Inferential Comprehension in a Narrative - Assessment (ICNA)

Technical Manual

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English version of the *Évaluation de la Compréhension Inférentielle en Récit (ÉCIR)*

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Preface

The validity and reliability of the ICNA were confirmed for the original version in French (ÉCIR). The ICNA proposes a standardized process for documenting inferential comprehension abilities in young children, using a narrative-based approach. As such, it was developed for **use in the description of inferential comprehension abilities**, as a criterion-referenced test, and not as tool for identifying a disorder or emitting a diagnostic conclusion. The results of the study that supported the design of the ICNA offer a comparison base for clinicians to determine if a child has difficulty in the area of inferential comprehension. They are however not norms in a strict sense. Interpretation of the results thus requires clinical judgement.

INTRODUCTION

Inferential comprehension, or the ability to understand information not stated explicitly, is fundamental for the development of reading comprehension [1, 2, 3]. In fact, to understand a text, a child must not only decode and understand the literal information, such as words and sentences, but they must also interpret the implicit information or the underlying meaning of the text. Given that inferential comprehension abilities emerge early and play an important role in academic success [3, 4], it is pertinent that Speech-Language Pathologists monitor its early development. The objective of the ICNA is to document **oral inferential comprehension abilities in young children with a valid and reliable tool, using a narrative-based approach.**

Description of the test

The ICNA consists of a **20-page long story that follows a predictable narrative structure** (i.e., initiative event/problem, internal response, goal, prediction, attempt to solve the problem, and resolution). The story is about a bird named Robin. It starts when Robin's parents go away to find food and he stays alone in his nest. A storm begins and his nest falls. He is wet and scared and goes to look for a shelter. He meets three characters (a skunk, a porcupine, and a beaver) who try to help him, but nothing works. In the end, a boy builds a new house for Robin and his parents come back.

Nineteen questions are asked online, within the story, to assess six causal inference question types that target the story grammar elements: the problem, the internal responses, the goal of the character, the attempts to solve the problem, and the resolution. The inference types and

examples of questions are shown in Table 1. Each question targets information never mentioned explicitly by the narrator within the story and thus required some form of inference.

Table 1. Inference types, number of questions asked and examples from the task.

Inference types	N	Examples of questions from "*A Shelter for Robin*"
Problem	2	What is happening?
Internal response	4	How does Robin feel? Why?
Goal of the character	2	What does Robin want?
Attempts to solve the problem	7	Do you think Robin will be happy in this animal's house? Why?
Prediction	2	What will happen next?
Resolution	2	Who do you think helped Robin the most? Why?

In the original version in French, administration and scoring were finalized after a thorough validation process and are reported in a previous article [5]. The responses obtained to questions are scored in **four categories following a quality continuum ranging from expected to inadequate** (A = expected, B = incomplete, C = low contingency, D = inadequate or off topic). The definitions, examples of responses, and scores attributed for each category are presented in Table 2. The total score is calculated out of 78 points. For more detailed information regarding the quality of response continuum, please refer to Filiatrault-Veilleux, Bouchard, Trudeau, & Desmarais, (2016) [4].

Table 2. Four categories of quality of responses, examples to the question "What does Pinson want?" and scores.

	Quality of response continuum			
	Low ⟶			High
Category	D – Inadequate or off topic	C - Low contingency	B - Incomplete	A - Expected
Definition	Unrelated to the question or no response	Contains information that is not relevant to the question	Potential justification; may be imprecise or incomplete	Most frequent and contingent response
Examples	He wants to go in the water.	He wants to eat.	He wants to find his parents.	He wants to find a shelter.
Score	0	1	2	3

TASK ADMINISTRATION

Test material

- Technical Manual
- ICNA task on PowerPoint
- Scoring sheet

Environment: The ICNA must be administered in a quiet environment given that the narration plays an essential role in the task and any noise can interfere with the child's comprehension. Ensure that the volume of the computer has been adjusted before the administration of the task.

Repetition and authorised prompts: It is acceptable to replay a question, or to repeat the question, if the child has been inattentive, did not hear, or has asked for the repetition. Based on our experience, some younger children (i.e., 3 years old) tend not to respond spontaneously to questions asked by the computer and perform better when the questions are asked by the administrator.

Encouragements/Reinforcement: Comments on effort, such as "good work" are authorized.

Administration Time: The task can be administered in approximately 15 minutes.

Breaks: The task should be administered in its entirety and without interruption. If the child shows signs of fatigue, we recommend a pause before or after the administration of the task.

Practice items: Five practice items (literal questions) are integrated into the first two pages of the story to familiarise the child with the task. The administrator can help the child or provide the correct answers during the practice items.

ACKNOWLEDGMENTS

For more information regarding the tool's psychometric properties, please refer to:

- Filiatrault-Veilleux, P., Desmarais, C., Bouchard, C., Trudeau, N., & Leblond, J. (2016). Conception et qualités psychométriques d'un outil d'évaluation de la compréhension d'inférences en contexte de récit chez des enfants âgés de 3 à 6 ans [Design and psychometric qualities of an assessment tool used for understanding inferences in a narrative context with children 3 to 6 years of age]. *Canadian Journal of Speech-Language Pathology and Audiology, 40*(2), 149–163.

For more information regarding the results obtained with French-speaking typically developing children aged 3 to 6 years, please refer to:

- Filiatrault-Veilleux, P., Bouchard, C., Trudeau, N. & Desmarais, C. (2016). Comprehension of Inferences in a Narrative in 3- to 6-Year-Old Children. Journal of Speech Language and Hearing Research, 59(5), 1099-1110.

References

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2. Joffe, V. L., Cain, K., & Marić, N. (2007). Comprehension problems in children with specific language impairment: does mental imagery training help?. *International journal of language & communication disorders*, *42*(6), 648–664. https://doi.org/10.1080/13682820601084402

3. Kleeck, A.V. (2008). Providing preschool foundations for later reading comprehension: The importance of and ideas for targeting inferencing in storybook-sharing interventions. *Psychology in the Schools, 45*, 627-643.

4. Filiatrault-Veilleux, P., Bouchard, C., Trudeau, N., & Desmarais, C. (2016). Comprehension of inferences in a narrative in 3- to 6-year-old children. *Journal of Speech, Language, and Hearing Research, 59*(5), 1099–1110. https://doi.org/10.1044/2016_JSLHR-L-15-0252

5. Filiatrault-Veilleux, P., Desmarais, C., Bouchard, C., Trudeau, N., & Leblond, J. (2016). Conception et qualités psychométriques d'un outil d'évaluation de la compréhension d'inférences en contexte de récit chez des enfants âgés de 3 à 6 ans. *Canadian Journal of Speech-Language Pathology and Audiology, 40*(2), 149–163.