



Technical Report #1

Testing Children Who Are Deaf or Hard of Hearing

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Overview

The following information is intended to shed light on the complexity of assessment with members of the deaf and hard of hearing population, but it is not intended to be a comprehensive training in assessing this population. Examiners planning to administer and interpret the *Wechsler Preschool and Primary Scale of Intelligence* (4th ed.; WPPSI-IV; Wechsler, 2012) for members of the deaf and hard of hearing population should have sufficient training in, and knowledge of, potential language and cultural issues for this population, as well as an awareness of the steps necessary to ensure fairness in the assessment process.

Wechsler intelligence tests are commonly utilized measures for assessing the intellectual abilities of members of the deaf and hard of hearing population (e.g., Braden, 1994; McQuaid & Aloviseetti, 1981; Spragins & Blennerhasset, 1998). Obtaining valid and useful assessment results from the administration of the WPPSI-IV to children who are deaf or hard of hearing, however, is a complex task that requires the consideration of numerous factors, including examiner qualifications, test administration, communication considerations, interpreter use, normative data, and reliability and validity issues.

Examiner Qualifications

According to the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], National Council on Measurement in Education [NCME], 2014), ensuring fairness in testing requires consideration of test accessibility, which is the opportunity for test takers to demonstrate their true ability on the measured construct. In order to comply with this standard, examiners administering the WPPSI-IV to members of the deaf and hard of hearing population must be aware of the heterogeneity of this population with regard to relevant factors, such as the age of onset of hearing loss, form(s) of communication, early language access, degree of hearing loss, use of assistive technology, and co-morbid conditions. Results from the 2011–2012 Demographic Survey conducted by the Gallaudet Research Institute show that 40% or more of deaf children have some additional condition that affects their ability to function (Gallaudet Research Institute, 2013). Given the diversity of the deaf and hard of hearing population, there is not a single

assessment approach that works for all children. Rather, examiner knowledge about and careful consideration of the potential impact that each of the above factors has on the child's development is warranted.

Test Administration

Important testing considerations are necessary when testing children with hearing loss. With regard to the testing environment, both auditory and visual distractions should be kept to a minimum. Given that many deaf and hard of hearing individuals have some degree of residual hearing and/or use an assistive device, they may have access to sound, which can interfere with testing. The configuration of the physical space depends on whether the examiner communicates directly with the child or via the use of a sign language interpreter. If the latter, careful consideration needs to be given to where the interpreter is seated during testing, based on the role(s) the interpreter provides in facilitating communication.

Communication Considerations

Consideration of the child's communication preference is required for administration and interpretation of intellectual assessment measures. There is wide variety in the preferred communication method of deaf and hard of hearing persons (see the Modes of Communication section of this report). Unless the child's performance in an alternative language is relevant to the nature of the assessment, administration of the WPPSI-IV should be conducted in a child's preferred language (AERA, APA, NCME, 2014; APA, 2002; Individuals with Disabilities Education Act Amendments of 1997). Examiners who are not fluent in the child's preferred language should use a certified interpreter who is knowledgeable about assessment and is able to adapt to the child's mode of communication. Interpreters used for assessment should have appropriate certification (information about certified interpreters is available via the Registry of Interpreters for the Deaf at www.rid.org). These accommodations, however, need to be balanced with the understanding that any modification of standardized testing procedures may alter the validity of the test and compromise results.

Interpreter Use

Considerations to keep in mind when testing with sign language interpreters include understanding the impact that an interpreter can have on the testing process and ensuring that interpretation does not inadvertently provide a correct response, simplify the task, or change the intended nature of the task. It also is important to clarify whether the role of the interpreter is to interpret the child's exact response, modify the response to account for cultural differences, or fill in any gaps to clarify the response. Ensuring an appropriate review of this information likely requires meeting with the interpreter before the assessment begins and after administration is completed. For more detailed information about the use of an interpreter in the assessment process visit the PEPNet2 website (www.pepnet.org). Although this information has not yet been examined for the WPPSI-IV, previous research on using an ASL-fluent clinician versus a sign language interpreter did not find significant differences in scores on the WISC-R for a large sample of deaf and hard of hearing children (Sullivan & Schulte, 1992). It should be noted that it is not appropriate to use a family member or friend as an interpreter nor is it appropriate to administer a test in spoken language if ASL or another form of sign language is the child's preferred language.

Normative Data

Examiners must determine whether the general normative sample is an appropriate comparison group for the child. While normative information for the general population is provided on the WPPSI-IV to assist with interpretation of scores, the WPPSI-IV normative sample did not include individuals with uncorrected hearing loss. Thus, comparison of standard scores for some deaf and hard of hearing children with the normative population may be limited, particularly for those without corrected hearing loss and/or whose primary language is some form of signed communication. In contrast, for deaf and hard of hearing children who utilize assistive technology, such as cochlear implants or hearing aids, and who are primarily spoken language users, a comparison with the normative sample may be appropriate. Literature on the cognitive functioning of the deaf and hard of hearing population suggests that nonverbal measures of cognition should be distributed in the same way as the general population (Hill-Briggs, Dial, Morere & Joyce, 2007; Morere, Goodman, Hanumantha & Allen, 2012).

Reliability and Validity Issues

Two important changes on the WPPSI-IV are the simplification of subtest instructions and the provision of a new ancillary Nonverbal Index (NVI). Efforts were taken during development of the WPPSI-IV to simplify all verbatim subtest instructions to increase clarity of task demands, decreasing the potential confound of language on the overall administration. The NVI offers a language-reduced measure of general intellectual ability. It is derived from the sum of five subtest scaled scores from tasks that do not require verbal responses. While this is likely to be a better estimate of overall functioning for deaf and hard of hearing children for whom the Verbal Comprehension subtests are not appropriate, it is important to keep in mind that there is still a language demand to comprehend subtest instructions, and the child may be relying on language-based mediation or reasoning strategies.

Subtests from the Verbal Comprehension domain will not be a valid estimate of language-based reasoning skills for many children in this population because of the confounded nature of language skills and intelligence. Studies of verbally based scores on previous versions of the Wechsler intelligence scales, specifically, the *Wechsler Intelligence Scale for Children* (3rd ed.; WISC-III; Wechsler, 1991) and the *Wechsler Intelligence Scale for Children* (4th ed.; WISC-IV; Wechsler, 2003), consistently show lower verbal ability scores (Krouse & Braden, 2011; Maller, 2003). For the children who have access to sound via assistive technology and for whom spoken English is their primary language, opportunities for incidental learning and exposure to English may differ in important ways from children in the normative sample. For children who communicate primarily through some form of signed language, even if Verbal Comprehension items are appropriately translated, it remains unclear whether individual test items involve the same construct at the appropriate level of difficulty. Without standardized sign language versions, uncertainty about what constitutes a correct response is likely. Depending on the interpreter, test, and test item, items interpreted into ASL may be rendered more or less difficult than the English equivalent. Given the heavy English demand, the Verbal Comprehension Index (VCI), General Ability Index (GAI), and Full Scale IQ (FSIQ) composite scores are not to be considered valid scores with certain individuals who are deaf or hard of hearing when used for the specific purpose for which these composite scores were originally developed.

Reliability and validity information regarding the use of the WPPSI-IV with the deaf and hard of hearing population is not yet available. A study of the WISC-IV provided evidence of internal consistency reliability for a heterogeneous sample of children who were deaf or hard of hearing on 8 of the 15 subtests and 2 of the 5 index scores (Krouse & Braden, 2011). The mean Perceptual Reasoning Index (PRI) for

the deaf and hard of hearing sample was lower than that of the normative sample, which raised question regarding the use of the PRI with this population. One possible explanation offered for the lower PRI scores was that the WISC–IV PRI in comparison to the PIQ of the WISC–III tapped nonverbal reasoning skills more strongly than visual-spatial and motor skills. Deaf and hard of hearing examinees have been reported to score relatively lower on motor-reduced nonverbal tests than on performance tests (Braden, 1994). It will be useful to examine the performance of deaf and hard of hearing children on the new Visual Spatial Index (VSI) and Fluid Reasoning Index (FRI) of the WPPSI–IV. It remains to be seen how much of this difference is attributed to cultural and linguistic bias of test items, language delays, accommodations, or true differences in this group. Further studies are needed to provide evidence of reliability and validity for the use of the WPPSI–IV with the deaf and hard of hearing population.

Language and Communication Considerations

As detailed above, the population of deaf and hard of hearing children is a dynamic group that includes individuals with a range of hearing differences, educational backgrounds, and language considerations. Some children with a hearing difference communicate using more than one method of communication, while other children have a clearly identified preferred primary language or communication method. When the examiner is selecting instruments or subtests and planning accommodations for children who have a hearing difference, the child’s primary language(s) or preferred mode(s) of communication should be considered the most critical issue, as opposed to the type or degree of hearing ability.

The following is a description of the modes of communication commonly used by children with hearing loss. It is critical to note that within each of these categories, variability exists. The communication method used to administer the WPPSI–IV to a child may differ across different languages and modalities, with gradations, combinations, and systems in between. Specific items on the WPPSI–IV may be conveyed differently depending on the language or communication system used. A child may use one or any combination of the language categories detailed below.

American Sign Language

American Sign Language (ASL) is a visual gestural language with its own grammar, idioms, semantics, pragmatics, and syntax and is a complete language system that differs from sign systems used to clarify English. ASL incorporates facial expressions as well as various hand shapes, dynamic movements, various locations on or near the body, and different orientations of the palm. Students who primarily utilize ASL are likely educated in ASL-English bilingual education environments that aim to develop proficiency in both *signacy* (proficiency in ASL) and *literacy* (proficiency in English print). It should be noted that there are various sign languages across the world, and there are also regional variations, as well as cultural variations, within ASL. ASL also can be used in a tactile format for children who are deaf-blind, but it may need to be modified to convey visually-based linguistic information.

Auditory/Oral Modalities

When a child uses auditory modalities, spoken language is used without signs or gestures. Appropriate and consistently functioning technology that allows auditory access, such as hearing aids or cochlear implants, is integral to the success of this communication choice. When assessing a child that utilizes hearing technology, the examiner should ensure that the device is working properly and the child is able to detect speech sounds. Some children may also utilize an assistive listening device (ALD), such as a personal FM system. Consider the environment in this situation; for example, limiting background noise

and reverberation (i.e., testing in a quiet room with soft surfaces). Children who use this system may rely on visual cues from speech reading (Auditory/Oral Method) or primarily depend upon their residual/amplified hearing skills without any visual or speechreading cues (Auditory/Verbal Method).

Cued Speech

Cued speech is a sound-based visual communication system that is used to clarify spoken English by using hand cues to differentiate sounds of speech that look the same on the lips. Cued speech is not a language even though it is sometimes referred to as *cued language* or *cued English*. The system utilizes eight handshapes to distinguish consonant phonemes and four locations near the mouth to distinguish vowel phonemes. A specific handshape combined with a particular location will signal, or *cue*, a syllable. A combination of these hand configurations is coordinated with the natural movements of speech.

Total Communication

Total Communication (TC) refers to the use of a combination of some or all communication modes and language, as needed, depending on the situation and/or child. This communication modality includes ASL as well as English-based systems of signing, which entail use of signs in English word order, Signing Exact English, Sign-Supported Speech, and Conceptually Accurate Signed English. Total Communication may also include spoken English, mime, facial expressions, and gestures. Cued speech may also be included for an individual that uses TC. The child who identifies as using TC may or may not use these methods of communication equally or at the same time. A common form of TC is simultaneous communication or *simcom*, which refers to the use of spoken words simultaneously with a signed version of the spoken utterance. TC may also include communication that combines ASL and English in forms known as *code switching*, which refers to moving between ASL and English, or sandwiching the languages, where the information is signed, spoken, and then signed again. The definition of TC is highly situational and should be clarified by the examiner. If a parent identifies the primary communication modality as TC, the examiner should take great care in determining what exactly this means for the particular child.

When arranging for the assessment of a child who is deaf or hard of hearing, great care should be taken to ensure that clear and accurate communication about the test session and the child's needs takes place. Ideally, the examiner will possess the ability to communicate with the child and administer items directly in the language/communication modality primarily utilized. When this is not possible, consultation with a psychologist familiar with this population is recommended. It should not be assumed that communication could occur effectively through lip reading or speechreading, a technique of understanding speech by visually interpreting movements of the tongue, lips and face with information communicated by context, language, and residual hearing. Only 30% to 40% of sounds are distinguishable from sight alone. As noted, for administration purposes, an interpreter or transliterator may be necessary.

When interpreting test results of the WPPSI-IV, a strong understanding of the child's language and communication competency is critical. Some children may demonstrate strong competency in one or more language and communication modes, while others may still be developing language in one or more modalities. It also is possible that if the child has cognitive limitations or was identified late in development as a deaf or hard of hearing child, the child may not have a strong language foundation. Results should be understood and interpreted with an understanding of the language capabilities of the child.

WPPSI–IV Subtest Administration Across Communication Modalities

Table 1 provides appropriateness ratings and modification considerations for the WPPSI–IV subtests and scales for the four general modes of communication. These ratings are based on previous work by Steven Hardy-Braz, and extended by Elizabeth Adams Costa (of The River School/RiverREACH Clinic) and Lori Day (of Gallaudet University) who served as the primary consultants on issues of assessment with children with hearing differences. Appropriateness ratings are valid for children who possess fluent and developed language abilities in the identified system or language as appropriate for their age and developmental level. The categorical ratings range from 1 to 6. Explanations of each category and of various notes relevant to modification considerations are denoted in the key that appears below Table 1. It should be noted that regardless of modality, instructions for each subtest must be presented in a way that is clear and fully understood by the child.

Table 1. Subtest and Composite Score Appropriateness Ratings and Modification Considerations for Children Who are Deaf or Hard of Hearing, by Mode of Communication

Subtest/Composite	ASL	Oral	Cued Speech	Total Communication
Similarities*	2 M	5	5	2 M
Vocabulary	2 M	5	5	2 M
Information	2 A M	5	5	2 A M
Comprehension*	2 B M	5 M	5 M	3 M
Receptive Vocabulary*	2 M	5	5	2 M
Picture Naming*	4 M	5	5	4 M
Block Design	6 T	6 T	6 T	6 T
Object Assembly	6 T	6 T	6 T	6 T
Matrix Reasoning	6	6	6	6
Picture Concepts	6 I	6	6	6
Picture Memory*	6 I	6	6	6
Zoo Locations*	6 I	6	6	6
Bug Search*	6 T	6 T	6 T	6 T
Animal Coding*	6 I T	6 T	6 T	6 T
Cancellation*	6 T	6 T	6 T	6 T
Verbal Comprehension Index	1 M	5	5	2 M
Visual Spatial Index	6 I T	6 T	6 T	6 T
Fluid Reasoning Index	6 I	6	6	6
Working Memory Index	6 I	6	6	6
Processing Speed Index	6 I T	6 T	6 T	6 T
Full Scale IQ	1 M	5 M	5 M	2 M

(continued)

Table 1. Subtest and Composite Score Appropriateness Ratings and Modification Considerations for Children Who are Deaf or Hard of Hearing, by Mode of Communication (*continued*)

Subtest/Composite	ASL	Oral	Cued Speech	Total Communication
Vocabulary Acquisition	2 M	5	5	2 M
Nonverbal Index	6 I T	6 T	6 T	6 T
General Ability Index	2 M	5	5	2 M
Cognitive Proficiency Index	6 T	6 T	6 T	6 T

Note. * = Subtests that are substantively modified or new to the WPPSI-IV

- 1 = Administration not recommended due to significant administration and interpretation issues
- 2 = Administration is possible but problematic and interpretation may be difficult
- 3 = Administration is possible but interpretation may be difficult
- 4 = Administration is possible with caveats for language confounds on items included in the subtest
- 5 = Administration is possible with caveats due to pronunciation/auditory detection demands on the child
- 6 = Administration is possible with little or no modification
- A = Less difficult items may require additional linguistic modification
- B = More difficult items may require additional linguistic modification
- I = Care with administration of subtest instructions is required
- M = Modification by modality may alter the task demand or introduce construct irrelevant variance
- T = Timed nature may affect performance and interpretation

Items within a single subtest are often presented in order of increasing difficulty. As such, modification considerations may vary across the subtest item set. For example, the examiner needs to be aware that less difficult Comprehension items are readily administered using sign language, but the more difficult items may require signing in an iconic fashion. If the modification considerations for a subtest vary across items, *A* or *B* is noted. An *A* indicates that less difficult items may require modification, while a *B* indicates that more difficult items may require modification.

Some subtests may also require careful interpretation of linguistically complex subtest instructions to ensure comprehension of tasks demands. Such subtests are denoted with the letter *I*. Although subtest administration may be possible in a particular communication modality, use of that modality may alter the cognitive task demands and/or deviate from standard procedures used in collection of the normative sample. The letter *M* indicates subtests that may be susceptible to altered cognitive task demands, indicating that modification by modality may affect interpretive validity of the designated skill area(s). The letter *T* denotes subtests where the timed nature may affect performance or interpretation.

Children who use auditory/oral modalities generally make use of spoken English, but the child's ability to access auditory information should be clarified. A child who uses hearing aids or cochlear implants may have corrected hearing within the range of typical functioning, but may still have difficulty discriminating between soft sounds (e.g., *sock* vs. *rock* in Vocabulary). Further, the child may be taxed in detecting and understanding the speech of the examiner due to a mild hearing difference. While Cued Speech does not alter the linguistic content of the information, the visual requirements of the language should be considered in the context of administration and interpretation of timed tasks. ASL and TC may significantly alter the test stimuli, as well as interpretation. Finally, test performance may be impacted by the child's speech, regardless of language modality used (if the child utilizes spoken language).

In general, interpretation of all results should be approached with caution and understood within the context of the child, his or her language abilities and exposure, developmental history, and modification of the test (if applicable). Examiners must remain cognizant of the possibility that the presence of even a minor hearing difference, regardless of communication modality, may result in environmental conditions

that impede incidental learning. For example, compared to a child with typical hearing, a deaf or hard of hearing child may have more limited exposure and learning opportunities. This is especially relevant for children who were later identified as having a hearing difference. It is important to distinguish between performance related to cognitive functioning and those aspects of performance that reflect the environmental circumstances for the child.

Table 2 provides general caveats for administration of the WPPSI–IV subtests to children who are deaf or hard of hearing. However, the ultimate selection of the subtests, administration, accommodations, and interpretation of results are the responsibility of the individual examiner, as well as judgments regarding the reliability and validity of results. Due to the extremely diverse nature of this population, these suggestions are intended primarily as a guide.

Table 2. General WPPSI–IV Subtest Caveats for the Deaf or Hard of Hearing

Subtest	General Caveat
Similarities	<p data-bbox="407 688 1382 800">Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p data-bbox="407 814 1382 898">Picture Items: When item instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on the pictured items.</p> <p data-bbox="407 913 1382 1115">Verbal Items: For children whose primary language is a signed language, translation of subtest items into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into sign, may be comparatively more or less difficult than the original English item. Exact translation of the English word to the corresponding sign is not always possible. Further, while fingerspelling may be appropriate for some children, it requires that the child first decipher the target word, introducing construct irrelevant variance. Scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>
Vocabulary	<p data-bbox="407 1136 1382 1247">Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p data-bbox="407 1262 1382 1314">Picture Items: For children whose primary language is a signed language, scoring guidelines are not available for signed responses to the pictured items, which negatively impacts scoring reliability.</p> <p data-bbox="407 1329 1382 1528">Verbal Items: For children whose primary language is a signed language, translation of subtest items into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into sign, may be comparatively more or less difficult than the original English item. Exact translation of the English word to the corresponding sign is not always possible. Further, while fingerspelling may be appropriate for some children, it requires that the child first decipher the target word, introducing construct irrelevant variance. Scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>

(continued)

Table 2. General WPPSI–IV Subtest Caveats for the Deaf or Hard of Hearing *(continued)*

Subtest	General Caveat
Information	<p>Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p>Picture Items: For children whose primary language is a signed language, translation of the subtest items into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into signs, may be comparatively more or less difficult than the original English item. Some test items require the child to point to parts of his/her body. The signed translation of these items identifies these body parts for the child.</p> <p>Verbal Items: For children whose primary language is a signed language, translation of the verbal items on this subtest into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into signs, may be comparatively more or less difficult than the original English item. Further, while receptive fingerspelling may be appropriate for some examinees, it requires that the examinee first decipher the target word, thus introducing construct irrelevant variance. Scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>
Comprehension	<p>Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p>Picture Items: For children whose primary language is a signed language, translation of the prompts for the pictured items on this subtest into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into signs, may be comparatively more or less difficult than the original English item.</p> <p>Verbal Items: For children whose primary language is a signed language, translation of the subtest items into equivalent signs or finger-spelled words may significantly modify items. For example, individual test questions, when translated into sign, may be comparatively more or less difficult than the original English item. Further, while fingerspelling may be appropriate for some children, it requires that the child first decipher the target word, introducing construct irrelevant variance. Scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>
Receptive Vocabulary	<p>Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p>For children whose primary language is a signed language, translation of subtest items into equivalent signs or finger-spelled words may significantly modify items. For example, individual test items, when translated into sign, may be comparatively more or less difficult than the original English item. Exact translation of the English word to the corresponding sign is not always possible. Some test items require the child to point to parts of his/her body. The signed translation of these items identifies these body parts for the child. Further, while fingerspelling may be appropriate for some children, it requires that the child first decipher the target word, thus introducing construct irrelevant variance. Scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>
Picture Naming	<p>Interpretation of performance on this subtest is problematic for deaf and hard of hearing children for several reasons. For children whose primary language is spoken English, the assumption that a child had similar access to the content being tested as children in the normative sample may not have been met.</p> <p>For children whose primary language is a signed language, scoring guidelines are not available for signed responses, which negatively impacts scoring reliability.</p>

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Table 2. General WPPSI–IV Subtest Caveats for the Deaf or Hard of Hearing *(continued)*

Subtest	General Caveat
Block Design	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the constructs being measured on this subtest. Examiners should note, however, that children using any type of visual communication method will be unable to view the examiner’s signs, cues, or lips and simultaneously view the stimulus items. Appropriate instruction includes providing sufficient time for a child to view the visual instruction and stimulus materials.
Object Assembly	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest. Examiners should be aware, however, that this is a timed subtest in which the items are displayed as the directions are explained. This may be a disadvantage for children who must view the examiner’s signs, cues, or lips instead of listening and simultaneously viewing the displayed items.
Matrix Reasoning	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the constructs being measured on this subtest.
Picture Concepts	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest.
Picture Memory	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest.
Zoo Locations	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest.
Bug Search	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest.
Animal Coding	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest. Examiners should be aware, however, that this is a timed subtest in which the items are displayed as the directions are explained. This may be a disadvantage for children who must view the examiner’s signs, cues, or lips instead of listening and simultaneously viewing the displayed items.
Cancellation	When instructions are appropriately given in the child’s preferred language, the communication modality should not significantly alter the construct being measured on this subtest. Examiners should be aware, however, that this is a timed subtest in which the items are displayed as the directions are explained. This may be a disadvantage for children who must view the examiner’s signs, cues, or lips instead of listening and simultaneously viewing the displayed items.

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