NAP

Narrative Assessment Protocol

Khara Pence, Ph.D.
Laura Justice, Ph.D.
Carolyn Gosse, B.A.

Preschool Language and Literacy Lab
University of Virginia
Charlottesville, Virginia

Coding the Narrative Assessment Protocol (NAP)
* updated 08/22/08*
Location of electronic document is Z:\P3L\Projects\NAP\CodingGuidelines

Introduction

Overview of the Narrative Assessment Protocol

The Narrative Assessment Protocol (NAP) is a tool that is designed to assess children's spoken narrative language abilities using a narrative sample elicited with the wordless storybook *Frog, Where are You?* (Mayer, 1969). Importantly, the NAP facilitates the coding of a narrative sample in real time and eliminates the need for narrative transcription. The NAP is organized into two overarching domains of narrative content and organization: *Microstructure* and *Macrostructure*. The microstructure domain quantifies five indicators of microstructural narrative development: 1) sentence structure, 2) phrase structure, 3) modifiers, 4) nouns, and 5) verbs. These five domains are captured by coding the presence of 18 items. The macrostructure domain is currently under development, and when complete, should include at least four indicators: 1) initial event, 2) search, 3) resolution, and 4) semantic scoring. The NAP is designed to serve at least two functions. First, the NAP can be used to describe individual differences in narrative language abilities for children of the same age. Second, the NAP can be used to describe children's development in narrative language across time.

Short Literature Review

The use of narrative storytelling in the assessment of oral language development can provide rich information about a child's ability to integrate many dimensions of language, including syntax (e.g., use of conjunctive ties), vocabulary (e.g., use of specific terms), and morphology (e.g., use of past tense verb markers). Effective use of narrative language also requires one to carefully organize content within and across utterances. This complexity, combined with the lack of feedback from the listener that is present in conversational exchange, makes narrative a cognitively demanding task that can reveal aspects of oral language development not captured by standardized assessments or informal observation (Justice et al., 2006). Because many elements of storytelling (e.g. syntactic complexity, story grammar elements, attribution of causality; see Price, Roberts, & Jackson, 2006, for review) follow a developmental progression, narrative assessment may prove useful as a means of tracking change over time and predicting a child's future language development.

Although clearly recognized as an important component of a comprehensive language assessment, narrative assessment is not currently widely used by researchers or clinicians, due at least in part to the time consuming nature of collecting and analyzing narrative structure. For instance, to use narrative assessment as part of a language assessment, the clinician must collect, transcribe, and analyze the narrative, and then compare outcomes against some sort of interpretable metric. These features make the use of narratives somewhat unrealistic for the busy speech-language clinician or researcher, despite the possible benefits of using narrative analysis to evaluate a child's language skills. Thus, the NAP is intended to allow both researchers and clinicians to assess children's narrative development and abilities in a timely manner.

Psychometric Properties of the Narrative Assessment Protocol

Reliability

Becoming a Reliable User of the NAP. To become a reliable user of the NAP, coders participate in a comprehensive self-study training program in which they review background literature concerning language and grammar (Justice & Ezell, 2002) and complete accompanying exercises, view narrative samples and accompanying transcripts, complete practice coding sessions, and undergo a reliability assessment. (See the section of this document entitled *Familiarization, Practice, and Reliability.*) To be deemed reliable, coders must demonstrate agreement (within one value) on 15 out of 18 items (83%) for three consecutive master-coded videos.

Inter-Rater Reliability for the NAP. The developers of the NAP coded 20 videos independently and then met to resolve any disagreements. Disagreements (within one value) were tallied and reliability was calculated for each of the 18 NAP items, as well as for the total NAP score (sum of 18 items). See Table 1 for NAP inter-rater reliability.

Table 1. *NAP Inter-Rater Reliability*

NAP Item	Percent Reliable (within one value)	Standard Deviation
Sentence Structure: Compound Sentence	.80	.41
Sentence Structure: Complex Sentence	.75	.44
Sentence Structure: Negative Sentence	.95	.22
Sentence Structure: Interrogative Sentence	1.00	.00
Phrase Structure: Elaborated Noun Phrase	.85	.37
Phrase Structure: Compound Noun	1.00	.00
Phrase Structure: Prepositional Phrase	.95	.22
Modifier: Adverb	.75	.44
Modifier: Advanced Modifier	.95	.22
Nouns: Pluralized Noun	1.00	.00
Nouns: Possessive Form	1.00	.00
Nouns: Tier 2 Noun	.90	.31
Verbs: Auxiliary Verb + Main Verb	.95	.22
Verbs: Copula Be Verb	.80	.41
Verbs: Irregular Past Tense Verb	.95	.22
Verbs: Regular Past Tense Verb	.95	.22
Verbs: Tier 2 Verb	.90	.31
Verbs: Compound Verb	1.00	.00
NAP Sum	.91	.08

Validity

Concurrent Validity. The concurrent validity of the NAP was examined with three aims in mind: To determine (1) the degree of congruence between NAP scores as coded online (from video) and offline (from transcripts), (2) the degree of congruence between NAP scores and commonly-used measures of narrative microstructure, and (3) the degree of congruence between NAP scores and standardized measures of language ability.

Participants included 30 children assessed in their prekindergarten year and 5 children assessed in their kindergarten and first grade years who were drawn from two larger studies of preschool language/literacy intervention.

Children were administered a comprehensive portfolio of standardized language measures including the Clinical Evaluation of Language Fundamentals Preschool, Second Edition (CELF PS-2; Wiig, Secord, & Semel, 2004) in the preschool year. Additionally, a spoken fictional narrative using the wordless storybook *Frog Where Are You?* (Mayer, 1969) was videotaped for each child. The NAP was scored online for 30 preschoolers, 5 kindergartners, and 5 first graders and was scored offline (from transcripts produced with SALT, Research V9; Miller & Iglesias, 2006) for a subset of the sample (10 preschoolers, 5 kindergartners and 5 first graders).

To address our first aim, we computed correlations for the five NAP indicators derived from online and offline coding for 20 children. A Bonferroni corrected alpha of .01 for five comparisons (.05/5) was used to control for Type I error. All five correlations were statistically significant and were greater than or equal to .58 (range = .58 - .92).

To address our second aim, correlations were computed between the sum of the five NAP indicators derived from online coding and four measures computed using SALT: (1) TNW, (2) NDW, (3) Number of utterances (C-units), (4) MLU (mean length of C-units), as well as the percentage of grammatically acceptable C-units, and the percentage of complex sentences, for the same 20 children. A Bonferroni corrected alpha of .01 for six comparisons (.06/5) was used. Four of the five correlations were statistically significant and were greater than or equal to .62 (range = .62 - .87). The only non-significant correlation was between the sum of the five NAP indicators and the number of utterances.

To address our third aim, correlations were computed for 30 preschoolers between the sum of the five NAP indicators and standardized scores on three core language subtests of the CELF-PS 2: (1) Sentence Structure, (2) Word Structure, and (3) Expressive Vocabulary, as well as for the composite standard score for the three subtests. A Bonferroni corrected alpha of .01 for four comparisons (.05/4) was used. All four correlations were significant and were greater than or equal to .51 (range = .51 - .66).

Findings indicate that the NAP demonstrates adequate online-offline scoring validity, and demonstrates adequate concurrent validity with measures derived from transcription software as well as standardized measures of language ability. The NAP is expected to allow for the timely assessment of narrative development by both researchers and clinicians.

Coding Procedure

Materials

1. *Coding forms.* Coding forms can be found in the project file cabinet (e.g., CHT, STR) in the NAP *to be coded* folder.
2. *DVDs.* To find a DVD to code, reference the Excel spreadsheet that can be found on the z drive under the following pathway J:\PRJ\Data\Cohort1\CHILD\NAP (where PRJ stands for project (e.g., STR, CHT, PCR) and Choose a DVD which has not yet been coded. Note also that Cohort2 would be substituted in the pathway for Cohort 2 data.
3. *DVD player that can handle small diameter disks.* All of the Narrative samples are on mini-DVDs. Make sure the DVD player you choose is compatible with this size disk. All transcribing room computers can accept mini DVDs (Macs cannot).
4. *Headphones or speakers.* The sound recording for many of the narrative samples is not optimal. Headphones will help you to discern what the child is saying.

Familiarization, Practice, and Reliability

1. Review the pages of *The Syntax Handbook* (Justice & Ezell, 2002) that are relevant to the NAP (Appendix 2). Complete the accompanying exercises to sharpen your skills and then check your answers.
2. **Familiarization-** Watch 2 videos while reading the accompanying transcripts.
3. **Practice-** Complete 5 practice videos by watching and coding the videos and before looking at the transcript to verify/correct your codes.
4. **Reliability-** Begin reliability by coding 3 videos. To be deemed reliable, you must agree with the master codes on 15 out of 18 items (83%) within one value on the frequency scale for three consecutive videos. For example, if you code a 2, and the master code is 3+, this would be considered an agreement within one value.
5. If you do not attain 15/18 (83%) in the first 3 videos, continue to code by sets of three until reliability is achieved.

Subject Number	Data Wave	Procedure
10016932	Spring 05	Familiarization
10016932	Spring 06	Familiarization
10017779	Spring 05	Practice
10017779	Spring 06	Practice
10017902	Spring 05	Practice
10017902	Spring 06	Practice
10017876	Spring 05	Practice
10017876	Spring 06	Reliability
10017371	Spring 05	Reliability
10017371	Spring 06	Reliability
30204	Fall 05	Reliability
30501	Fall 05	Reliability

30503	Fall 05	Reliability	
30505	Fall 05	Reliability	
30506	Fall 05	Reliability	
32701	Fall 05	Reliability	
32702	Fall 05	Reliability	
32706	Fall 05	Reliability	
32901	Fall 05	Reliability	
32903	Fall 05	Extra	

Data Entry

❖ Retrieve child assessments from **To Be Entered in SPSS** folder in the **2ⁿᵈ file drawer** of project file cabinet.
❖ Write your **computing ID** and the date next to "Entered:" stamp
❖ Identify and open the appropriate database for the child assessment and enter the codes into SPSS
❖ Place code sheets in the **Entered in SPSS To Be Checked folder** in the **2ⁿᵈ file drawer** of project file cabinet.

Data Checking

❖ Retrieve child assessments from **Entered in SPSS To Be Checked** folder in **2ⁿᵈ file drawer** of project file cabinet.
❖ Write your **computing ID** and the date next to "Checked:"
❖ Identify and open the appropriate database for the child assessment and check the SPSS entries.
❖ Place code sheets in the **Archive drawer** of the project file cabinet

Data Analysis

References

Justice, L., Bowles, R.P., Kaderavek, J.N., Ukrainetz, T.A., Eisenberg, S.L., & Gillam, R.B. (2006). The index of narrative microstructure: A clinical tool for analyzing school-age children's narrative performance. *American Journal of Speech-Language Pathology, 15*, 177-191.

Justice, L.M., & Ezell, H.K. (2002). The Syntax Handbook. Eau Claire, WI: Thinking Publications.

Mayer, M. (1969). *Frog, Where Are You?* New York: Dial Books for Young Readers.

Price, J.R., Roberts, J.E., & Jackson, S.C. (2006). Structural development of the fictional narratives of African American preschoolers. Language, Speech, and Hearing Services in Schools, 37, 178-190.

Appendix 1: Micro-Structure Coding Catalog

Directions:

1. Begin coding after the examiner provides directions for the child to begin telling a story. Do not code while child is supposed to be looking at the pictures, even if the child begins his narrative during this time.
2. Do not code off-topic discourse, such as conversation with the examiner about the camera or other conversation not pertaining to the book. Do not code questions about the book addressed to the examiner (e.g., Is that a frog?)
3. Record unique usages for the following categories: **modifiers, nouns, verbs**. Children only score points for unique usages in these categories. Unique usages are not required for **sentence structure** and **phrase structure**, although there is space for notes.
4. A unique usage of a **copula 'be'** verb is any verb that has a different subject or object.
5. If a child self-corrects, score the corrected form.
6. If a child uses one of the indicators in a grammatically incorrect utterance, give the child credit for any indicators correctly constructed. For example, if the child says "They _was looking_ out the window.", give the child credit for auxiliary verb + main verb because subject agreement is not part of the indicator. As another example, if the child says "he _don't_ know it's a tree", give the child credit for negative sentence because _don't_ conveys the negative structure even though the subject-verb agreement is incorrect.
7. If the child is making a complex sentence, but leaves out the auxiliary verb (e.g., He trying to find the frog.), give the child credit for the complex sentence, but not auxiliary verb+main verb.
8. If the examiner recasts or expand a child's utterance, and then the child imitates the more sophisticated utterance, do not give the child credit for the more sophisticated utterance.
9. If the child repeats an utterance because the examiner asks for clarification, do not code the repeated utterance. For example, if the child says "He said, where are you frog?" and the examiner says "what?" and the child repeats "He said, where are you frog?", do not code the repetition. If the child repeats without prompting from the examiner, code the repeated utterance.

Structure	Definition	Examples
Sentence Structure		
Compound sentence	Compound sentences contain a *coordinating conjunction* used to join two or more independent clauses to form a compound sentence: **for, nor, but, or, yet, so** **Note:** Do not score if one of two conjoined clauses does not contain its own subject. Do not score two independent clauses joined by the coordinating conjunction **and[1]**.	▪ He jumped out the window *but* he didn't get far. ▪ She likes it *so* she'll buy it.
Complex sentence	Complex sentences contain two verbs (minimally) and a *subordinating conjunction* used to join a dependent clause to another dependent clause or an independent clause. Examples of common subordinating conjunctions are: **when, that, who, which** Complex sentences may also use infinitives, which sometimes are not explicitly marked with "to", as in the asterisked example. Complex sentences may also be in the form of reported speech, as in the example	▪ She ate the one *that* I didn't like. ▪ That boy *who* hit me is mean. ▪ When the boy and the dog woke up, they noticed the frog was gone. ▪ John is calling to tell us about the class ▪ Please help your mom get dinner ready.* ▪ The little boy said "come out wherever you are".

---

[1] Many children begin each page by saying 'and,' so it is difficult to tell whether they have truly said a complex sentence or are reflexively saying 'and.'

Subordinating Conjunctions:	after	as long as	if	that	until	whenever
	although	as though	in order that	though	what	where
	as	because	provided that	till	whatever	wherever
	as far as	before	since	unless	when	while
	as if	how	so			

Negative sentence	Sentence that uses **no or not**, or a **contracted form of no or not** (e.g., can't, won't, ain't, don't, doesn't) to negate the meaning of the sentence.	▪ The frog can't go there. ▪ He doesn't like that dog.
Interrogative	Yes-no questions that use "do insertion" or wh-questions that use inversion Note: Do not code sentences that only use raised prosody to indicate a question; these are not interrogative forms, and rather are declarative sentences marked as questions through intonation (e.g., School is over?). Likewise, do not code tag questions in this category (e.g., School is over, isn't it?).	▪ Frog, are you hiding in my boot? ▪ Where are you hiding? ▪ Do you want to help find my frog?

Phrase Structure

Elaborated noun phrase (ENP)	Phrase consisting of one or more **modifiers** (*determiner, initiator, adjectival*) preceding a singular or plural noun **Note**: do not code ENP if only *the* or *a/an* precedes the noun.[2] The frog… 　▪ A bee… If the child uses an incorrect possessive form, do not give credit 　▪ Him nose v. his nose	▪ The little frog… ▪ All of the bees… ▪ The frog's head

---

[2] ENPs add more specificity to a noun than the common definite and indefinite articles.

| Compound noun | Coordinating conjunction used to join nouns as subjects or objects: **and, nor, but, or, yet, so** | ▪ The boy *or* the dog…
▪ The hat *nor* the sweater… |
| Prepositional phrase | Phrase consisting of the object of the preposition, the preposition, and any associated adverbs or adjectives | ▪ The frog was *in the jar*.
▪ The boy climbed *up the tree*. |

Modifiers

| Adverb | A word ending in -ly that modifies a verb by providing information about manner, place, time, degree, number, reason, affirmation, or negation.

Note: adverb phrases are exluded (e.g. on top of, in here). Deictic terms that rely on position of speaker in relation to the listener (e.g. here and there) are excluded. Also, remember that not all words ending in –ly are adverbs (e.g., lovely grandmother) | ▪ Daily
▪ Happily
▪ She was *absolutely* tired. |
| Advanced modifiers | Single word adjectives or adverbs that add significant precision to a noun or verb. | ▪ The frog was in the *filthy* water…
▪ Bees were flying *around*.
▪ He was falling *backward*. |

Nouns

| Pluralized noun | Noun with plural marker attached: /s/, /z/, /Iz/

Note: code pluralized noun even if the plural form is overgeneralized
▪ The sheeps… | ▪ The five frogs…
▪ Those cats… |
| Possessive form | Noun with possessive marker:
/s/, /z/, or /Iz/ | ▪ The boy*'s* hats
▪ The mouse*'s* cheese |

Tier-two noun	Noun that is a more complex or more precise form of a common noun (Beck & McKeown, 2002). Proper nouns are not included.	▪ Doe, reindeer, owl, marsh, pond, swamp, beehive, puddle, bumblebee, branch, etc.

Verbs

Auxiliary verb + main verb	"Helping verb" used in contracted or uncontracted form in present progressive or past progressive verb construction: Helping verbs can include **is, am, are, was, were, will, may, might**	▪ The boy *was yelling* at the dog. ▪ The girls *are going* with him. ▪ The cat*'s drinking*. ▪ We*'re walking* with you.
Copula 'be' verb + …	Verb of being used in contracted or uncontracted form as main verb in clause **Note:** "was" is coded as a copula as long as it is not an auxiliary verb (i.e., do not code as irregular past tense). **Note:** copula that appear in questions are also counted in this category.	▪ He*'s* tired. ▪ The frog *was* here. ▪ I am. ▪ The boy *was* not mad. ▪ Where is the frog?

Irregular past tense verb	Verb that marks past tense irregularly
	
	Note: do not code irregular past tense verbs marked with regular past tense verb ending
	    ▪ The boy fell*ed* down…
	    ▪ The mouse runn*ed* away…
		▪ The dog *fell*…
		▪ That mouse *ran* away…
		▪ He *got* a frog.

Regular past tense verb	Verb with regular past tense marker attached: /Id/ or /t/	▪ The dog walk*ed*… ▪ He climb*ed*…

Tier-two verb	Verb that is more precise or complex form of a verb (Beck & McKeown, 2002) or is a synonym for a basic-level, all general purpose verb (make, do, go)	• Rushed, whirled, chased, sprinted, sneaked, approached, etc.
Compound verb	**Note:** Do not give credit for verbs that are repeated for emphasis. - She looked and looked.	• She ran and laughed. • The frog swam and hid.

Appendix 2: Grammar and Syntax Guides and Practice Questions

See hard copies of the relevant readings or access the following folder on the z drive here: J:\P3L\Projects\NAP\PDFs for coding guidelines

Part 1 – pp. 232 - 239
Part 2 – pp. 249-250, 240, 246, 247
Part 3 – pp. 248, 187, 188, 251, 189
Part 4 – pp. 190, 191, 193, 194, 202
Part 5 – pp. 203 - 207
Part 6 – pp. 208, 209, 44 - 46
Part 7 – pp. 47 - 49, 65, 69

Justice, L.M., & Ezell, H.K. (2002). The Syntax Handbook. Eau Claire, WI: Thinking Publications.