may not have contact with Libras and/or oral Portuguese and/or written Portuguese. If a particular deaf does not know Libras, one cannot assert that certain test or proof, which was done for the deaf and contains this language applies to him.

However, in the midst of this search, data that help the therapist select the set of reviews relevant to the individuality of his patient ended up being made available. To do this, it is simply necessary that in possession of Figure 3, the possible modalities are delimited to examining, among the exposed as characteristics of evaluative instruments, and an assessment in each goal is selected. The answer about the applicability of the assessment tools will be in compatibility between the profile comparison of evaluations (modalities, skills required, and code conversion) and the patient’s profile.

And yet, if one wants to apply an instrument that was not exposed in this study, as just being formulated a proposal to draw the profile of the assessments, the tool in question can be analyzed as is done with the other and fit it in the table in Figure 5.

Not all tests and evidence reviewed here were created for the population with disabilities, but it was sought to draw attention to this demand, at the same time that there was an attempt to minimize the barriers imposed by the shortage of direct evaluative resources that are accessible to users of the various forms of alternative communication.

Considered the particularities of cases and assessments, pre-selected instruments may be applicable to individuals with disabilities. However, it may occur that for some patients, it is not possible to perform a complete evaluation (dimensions of language + reading and writing) using only instruments of direct type.

As more research about the diversification of modalities of child language assessment tools are implemented and available, the greater the range of compatible tools of implementation in the disabled population with communication special needs.

## RESUMO

Este estudo tem como objetivo analisar testes e provas de avaliação de linguagem infantil de modo a discutir a aplicabilidade na população com deficiência física, auditiva, visual, mental e múltipla. No segundo semestre de 2011, pesquisou-se acerca das deficiências e das avaliações diretas de linguagem infantil oral, gestual e escrita, nacionais ou traduzidas. Consultou-se artigos e teses nas bases de dados online, além de livros e avaliações publicadas. Selecionou-se 28 avaliações, que foram agrupadas por objetivos de aplicação, descritas segundo estímulo e realização esperados, e analisadas pelos seguintes critérios: modalidades de avaliação, habilidades requeridas e conversão de códigos. Encontrou-se 23 modalidades de avaliação, cuja análise sugere que indivíduos que têm possibilidade de uso da visão, membros superiores e mente, e que conseguem compreender e utilizar imagem e português oral ou escrito como códigos, provavelmente terão maior gama de avaliações que os atenda. As dimensões semântica e pragmática pareceram ser as mais acessíveis, corroborando com a aplicação encontrada na literatura. Sobre a possibilidade de avaliação completa, verificou-se que apenas a dupla de habilidades “visão/membros superiores” permitiria isto. Um levantamento das informações sobre o perfil comunicativo do examinando comparado com o perfil comunicativo requisitado na avaliação auxilia na decisão sobre a compatibilidade destes e conseqüente aplicabilidade. No geral, consideradas as particularidades dos casos e das avaliações, instrumentos pré-selecionados poderão ser aplicáveis a indivíduos deficientes. Contudo, poderá ocorrer que, para alguns pacientes, não será possível realizar uma avaliação completa utilizando apenas instrumentos do tipo direto.

**DESCRIPTORIOS:** Avaliação; Linguagem Infantil; Testes de Linguagem; Barreiras de Comunicação; Transtornos da Comunicação

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