The NEPSY
Second Edition

CHAPTER 2 – Design and Purpose of the NEPSY-II

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Design and Purpose of the NEPSY–II

Structure of the NEPSY–II

The 32 subtests and four delayed tasks included in the NEPSY–II are divided into six content domains: Attention and Executive Functioning, Language, Memory and Learning, Social Perception, Sensorimotor, and Visuospatial Processing. The subtests within each domain vary widely in terms of stimulus presentation, administration requirements, response type, and scoring emphasis. Therefore, subtests within a domain may not correlate highly with one another, and subtests across domains may correlate due to similar methodology and crossover of abilities. The domains are theoretically, not statistically, derived. Information on subtest intercorrelations is provided in chapter 5 of this manual. Domain scores are not derived in the NEPSY–II due to these psychometric issues and the clinical sensitivity and utility of the individual subtest scores. The strength of the NEPSY–II is the ability to assess the primary deficits underlying impaired performance both within and across functional domains.

Domain Coverage in the NEPSY–II

Attention and Executive Functioning

The subtests included in the NEPSY–II Attention and Executive Functioning domain are Animal Sorting, Auditory Attention and Response Set, Clocks, Design Fluency, Inhibition, and Statue. The subcomponents of attention and executive functioning that are assessed include inhibition of learned and automatic responses; monitoring and self-regulation; vigilance; selective and sustained attention; the capacity to establish, maintain, and change a response set; nonverbal problem solving; planning and organizing a complex response; and figural fluency. The subtests that compose the Attention and Executive Functioning domain are presented in Table 2.1.

Language

The subtests included in the NEPSY–II Language domain are Body Part Naming and Identification, Comprehension of Instructions, Oromotor Sequences, Phonological Processing, Repetition of Nonsense Words, Speeded Naming, and Word Generation. The subcomponents of language that are assessed include phonological processing; the ability to repeat nonsense words, name or identify body parts, quickly name stimuli on a page, display verbal semantic fluency, and produce rhythmic oral sequences; and comprehension of oral instructions. The subtests that compose the Language domain are presented in Table 2.1.

Memory and Learning

The subtests included in the NEPSY–II Memory and Learning domain are List Memory, Memory for Designs, Memory for Faces, Memory for Names, Narrative Memory, Sentence Repetition, and Word List Interference. The subcomponents of learning and memory that are assessed include

immediate memory for sentences; narrative memory under free recall, cued recall, and recognition conditions; repetition and recall of words presented with interference; and immediate and delayed memory for abstract designs, faces, names, and lists. The subtests that compose the Memory and Learning domain are presented in Table 2.1.

Sensorimotor

The subtests included in the NEPSY–II Sensorimotor domain are Fingertip Tapping, Imitating Hand Positions, Manual Motor Sequences, and Visuomotor Precision. The subcomponents of sensorimotor functioning that are assessed include the ability to imitate hand positions; to produce repetitive and sequential finger movements and rhythmic sequential hand movements; and to use a pencil with speed and precision. The subtests that compose the Sensorimotor domain are presented in Table 2.1.

Social Perception

The subtests included in the NEPSY–II Social Perception domain are Affect Recognition and Theory of Mind. The subcomponents of social perception assessed include facial affect recognition and the ability to comprehend others perspectives, intentions, and beliefs (i.e., theory of mind). The subtests that compose the Social Perception domain are presented in Table 2.1. The Memory for Faces subtest from the Memory and Learning domain complements the subtests of the Social Perception domain.

Visuospatial Processing

The subtests included in the NEPSY–II Visuospatial Processing domain are Arrows, Block Construction, Design Copying, Geometric Puzzles, Picture Puzzles, and Route Finding. The subcomponents of visuospatial processing that are assessed include the ability to judge line orientation, copy two-dimensional geometric figures, reconstruct three-dimensional designs from a model or picture, mentally rotate objects, deconstruct a picture into its constituent parts, recognize part-whole relationships, and use a small schematic map to locate a target on a larger schematic map. The subtests that compose the Visuospatial Processing domain are presented in Table 2.1.

Table 2.1 includes the subtest title abbreviations, age ranges, and a brief description of each subtest. These subtest title abbreviations are used throughout this manual.

Table 2.1   NEPSY–II Subtest Descriptions by Domain

Domain	Subtest	Abbreviation	Ages	Description
Attention and Executive Functioning				
	Animal Sorting	AS	7–16	This subtest is designed to assess the ability to formulate basic concepts, to transfer those concepts into action (sort into categories), and to shift set from one concept to another. The child sorts cards into two groups of four cards each using various self-initiated sorting criteria.
	Auditory Attention and Response Set	AA RS	5–16 7–16	This subtest has two parts. Auditory Attention is designed to assess selective auditory attention and the ability to sustain it (vigilance). Response Set is designed to assess the ability to shift and maintain a new and complex set involving both inhibition of previously learned responses and correctly responding to matching or contrasting stimuli. The child listens to a series of words and touches the appropriate circle when he or she hears a target word.
	Clocks	CL	7–16	This subtest is designed to assess planning and organization, visuoperceptual and visuospatial skills, and the concept of time in relation to analog clocks. For each drawing item, the child draws the image of a clock and places the hands where the examiner indicates. For visual items, the child reads the time on clocks that either have or do not have numbers.
	Design Fluency	DF	5–12	This subtest is designed to assess the behavioral productivity in the child's ability to generate unique designs by connecting up to five dots, presented in two arrays: structured and random. The child draws as many designs as he or she can on each array within a specified time limit.
	Inhibition	IN	5–16	This timed subtest is designed to assess the ability to inhibit automatic responses in favor of novel responses and the ability to switch between response types. The child looks at a series of black and white shapes or arrows and names either the shape or direction or an alternate response, depending on the color of the shape or arrow.
	Statue	ST	3–6	This subtest is designed to assess motor persistence and inhibition. The child is asked to maintain a body position with eyes closed during a 75-second period and to inhibit the impulse to respond to sound distracters.
Language				
	Body Part Naming and Identification	BPN BPI	3–4	This subtest is designed to assess confrontation naming and name recognition, basic components of expressive and receptive language. For Naming items, the child names the parts of the body on a figure of a child or on his or her own body. For identification items, the child points to corresponding parts of the body on a figure as the examiner names them aloud.
	Comprehension of Instructions	CI	3–16	This subtest is designed to assess the ability to receive, process, and execute oral instructions of increasing syntactic complexity. For each item, the child points to appropriate stimuli in response to oral instructions.
	Oromotor Sequences	OS	3–12	This subtest is designed to assess oromotor coordination. The child repeats articulatory sequences until the required number of repetitions is reached.
	Phonological Processing	PH	3–16	This subtest is composed of two phonological processing tasks designed to assess phonemic awareness. Word Segment Recognition requires identification of words from word segments. Phonological Segmentation is a test of elision. It is designed to assess phonological processing at the level of word segments (syllables) and of letter sounds (phonemes). The child is asked to repeat a word and then to create a new word by omitting a syllable or a phoneme, or by substituting one phoneme in a word for another.
	Repetition of Nonsense Words	RN	5–12	This subtest is designed to assess phonological encoding and decoding. The child repeats nonsense words presented aloud.
	Speeded Naming	SN	3–16	This timed subtest is designed to assess rapid semantic access to and production of names of colors, shapes, sizes, letters, or numbers. The child is shown an array of colors and shapes; colors, shapes, and sizes; or letters and numbers. He or she names them in order as quickly as possible.
	Word Generation	WG	3–16	This subtest is designed to assess verbal productivity through the ability to generate words within specific semantic and initial letter categories. The child is given a semantic or initial letter category and asked to produce as many words as possible in 60 seconds.

Table 2.1   **NEPSY–II Subtest Descriptions by Domain** (*continued*)

Domain	Subtest	Abbreviation	Ages	Description
Memory and Learning				
	List Memory List Memory Delayed	LM LMD	7–12	This subtest is designed to assess verbal learning and memory, rate of learning, and the role of interference in recall for verbal material. The child is read a list of words several times, recalling them after each presentation. A delayed task assesses long-term memory for words.
	Memory for Designs Memory for Designs Delayed	MD MDD	3–16 5–16	This subtest is designed to assess spatial memory for novel visual material. The child is shown a grid with four to ten designs on a page, which is then removed from view. The child selects the designs from a set of cards and places the cards on a grid in the same location as previously shown. A delayed task assesses long-term visuospatial memory.
	Memory for Faces Memory for Faces Delayed	MF MFD	5–16	This subtest is designed to assess encoding of facial features, as well as face discrimination and recognition. The child looks at a series of faces and then is shown three photographs at a time from which he or she selects a face previously seen. A delayed task assesses long-term memory for faces.
	Memory for Names Memory for Names Delayed	MN MND	5–16	This subtest is designed to assess the ability to learn the names of children over three trials. The child is shown six or eight cards with drawings of children on them while being read the child's name. The cards are then shown again and the child is asked to recall the name of the child on the card. A delayed task assesses long-term memory for names.
	Narrative Memory	NM	3–16	This subtest is designed to assess memory for organized verbal material under free recall, cued recall, and recognition conditions. The child listens to a story and is then asked to repeat the story. The child is then asked questions to elicit missing details from his or her recall of the story.
	Sentence Repetition	SR	3–6	This subtest is designed to assess the ability to repeat sentences of increasing complexity and length. The child is read a series of sentences and asked to recall each sentence immediately after it is presented.
	Word List Interference	WI	7–16	This subtest is designed to assess verbal working memory, repetition, and word recall following interference. The child is presented with two series of words and asked to repeat each sequence following its presentation. Then, he or she recalls each series in order of presentation.
Sensorimotor				
	Fingertip Tapping	FT	5–16	This timed subtest has two parts. The first part is designed to assess the child's finger dexterity and motor speed. The second part is used to assess rapid motor programming. The child copies a series of finger motions demonstrated by the examiner as quickly as possible.
	Imitating Hand Positions	IH	3–12	This subtest is designed to assess the ability to imitate hand/finger positions. The child imitates various hand positions demonstrated by the examiner.
	Manual Motor Sequences	MM	3–12	This subtest is designed to assess the ability to imitate a series of rhythmic movement sequences using one or both hands. The child repeats a series of hand movements demonstrated by the examiner until the required number of movements is completed.
	Visuomotor Precision	VP	3–12	This timed subtest is designed to assess graphomotor speed and accuracy. The child uses his or her preferred hand to draw lines inside of tracks as quickly as possible.
Social Perception				
	Affect Recognition	AR	3–16	This subtest is designed to assess the ability to recognize affect (happy, sad, anger, fear, disgust, and neutral) from photographs of children's faces in four different tasks. In one task, the child simply states whether or not two photographs depict faces with the same affect. In a second task, he or she selects two photographs of faces with the same affect from 3–4 photographs. In a third task, the child selects one of the four faces that depicts the same affect as a face at the top of the page. Finally, the child is briefly shown a face and, from memory, selects two photographs that depict the same affect as the face previously shown.
	Theory of Mind	TM	3–16	This subtest is designed to assess the ability to understand mental functions such as belief, intention, deception, emotion, imagination, and pretending, as well as the ability to understand that others have their own thoughts, ideas, and feelings that may be different from one's own and the ability to understand how emotion relates to social context and to recognize the appropriate affect given various social contexts. In the Verbal task, the child is read various scenarios or shown pictures and is then asked questions that require knowledge of another individual's point of view to answer correctly. In the Contextual task, the child is shown a picture depicting a social context and asked to select a photograph from four options that depicts the appropriate affect of one of the people in the picture.

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Table 2.1   NEPSY–II Subtest Descriptions by Domain *(continued)*

Domain	Subtest	Abbreviation	Ages	Description
Visuospatial Processing				
	Arrows	AW	5–16	This subtest is designed to assess the ability to judge line orientation. The child looks at an array of arrows arranged around a target and indicates the arrow(s) that points to the center of the target.
	Block Construction	BC	3–16	This timed subtest is designed to assess the visuospatial and visuomotor ability to reproduce three-dimensional constructions from models or from two-dimensional drawings.
	Design Copying	DC	3–16	This subtest is designed to assess motor and visual-perceptual skills associated with the ability to copy two-dimensional geometric figures. The child copies figures displayed in the Response Booklet.
	Geometric Puzzles	GP	3–16	This subtest is designed to assess mental rotation, visuospatial analysis, and attention to detail. The child is presented with a picture of a large grid containing several shapes. For each item, the child matches two shapes outside of the grid to two shapes within the grid.
	Picture Puzzles	PP	7–16	This subtest is designed to assess visual discrimination, spatial localization, and visual scanning, as well as the ability to deconstruct a picture into its constituent parts and recognize part-whole relationships. The child is presented a large picture divided by a grid and four smaller pictures taken from sections of the larger picture. The child identifies the location on the grid of the larger picture from which each of the smaller pictures was taken.
	Route Finding	RF	5–12	This subtest is designed to assess knowledge of visual spatial relations and directionality, as well as the ability to use this knowledge to transfer a route from a simple schematic map to a more complex one. The child is shown a schematic map with a target house and asked to find that house in a larger map with other houses and streets.

NEPSY–II Subtests

In children, different types of impairment often co-occur. For example, verbal learning disorders tend to overlap with attention disorders, and motor coordination and visuomotor problems (Gilger, Pennington, & DeFries, 1992; Holborow & Berry, 1986; Snowling, Bishop, Stothard, Chipchase, & Kaplan, 2006; Korkman & Pesonen, 1994; Stanford & Hynd, 1994). Due to this tendency for multiple disorders, a general assessment is recommended for most evaluations. However, given the reality of time pressures, eight referral batteries have been designed to tailor the evaluation to the most clinically meaningful subtests for a specific evaluation. This organization by referral battery replaces the standard administration order of the 1998 NEPSY.

Clinicians may choose which subtests to administer to a child based on referral, clinical, or individual needs. Subtests are age-specific and care needs to be taken when selecting subtests, particularly for preschool children and adolescents. Each subtest has unique properties that make it clinically useful in specific clinical evaluations. For example, Affect Recognition is not included in the general battery, but it is very important in evaluations of children with behavioral problems, social difficulties, or diagnostic evaluations for autism spectrum disorders. The eight batteries are designed, based on theoretical and initial empirical data, to address common referral questions. The batteries are designed as guidelines to assist a new user of the NEPSY–II in selecting subtests and should not replace clinical experience and judgment. The clinician may utilize any combination of subtests appropriate for the specific evaluation. Table 2.2 lists the subtests in each referral battery.

Table 2.2   NEPSY–II Subtests Included in Referral Batteries

Subtest	Ages	Battery: Learning Differences-Reading	Learning Differences-Math	Attention/Concentration	Behavior Management	Language Delays/Disorders	Perceptual/Motor Delays/Disorders	School Readiness	Social/Interpersonal
Attention and Executive Functioning									
Animal Sorting	7–16			(X)	X	(X)			X
Auditory Attention and Response Set	5–16	X	X	X	X	X	X		X
Clocks	7–16			X	X	(X)	X		
Design Fluency	5–12	X		X	(X)		X		X
Inhibition	5–16	X	X	X	X	X			X
Statue	3–6	X	X	X	X	X	X	X	X
Language									
Body Part Naming and Identification	3–4					X			
Comprehension of Instructions	3–16	X	X		X	X		X	X
Oromotor Sequences	3–12	X				X	X		
Phonological Processing	3–16	X						X	(X)
Repetition of Nonsense Words	5–12					X			
Speeded Naming	3–16	X	X	X	X	X		X	X
Word Generation	3–16	X	X	X	(X)	X		X	X
Memory and Learning									
List Memory and List Memory Delayed	7–12			X		X			
Memory for Designs and Memory for Designs Delayed	3–16		X			X	X	X	(X)
Memory for Faces and Memory for Faces Delayed	5–16		X		X				X
Memory for Names and Memory for Names Delayed	5–16	X				X			X
Narrative Memory	3–16					X			
Sentence Repetition	3–6			X	X	X		X	
Word List Interference	7–16	X	X	X		X			X
Sensorimotor									
Fingertip Tapping	5–16				X		X		X
Imitating Hand Positions	3–12			(X)		X	X		X
Manual Motor Sequences	3–12	X		X			X		(X)
Visuomotor Precision	3–12		X		X	(X)	X	X	X
Social Perception									
Affect Recognition	3–16			(X)	X	(X)	(X)		X
Theory of Mind	3–16			X	(X)	(X)		X	X
Visuospatial Processing									
Arrows	5–16			(X)	(X)				(X)
Block Construction	3–16	3–6	3–6				X	X	3–6
Design Copying	3–16	X	X	X	X	X	X	X	X
Geometric Puzzles	3–16		7–16	X	X	X	X		X
Picture Puzzles	7–16	X	X						(X)
Route Finding	5–12								

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NEPSY–II Scores

Scores on the NEPSY–II are divided into four categories: primary, process, and contrast scores; and behavioral observations. Combined scores (a type of primary score) and contrast scores are new to the NEPSY–II and are described in detail.

Primary Scores

The primary scores represent the global aspects or key clinical variables of the subtest. They are typically expressed as scaled scores, although a few are percentile ranks. An example of a primary scaled score is the Phonological Processing Total Score.

COMBINED SCORES

Combined scores are a special type of primary score. Combined scores are total scores for a subtest that are made by combining two measures within the subtest. In the NEPSY–II, a combined scaled score for Inhibition Naming is created combining normed scores for the completion time and errors. Using agecorrected scores rather than raw scores controls for differences in score range and other variance that can differentially, albeit unintentionally, weight performance towards one variable over the other.

Combined scores are generated in such a way as to emphasize the construct being measured. They are weighted toward one specific skill versus another. For example, on Inhibition, errors are weighted more than time because controlled responding is more relevant than pure speed of responding in assessing inhibitory control. The combined scores are designed for clinicians that do not wish to report multiple scores; however, primary scores assessing single skills or abilities offer more precise interpretation. Combined Scores are expressed as scaled scores.

Process Scores

Process scores assess more specific abilities and skills or error rates that may not be relevant for all children but provide additional insight into a child's abilities. For example, in Affect Recognition, percentile ranks are provided for emotion error types. These scores are not important in the assessment of many clinical disorders, but may provide clinically meaningful information related to conduct disorder or autism spectrum disorders. Another example is the Inhibitory Errors Score on Auditory Attention and Response Set, which may not be helpful in many evaluations except those in which inhibitory control is a key issue. Process scores allow examiners to look deeper into specific abilities that may influence a child's performance. Process scores are expressed as scaled scores, percentile ranks, or cumulative percentages.

Contrast Scores

Some NEPSY–II subtests offer multiple primary scores. In these cases, some of the primary scores represent basic processes and others more complex processes. These multiple scores allow the clinician to determine if the deficit in a particular skill is due to the higher or lower level function (e.g., basic processing speed versus inhibitory control). The contrast scores are designed to allow the clinician to compare higher- to lower-level cognitive functions statistically. Contrast scores are expressed as scaled scores.

Behavioral Observations

Finally, behavioral observations provide quantitative scores for common behaviors in clinical populations. These scores are typically displayed as percents or cumulative percentages.

Revision Goals for the NEPSY–II

Revision goals for the NEPSY–II were based on research in the fields of neuropsychology, child development, and clinical psychology; customer and expert feedback; author experience; and early pilots of revisions and new subtests. The four primary revision goals were to:

- improve domain coverage across the age span,
- enhance clinical and diagnostic utility,
- improve psychometric properties, and
- enhance usability and ease of administration.

Improving Domain Coverage

The need for assessment of a variety of cognitive abilities has grown since the publication of the 1998 NEPSY. In response to changes and advances in the field and the need to expand the areas covered by the NEPSY, improvements were made in the NEPSY–II to enhance the measurement of executive functioning, visuospatial processing, and social perception. These domains were described in detail earlier in this chapter, so only additions to the NEPSY–II are mentioned below. Detailed descriptions of the subtests are provided later in this chapter.

EXECUTIVE FUNCTIONING

The NEPSY–II includes three new measures of executive functioning: Animal Sorting, Clocks, and Inhibition.

VISUOSPATIAL PROCESSING

The NEPSY–II includes two new measures of visuospatial processing: Picture Puzzles and Geometric Puzzles.

SOCIAL PERCEPTION

The Social Perception domain of NEPSY–II was created to enhance the assessment of children with autism spectrum disorders. This new domain includes two subtests: Affect Recognition and Theory of Mind.

Enhancing Clinical Utility

EMPHASIS ON SUBTEST-LEVEL SCORES

Domain scores have been dropped from the NEPSY–II in favor of the more clinically sensitive subtestlevel scores. This requires the clinician to review the performance of the child at the level of specific abilities rather than at the global domain level where scores often mask subtle deficits.

SPECIAL GROUP STUDIES

To assess the clinical utility of the NEPSY–II, 10 special group studies were conducted during standardization. Special group samples included children with the following diagnoses: Attention-Deficit/ Hyperactivity Disorder, Asperger's Disorder, Autistic Disorder, Deaf and Hard of Hearing, Emotionally Disturbed, Language Disorder, Mild Intellectual Disability, Mathematics Disorder, Reading Disorder, and Traumatic Brain Injury. The special group studies are described in chapter 5 and provide initial clinical validity for the NEPSY–II.

Improving Psychometric Properties

NORMATIVE DATA

Items and scores may become outdated over time. Scores used to determine eligibility for special programs and for diagnostic purposes should be based on normative data that are both current and representative of the relevant population. The NEPSY–II normative data were collected from 2005 to 2006. The sample was stratified on key demographic variables (i.e., age, sex, race/ethnicity, parent education level, and geographic region) according to the October 2003 U.S. census data. A complete description of the NEPSY–II standardization sample is provided in

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chapter 3. Several subtests were not renormed in the NEPSY–II and the norms collected for the 1998 NEPSY are reprinted. Design Fluency, Imitating Hand Positions, List Memory, Manual Motor Sequences, Oromotor Sequences, Repetition of Nonsense Words, and Route Finding were not renormed and were not modified in any way from the 1998 NEPSY.

EVIDENCE OF RELIABILITY AND VALIDITY

Along with the special group studies described earlier, a number of concurrent studies were conducted to provide evidence of the battery's reliability and validity. Retest data are reported for all scaled scores for all ages, and by smaller age bands. Evidence of convergent and discriminant validity is provided by correlation studies with the following instruments: NEPSY, Wechsler Intelligence Scale for Children–Fourth Edition (WISC–IV; Wechsler, 2003), Differential Abilities Scales–Second Edition (DAS–II; Elliott, 2007), Wechsler Nonverbal Scale of Ability (WNV; Wechsler & Naglieri, 2006), Wechsler Individual Achievement Test–Second Edition (WIAT–II; Harcourt Assessment, 2005), Children's Memory Scale (CMS; Cohen, 1997), Delis-Kaplan Executive Function System (D-KEFS; Delis et al., 2001), Bracken Basic Concept Scale–Third Edition: Receptive (BBCS–3:R; Bracken, 2006a), Bracken Basic Concept Scale–Expressive (BBCS:E; Bracken, 2006b), Devereaux Scales of Mental Disorders (DSMD; Naglieri, LeBuffe, & Pfeiffer, 1994), Children's Communication Checklist–Second Edition, United States Edition (CCC–2; Bishop, 2006), Brown Attention-Deficit Disorder Scales for Children and Adolescents (Brown ADD Scales; Brown, 2001), and Adaptive Behavior Assessment System–Second Edition (ABAS–II; Harrison & Oakland, 2003). Detailed descriptions and results of reliability and validity studies are presented in chapters 4 and 5, respectively.

FLOORS AND CEILINGS

Increased attention was paid to the floors and ceilings of subtests to ensure adequate coverage across the wide range of abilities in children ages 3–16. To address this wide range of ability, subtests were developed for subsets of the age range (e.g., Body Part Naming and Identification for 3–4 year olds), and easier and more difficult items were added to many of the subtests. Data collected on children with mild intellectual disability demonstrated the improved floors across the subtests. Although ceilings were increased, the focus of the NEPSY–II is on identifying impairment in various domains, so the focus on improved floors was critical to the clinical utility of the NEPSY–II.

Enhancing Usability

FLEXIBILITY OF SUBTEST ADMINISTRATION

The NEPSY–II was designed to allow examiners to choose the subtests relevant to a specific clinical investigation. Although a general referral battery is provided, clinicians are free to choose subtests to administer based on clinical, research, or child-specific needs. The method of norms collection supports the use of the norms in this flexible approach to assessment. By tailoring the NEPSY–II to the needs of individual children, clinicians can reduce testing time and produce more meaningful results.

REFERRAL BATTERIES

Based on the information obtained from the special group studies, eight batteries are suggested to assist examiners in planning assessments for common referral questions. These batteries are described in detail in chapter 1 of this manual.

ORDER OF PRESENTATION

Most of the NEPSY–II materials are presented in alphabetical order to increase usability during administration. Due to the multiple administration order possibilities, the alphabetized components make subtests easier to find. In addition, the Administration Manual contains only the information required to administer the subtests and score subtest-level data. The normative data are contained in this manual to allow for a streamlined Administration Manual.

Modifications From the 1998 NEPSY

General Changes to the NEPSY

Substantial modifications have been made to the 1998 NEPSY during the development of the NEPSY–II, including changes to subtest content and administration and scoring procedures. The age range has been extended upward to age 16 for many subtests, and a number of new subtests have been added to enhance assessment within and across domains. Consistent with the emphasis on clinical utility, domain scores are no longer provided in the NEPSY–II, replaced by subtest-level scores including process scores, contrast scores, and additional cumulative percentages for various behavioral observations. Table 2.3 provides a summary of the subtest modifications from NEPSY to NEPSY–II.

Subtest Descriptions and Modifications From NEPSY

The presentation of the subtests is grouped by domain.

Attention and Executive Functioning

Deleted Subtests: As part of the revision, an increased focus was put on enhancing the assessment of executive functioning, particularly subtests sensitive to clinical disorders. Due to the increased number of subtests assessing executive functioning, subtests with less clinical sensitivity have been dropped. Three subtests from the 1998 NEPSY—Knock and Tap, Tower, and Visual Attention—have been dropped from the NEPSY–II.

Retained and Modified Subtests: The three Attention and Executive Functioning subtests retained from the 1998 NEPSY are Auditory Attention and Response Set, Statue, and Design Fluency.

Auditory Attention and Response Set

This subtest includes two tasks. For both tasks, the child listens to a prerecorded auditory stimulus of a list of words and simply touches the appropriate circle in the stimulus book when he or she hears a target word. The age range of Auditory Attention and Response Set has been extended upward and includes ages 5–16, and ages 5–6 are no longer administered Response Set. To decrease the creditable response time from the presentation of the target word and to more directly assess attention, the method of response has been modified. Instead of searching for and manipulating foam squares to indicate that he or she has heard the target word, the child simply touches a colored circle in the stimulus book. This modification has substantially simplified recording for the examiner. Points are awarded only if the child responds correctly within 2 seconds of the target word presentation. This is a change from the 1998 NEPSY, in which the child received credit for responding correctly within 3 seconds of the target word presentation. Additionally, scoring is no longer weighted: one point is awarded if the child responds correctly to the target word within 2 seconds after it; no points are awarded if the child responds more than 2 seconds after the target word. Therefore, the influences of motor speed and finger dexterity have been reduced on this measure of attention.

The score combining performance across Auditory Attention and Response Set has been dropped and scores are provided separately for Auditory Attention and for Response Set. Separate percentiles are provided for commission, omission, and inhibitory errors for each task. Inhibitory errors occur when the child responds to a color word inappropriately; in other words, fails to inhibit an inappropriate response. A contrast score for Auditory Attention vs. Response Set is also provided. Finally, to provide more specificity as to types of inattentive behaviors being displayed during administration, off-task behaviors now include cumulative percentages for two categories of behavior: Inattentive/Distracted and Out of Seat/Physical Movement in Seat.

Statue

Statue requires the child to maintain a body position with eyes closed over a 75-second period, inhibiting the impulse to respond to sound distracters. Due to the addition of new subtests assessing executive functioning in older children, Statue is now only administered to children ages 3–6.

Table 2.3   Subtest Revisions Between the NEPSY and the NEPSY–II

Domain/Subtest	New Subtest	No Modifications	Dropped From NEPSY–II	Administration	Recording and Scoring	New Items	Age Range
Attention and Executive Functioning							
Animal Sorting	✓						
Auditory Attention and Response Set				✓	✓		✓
Clocks	✓						
Design Fluency		✓					
Inhibition	✓						
Knock and Tap			✓				
Statue					✓		✓
Tower			✓				
Visual Attention			✓				
Language							
Body Part Naming and Identification				✓	✓	✓	
Comprehension of Instructions				✓	✓	✓	✓
Oromotor Sequences		✓					
Phonological Processing				✓	✓	✓	✓
Repetition of Nonsense Words		✓					
Speeded Naming				✓	✓	✓	✓
Word Generation					✓		✓
Memory and Learning							
List Memory					✓		
List Memory Delayed					✓		
Memory for Designs	✓						
Memory for Designs Delayed	✓						
Memory for Faces				✓	✓	✓	✓
Memory for Faces Delayed				✓	✓	✓	✓
Memory for Names							✓
Memory for Names Delayed							✓
Narrative Memory				✓	✓	✓	✓
Sentence Repetition							✓
Word List Interference	✓						
Sensorimotor							
Finger Discrimination			✓				
Fingertip Tapping				✓	✓		✓
Imitating Hand Positions		✓					
Manual Motor Sequences		✓					
Visuomotor Precision				✓	✓	✓	
Social Perception							
Affect Recognition	✓						
Theory of Mind	✓						
Visuospatial Processing							
Arrows				✓	✓	✓	✓
Block Construction					✓	✓	✓
Design Copying				✓	✓	✓	✓
Geometric Puzzles	✓						
Picture Puzzles	✓						
Route Finding		✓					

Administration and scoring have not changed from the 1998 NEPSY, and no scores were dropped; however, percentile ranks are now provided for each type of error made by the child: body movement, eye opening, and vocalization.

Design Fluency

In Design Fluency, the child draws designs in the response booklet by connecting two or more dots within arrays containing five dots each. No modifications have been made to this subtest from the 1998 NEPSY.

New Subtests: *One of the revision goals for the NEPSY–II was to improve the assessment of executive functioning, particularly with regards to inhibitory control. Several executive functioning subtests were developed during the research phases of the NEPSY–II, and three new subtests are included in the final version of the NEPSY–II: Animal Sorting, Clocks, and Inhibition.*

Animal Sorting

Animal Sorting requires the child to sort cards into two groups of four cards each using various self-initiated sorting criteria. It assesses the child's ability to formulate basic concepts, to transfer those concepts into action (i.e., sort into categories), and to shift set from one concept to another. Sorting tasks are commonly found in neuropsychological testing (e.g., D-KEFS, Wisconsin Card Sorting Test [Grant & Berg, 1993]), but none were developed specifically for children. The cards designed for the NEPSY–II contain pictures of animals in various contexts, and no reading is required to complete the task. A more complex version of Animal Sorting was created during the development of the 1998 NEPSY but was not included in the final publication. Extensive modification, including a reduction of categories and groups to sort, resulted in the current version of the Animal Sorting subtest.

Clocks

Clocks includes both drawing and visual items. For drawing items, the child performs one of three tasks: draws the image of an analog clock in the response booklet, draws the hands to indicate the time specified by the examiner or by a digital clock displayed in the response booklet, or copies a full clock face in the response booklet. For visual items, the child reads the time on clocks that either have or do not have numbers. Both types of items assess visuoperceptual and visuospatial skills, and the concept of time in relation to analog clocks. In adults, performance on clock-drawing tasks is frequently impaired in groups with acquired brain injury (see Freedman, et al., 1994). In addition, Cohen, Ricci, Kibby, and Edmonds, (2000) found a developmental curve in relation to clock drawing with the ability to draw a clock improving with age. The current Clocks subtest was modified from initial drafts of items and administration instructions provided by Edith Kaplan. Scoring criteria were based on her criteria and modified for clarity and ease of use with children.

Inhibition

Inhibition requires the child to look at a series of black and white shapes or arrows and name either the shape, direction, or an alternate response, depending on the color of the shape or arrow. This subtest has strong roots in the Stroop (1935) procedure in which an over learned verbal response (i.e., reading words printed in colored ink) is inhibited while a conflicting response is given (i.e., naming the color of the ink). Inhibition utilizes the Stroop approach with a nonreading naming task.

Language

Retained Subtests: *The seven Language subtests retained from the 1998 NEPSY are Body Part Naming and Identification (formerly Body Part Naming), Comprehension of Instructions, Oromotor Sequences, Phonological Processing, Repetition of Nonsense Words, Speeded Naming, and Word Generation (formerly Verbal Fluency).*

Body Part Naming and Identification

Body Part Naming and Identification now includes two tasks. Naming items are administered in the same fashion as in the 1998 NEPSY, and identification items have been added. For Naming items, the child names the parts of the body on a figure of a child in the stimulus book or on his

or her own body. For Identification items, the child points to corresponding parts of the body on a figure as the examiner names them aloud. Identification items assess receptive vocabulary and name recognition. The inclusion of Identification items allows for the assessment of receptive as well as expressive language within the same items. For example, the examiner may now determine if the child knows the name of a body part, even if he or she cannot express it during the Naming task. An additional change is an updated drawing in the stimulus book. Behavioral Observations for poor articulation is no longer provided. Additions to the scores available for this subtest include a scaled score for Identification and a Naming vs. Identification contrast scaled score to further explore discrepancies between receptive and expressive language.

Comprehension of Instructions

In Comprehension of Instructions, the child points to appropriate stimuli in response to oral instructions. Simple items involve pointing to rabbits of different sizes, colors, and facial expressions. More complex items involve pointing to shapes by color, position, and relationship to other figures. The age range of Comprehension of Instructions has been extended upward and includes ages 3–16, and items with increased difficulty have been added to cover the upper end of the ability range. Administration revisions include minor changes to age-dependent start points and resulting modifications to the reverse rule. The discontinue rule has been increased from four to seven consecutive scores of 0. To facilitate the recording of responses, the orientation of reduced stimuli in the record form has been rotated to match the examiner's upside-down view of the stimulus book pages during administration.

Oromotor Sequences

Oromotor Sequences requires the child to repeat articulatory sequences (e.g., mish mash) and tongue twisters. No modifications have been made to this subtest from the 1998 NEPSY.

Phonological Processing

Phonological Processing is composed of two tasks designed to assess phonemic awareness. Word Segment Recognition begins with the child pointing to the picture that represents a word and then requires the child to identify pictures that represent words formed from orally presented word segments. In Phonological Segmentation, the child is asked to repeat a word and then to create a new word by omitting a syllable or a phoneme, or by substituting one phoneme in a word for another. The age range of Phonological Processing has been extended upward and includes ages 3–16. Easier items have been added to Word Segment Recognition, and items have been added to Phonological Segmentation to increase the range of difficulty covered. Administration modifications include changes to age-dependent start points and reverse rules. The discontinue rule has been increased from five to six consecutive scores of 0. Other revisions include minor changes to recording procedures, as well as slight modifications to the administration directions read to the child.

Repetition of Nonsense Words

Repetition of Nonsense Words requires the child to repeat nonsense words presented on an audio file. The subtest is designed to assess phonological encoding and decoding of sound patterns. It also requires the ability to articulate complex nonwords. No modifications have been made to this subtest from the 1998 NEPSY.

Speeded Naming

In Speeded Naming, the child is shown an array of colors and shapes; letters and numbers; or colors, shapes, and sizes. The child is then asked to name them in order as quickly as possible. The age range of Speeded Naming has been extended upward and includes ages 3–16. Items have been added to cover the lower and upper ends of the ability range. Easier items added for younger children require naming of color only, shape only, or both color and shape. The stimuli for these items include a line connecting each shape for the young child to follow as he or she completes the task. The 1998 NEPSY stimulus was retained as the second section of the test, in which the child names the size, color, and shape of each shape in an array. Difficult items require older children to name letters and numbers. Item format has been modified so that each stimulus page now comprises one item, and recording procedures have been changed accordingly. Age-dependent start and stop points have been added to ensure only age-appropriate items are administered.

Behavioral observations for body movement, voice volume, and reversed sequences are no longer included for Speeded Naming. Cumulative percentages for time and accuracy have been replaced by scaled scores for Total Completion Time, and percentile ranks for Total Correct and Total Self-Corrected Errors. A combined scaled score can be obtained that combines time and accuracy.

Word Generation

Word Generation includes two tasks. In Semantic Word Generation, the child is asked to name as many animals as possible within a 60-second time limit. Then the child is asked to name as many foods or drinks as possible within a 60-second time limit. Initial Letter Word Generation, administered to ages 7–16 only, requires the child to name as many words as he or she can that begin with the letter F within a 60-second time limit and as many words as he or she can that begin with the letter S within a 60-second time limit. The age range of Word Generation has been extended upward and includes ages 3–16. No administration or content modifications have been made to this subtest from the 1998 NEPSY, although it has been renamed (formerly Verbal Fluency). However, a number of changes have been made to the available scores. A scaled score combining Semantic Word Generation and Initial Letter Word Generation and cumulative percentages for the individual items are no longer provided. Behavioral Observations for body movement and voice volume are also no longer provided. New scores include separate scaled scores for Semantic Word Generation and Initial Letter Word Generation, as well as a contrast score for Semantic vs. Initial Letter Word Generation.

Memory and Learning

Retained Subtests: *The five Memory and Learning subtests retained from the 1998 NEPSY are List Memory (formerly List Learning), Memory for Faces, Memory for Names, Narrative Memory, and Sentence Repetition.*

List Memory

In List Memory, the child learns a word list over five trials. An interference list is then administered and recalled once, after which the child is asked to recall the original word list. For List Memory Delayed, administered 25–35 minutes later, the child is asked to recall the original word list. No content, administration, or scoring modifications have been made to this subtest from the 1998 NEPSY. A minor modification has been made to the recording of responses. The child's responses for each trial are now recorded verbatim, rather than in checklist format, to allow for more accurate recording of responses and a qualitative examination of responses.

Memory for Faces

In Memory for Faces, the child looks at a series of faces, identifying the gender of each as an attention-focusing device. Then the child is shown three faces at a time from which he or she selects the face previously seen. Memory for Faces Delayed, administered 15–25 minutes later, requires the child to select the same faces previously seen from new three-photograph arrays. The age range of Memory for Faces has been extended upward and includes ages 5–16. Because Memory for Faces is designed as a pure measure of face memory, photographs have been modified to show only the faces, reducing the number of peripheral characteristics, such as hair style or background shading that might distinguish the faces. Minor changes have been made to the directions read to the child for the purposes of simplicity and clarity. A minor change to recording procedures allows examiners to circle rather than write in responses. A scaled score combining Memory for Faces and Memory for Faces Delayed is no longer provided, while a contrast score for Memory for Faces vs. Memory for Faces Delayed may be obtained. In addition, a cumulative percentage is now provided for the frequency of spontaneous comments.

Memory for Names

In Memory for Names, the child is shown eight cards (six for 5-year-olds) with drawings of children while being read each child's name. The cards are then shown again and the child is asked to recall the name of the child on each card. There are three learning trials. The cards are shuffled after each learning trial so the sequence of pictures is different for each one. In Memory for Names Delayed, administered 25–35 minutes later, the child is asked to recall the name of the child on each card seen earlier. The age range of Memory for Names has been extended upward and includes ages 5–16. No other modifications have been made to this subtest from the 1998 NEPSY.

Narrative Memory

In Narrative Memory, the child listens to a story and is then asked to repeat the story. Next, the child is asked questions to elicit details not included in his or her free recall of the story. The length and complexity of the stories increase with the age of the child. The age range of Narrative Memory has been extended upward and includes ages 3–16. The story from the 1998 NEPSY has been retained, but it has been shortened and simplified. Two new stories, one easier and one more difficult, have been added to provide age-appropriate content and difficulty for the age range covered. Preschool children (3–4-year-olds) hear a short, simple story accompanied by a picture representing the story, 5–10-year-olds hear an intermediate narrative, 11–12-year-olds hear a portion of a more complex and difficult selection with many factual details, and 13–16-year-olds hear the entire complex narrative. All ages are administered both a Free and Cued Recall task. In addition, Recognition items have been added to the first two stories to allow for further investigation of the retention of story details, and the directions read to the child have been modified for clarity. A number of scores have been added to Narrative Memory. Cumulative percentages for Free Recall and Cued Recall have been replaced by a single scaled score combining performance across both free and cued recall. Percentile ranks are provided for Recognition, and a contrast score may be obtained for Free & Cued Recall vs. Recognition for ages 3–10. A Free Recall scaled score may be obtained for ages 5–16.

Sentence Repetition

In Sentence Repetition, the child is read a series of sentences and is asked to recall each sentence immediately after it is presented. Sentence Repetition is now only administered to children ages 3–6. No other administration or content modifications have been made to this subtest. Cumulative percentages for off-task behavior are no longer provided.

New Subtests: Two new subtests, Memory for Designs and Word List Interference, were developed for the Memory and Learning domain.

Memory for Designs

In Memory for Designs, the child is shown a grid with four to ten designs on a page, which is then removed from view. The child then selects the designs from a set of cards and places the cards on a grid in the same locations as previously shown. A delayed task, for ages 5–16, is administered 15–25 minutes later and requires the child to select eight to ten designs from a set of cards and place the cards on a grid in the same locations as shown during Memory for Designs. Memory for Designs assesses spatial and content memory for novel visual material, while the delayed task assesses long-term visuospatial memory.

Word List Interference

In Word List Interference, the child is read two lists of words. The child repeats each list immediately after it is read and then recalls both lists. In this way, each list serves as an interference task for the other list. Word List Interference assesses verbal working memory, repetition, and word recall.

Sensorimotor

Deleted Subtests: In an effort to reduce the number of subtests and stimulus materials from the final NEPSY–II subtest configuration, Finger Discrimination has been dropped from the NEPSY–II due to limited clinical utility in relation to the other subtests.

Retained Subtests: The four Sensorimotor subtests retained from the 1998 NEPSY are Fingertip Tapping, Imitating Hand Positions, Manual Motor Sequences, and Visuomotor Precision.

Fingertip Tapping

Fingertip Tapping includes two tasks that require the child to copy a series of finger motions demonstrated by the examiner. Each task is completed with the dominant and nondominant hand. In the first task, the child quickly and repetitively taps the pointer finger on the pad of the thumb. The second task requires the child to quickly repeat a sequence of finger taps progressing from pointer finger to little finger. The age range of Fingertip Tapping has been extended upward and includes ages 5–16. For Repetition items, the number of repetitions required per item has been reduced from 32 to 20, and for Sequences items, the number of complete sequences required per

item has been reduced from 8 to 5. This allows for a shorter administration time and increases clinical sensitivity by decreasing fatigue. Timing for each set of items has not changed.

The Fingertip Tapping Total Scaled Score and cumulative percentages for Repetitions and Sequences have been replaced by separate percentile ranks for dominant hand repetitions, nondominant hand repetitions, dominant hand sequences, and nondominant hand sequences. A number of scores have been added that allow for additional comparisons between dominant and nondominant hand performance and between performance on Repetition and Sequences items. These include a combined score for repetitions, a combined score for sequences, a dominant hand combined score and a nondominant hand combined score, as well as a Dominant vs. Nondominant contrast scaled score and a Repetitions vs. Sequences contrast scaled score.

Imitating Hand Positions
Imitating Hand Positions requires the child to copy hand and finger positions demonstrated by the examiner. No modifications have been made to this subtest from the 1998 NEPSY.

Manual Motor Sequences
Manual Motor Sequences requires the child to imitate and repeat a series of hand movements demonstrated by the examiner until the required number of movements is completed. No modifications have been made to this subtest from the 1998 NEPSY.

Visuomotor Precision
Visuomotor Precision requires the child to draw lines quickly inside tracks that progress from wide to narrow and from straight to convoluted. Three new items consisting of straight tracks, have been added to improve coverage of the lower end of the ability range, and the directions read to the child have been modified for simplicity and clarity. New scores for this subtest include a scaled score for total completion time and percentile ranks for total errors and total pencil lifts.

Social Perception

New Subtests: The Social Perception domain is composed of two new subtests: Affect Recognition and Theory of Mind. Each subtest is designed to measure a different set of skills necessary for understanding the feelings, perceptions, and intentions of others. The assessment of social perception processes is important for the diagnosis and treatment of a number of disorders including Asperger's Disorder and Autistic Disorder.

Affect Recognition
Affect Recognition includes four tasks. In the first task, the child simply states whether or not two photographs depict faces with the same affect. In a second task, the child selects two photographs of faces with the same affect from three or four photographs. In a third task, the child is shown a page with five faces and selects one of the four faces that depicts the same affect as a face at the top of the page. Finally, the child is briefly shown a face and, from memory, selects two photographs that depict the same affect as the face previously shown. All four tasks assess the ability to recognize affect from photographs of children's faces. Error scores are also provided for each of the emotions displayed in the subtest.

Theory of Mind
Theory of Mind includes two tasks. In the Verbal task, the child is read various scenarios or shown pictures and is then asked questions that require knowledge of another individual's perspective to answer correctly. These items assess the ability to understand mental functions, such as belief, intention, deception, emotion, imagination, and pretending, as well as the ability to understand that others have their own thoughts, ideas, and feelings that may be different from one's own. In the Contextual task, the child is shown a picture depicting a social situation in which the face of the target individual is not shown. The child is then asked to select the photograph from four options that depicts the appropriate affect for the target individual in the picture. It assesses the child's ability to recognize facial affect and to understand how emotion relates to social context and to recognize the appropriate affect given various social cues.

Visuospatial Processing

Retained Subtests: *The four Visuospatial subtests retained from the 1998 NEPSY are Arrows, Block Construction, Design Copying, and Route Finding.*

Arrows

Arrows requires the child to look at an array of arrows arranged around a target and indicate the arrow(s) that points to the center of the target. The age range of Arrows has been extended upward and includes ages 5–16. Four easier items with just one arrow that points directly to the center of the target have been added, existing items have been reordered, and difficult items have been added for improved coverage of the ability range. All item stimuli feature smaller, less distracting numbers identifying the arrows. Age-dependent start points and reverse rules have been added to address the broader age range, and the discontinue rule has been increased from four to five consecutive scores of 0. No scores have been added since the 1998 NEPSY; however, cumulative percentages for Right Visual Field and Left Visual Field Errors are no longer provided.

Block Construction

Block Construction requires the child to use blocks to copy models or to construct three-dimensional representations of two-dimensional drawings. The age range of Block Construction has been extended upward and includes ages 3–16. Existing items have been reordered and items with increased difficulty have been added to cover the upper end of the ability range. On 2-point items, changes have been made to the time bonus points awarded for specific completion times. Start points and reverse rules have been modified, and the discontinue rule has been decreased from five to four consecutive scores of 0. Minor changes have been made to the directions read to the child. The blocks used as manipulatives have undergone manufacturing changes that do not affect administration. No scores have been added since the 1998 NEPSY; however, cumulative percentages for Rotations are no longer provided.

Design Copying

In Design Copying, the child copies progressively more complex figures displayed in the response book-let. The age range of Design Copying has been extended upward and includes ages 3–16. Some item stimuli have been modified, and difficult items have been added to cover the upper end of the ability range. Additional instructions have been added to the directions read to the child for clarification of the task. The scoring system of the 1998 NEPSY has been replaced by two new systems. Percentile ranks are provided for the Design Copying General score, a quick score addressing global ability. The second system, Design Copying Process, breaks the response into three separate processes: motor ability, global attributes of the design, and local elements or details of the design. Scaled scores may be obtained for the total process score as well as for the motor, global, and local process scores. A Design Copying process contrast score may be obtained for global vs. local scores. Behavioral Observations for hand tremor and pencil grip are no longer provided.

Route Finding

In Route Finding, the child is shown a schematic map with a target house and asked to find that house in a larger map with other houses and streets. No modifications have been made to this subtest from the 1998 NEPSY.

New Subtests: *Two new subtests, Geometric Puzzles and Picture Puzzles, were developed for the Visuospatial Processing domain.*

Geometric Puzzles

In Geometric Puzzles, the child is shown a picture of a large grid containing several shapes. For each item, the child matches two shapes outside of the grid to two shapes within the grid. It is designed to assess mental rotation, visuospatial analysis, and attention to detail. A scaled score or percentile rank is available for the overall total depending on the child's age.

Picture Puzzles

In Picture Puzzles, the child is presented with a large picture divided by a grid and four smaller pictures taken from sections of the larger picture. The child identifies the location on the grid of the larger picture from which each of the smaller pictures was taken. It assesses visual discrimination, spatial localization, and visual scanning, as well as the ability to deconstruct a picture into its constituent parts and recognize part-whole relationships. A scaled score is available for the overall total.