

Supplementary Table. Exploratory and confirmatory factor analytic studies of the structure of executive control.

Reference	Sample Characteristics	Methods	Summary of Final Model
Exploratory studies: Adults			
Boone, Pontón, Gorsuch, González., & Miller (1998)	112 normal adults, 138 neurological patients	Dimensional EFA with Varimax rotation	Three-factor model Factor 1: WCST categories, perseveration, errors, and concept Factor 2: Stroop A, B, and C, verbal fluency Factor 3: Verbal and performance IQ, Rey-Osterrieth complex figure, Category Test total, perseveration, and sequences, digit span, digit symbol EFA with Promax rotation was also conducted, and factor loadings are not reported, but the authors report that findings were similar. Correlations between factors ranged from .54 to .62.
Fisk & Sharp (2004)	95 adults (20-81 years)	PCA with oblique rotation	Four-factor model Factor 1: reading & computation span, Brooks spatial sequences, consonant updating, word fluency, dual task performance decrement Factor 2: random generation (alphabetic and repeat measures) Factor 3: random generation (reduncancy measure), word fluency Factor 4: WCST perseveration and trials, computation span
Lamar, Zonderman, & Reznick (2002)	417 older adults (49-92 years)	PCA with Varimax rotation	Four-factor model Factor 1: WAIS-R similarities, vocabulary, Boston Naming Test, letter fluency, category fluency, CVLT Learning Factor 2: TMT A and B, BVRT, Card Rotations Test, CVLT Learning, prospective memory Factor 3: forward digit span, backward digit span Factor 4: clock drawing, Porteus maze, Boston Naming Test, BVRT
Pineda & Merchan (2003)	100 young adults	EFA with Varimax rotation	Five-factor model Factor 1: WCST categories, total errors, perseverative errors Factor 2: Stroop A and B errors Factor 3: Stroop A, B, and C times Factor 4: Trails A and B Factor 5: Phonological and semantic fluency
Robbins et al. (1998)	341 normal adults (21-79 years)	EFA with Varimax rotation	Four-factor model Factor 1: spatial working memory between-search errors and strategy score, ToL minimum moves, movement time and thinking time, fluid intelligence, spatial span Factor 2: attentional shift task errors, fluid intelligence, ToL movement time Factor 3: ToL thinking time Factor 4: spatial working memory between- and within-search errors
	241 normal adults (subset of above sample)	EFA with Varimax rotation	Six-factor model Factor 1: paired associates learning, DMTS accuracy, pattern recognition, visual search accuracy, fluid intelligence Factor 2: spatial working memory errors and strategy score, ToL movement time, fluid intelligence, spatial span Factor 3: visual search latency, DMTS latency, ToL initial thinking time Factor 4: ToL thinking time and minimum moves Factor 5: attentional shift task errors Factor 6: spatial working memory between- and within-search errors

Exploratory studies: Children			
Brocki & Bohlin (2004)	92 children (6-13 years)	Principal factor analysis with oblique and orthogonal rotation (age covaried)	<p>Three-factor solution</p> <p>Factor 1 (“Disinhibition”): CPT disinhibition, impulsivity, and inattentive impulsivity</p> <p>Factor 2 (“Speed/Arousal”): Go/no-go RT, CPT RT</p> <p>Factor 3 (“Working Memory/Fluency”): Digit span forward & backward, verbal fluency, hand movements, modified Day-Night Stroop, time reproduction</p> <p>With oblique rotation, correlations between factors ranged from -.12 to -.15; orthogonal rotation favored</p>
Brookshire, Levin, Song, & Zhang (2004)	104 normally-developing children, 286 children 36 months post-head injury (5-18 years)	EFA with oblique rotation	<p>Five-factor solution</p> <p>Factor 1 (“Discourse”): PPVT-R, core, gist, and episode discourse performance</p> <p>Factor 2 (“Problem Solving”): WCST, verbal and design fluency, Porteus maze, ToL, 20 Questions, divided attention</p> <p>Factor 3 (“Processing Speed”): coding, rapid naming, verification speed, reaction time</p> <p>Factor 4 (“Declarative memory”): CVLT total, CVLT cluster</p> <p>Factor 5 (“Motor speed”): grooved pegboard, motor sequencing</p> <p>All but 2 correlations between factors .50 or higher</p>
	265 children 3 months post-head-injury (5-18 years)	EFA with oblique rotation	<p>Four-factor solution</p> <p>Factor 1 (“Discourse”): PPVT-R, core, gist, and episode discourse performance</p> <p>Factor 2 (“Problem Solving”): verbal and design fluency, Porteus maze, divided attention, coding, 20 Questions</p> <p>Factor 3 (“Processing Speed”): rapid naming, reaction time, grooved pegboard, motor sequencing</p> <p>Factor 4 (“Declarative memory”): CVLT total, CVLT cluster</p> <p>Correlations between factors not reported</p>
Espy, Kaufman, McDiarmid, & Glisky (1999)	117 preschool children (23-66 months)	PCA with Varimax rotation	<p>Four-factor solution</p> <p>Factor 1: A-not-B, delayed alternation</p> <p>Factor 2: Color reversal</p> <p>Factor 3: A-not-B, self control</p> <p>Factor 4: Spatial reversal</p>
Klenberg, Korkman, & Lahti-Nuuttila (2001)	242 children (7-12 years)	Maximum-likelihood EFA with orthogonal rotation	<p>Four-factor solution</p> <p>Factor 1: NEPSY semantic, phonemic, and design fluency, auditory response set</p> <p>Factor 2: NEPSY visual search</p> <p>Factor 3: NEPSY auditory attention and auditory response set</p> <p>Factor 4: NEPSY statue</p>
Lehto, Juujärvi, Kooistra, & Pulkkinen (2003)	108 children (8-13 years)	EFA with direct oblimin rotation	<p>Three-factor model</p> <p>Factor 1 (“Working Memory”): mazes, spatial working memory, spatial span, NEPSY auditory attention and response set</p> <p>Factor 1 (“Inhibition”): MFFT</p> <p>Factor 3 (“Shifting”): Trails B</p> <p>Correlations between factors ranged from .35 to .70.</p>
Levin et al. (1991)	52 children (7-15 years)	PCA with Varimax rotation	<p>Three-factor model</p> <p>Factor 1 (“Semantic Association and Concept Formation”): 20 Questions, verbal and design flency, CVLT</p> <p>Factor 2 (“Freedom from Perseveration”): Design fluency, go-no go, WCST</p> <p>Factor 3 (“Planning and Strategy”): ToL, 20 Questions, verbal fluency</p>

Pennington (1997)	537 children (including some with reading disabilities; mean age 11 years) 145 children (subset of above sample)	PCA with Varimax rotation	Two-factor model Factor 1 (“Inhibition”): CPT, stop-signal Factor 2 (“Set Shifting”): WCST, CNT
		PCA with Varimax rotation	Four-factor model Factor 1 (“Working Memory”): Sentence, counting, and digit span, reading composite measure, stop-signal Factor 2 (“Set Shifting”): WCST, Raven’s Matrices, Full scale IQ, CNT Factor 3 (“Trails/DISCR”): TMT (B-A), DISCR Factor 4 (“Inhibition”): CPT AX, stop-signal
Welsh, Pennington, & Groisser (1991)	52 children and adults (8-28 years)	PCA with Varimax rotation	Three-factor model Factor 1: Verbal fluency, visual search, motor sequencing, recognition memory Factor 2: WCST, MFFT Factor 3: ToH
Confirmatory studies			
Buehner, Mangels, Krumm, & Ziegler (2005)	125 young adults	CFA	Three functional factor/two content factor model Functional factor 1 (“Storage in the context of processing”): reading span, counting span, math span Functional factor 2 (“Coordination”): figural coordination, figural short term memory Functional factor 3 (“Supervision/speed”): switching figural, Star Counting Test, switching numerical Content factor 1 (“Numerical/verbal”): reading span, counting span, math span, Star Counting Test, switching numerical Content factor 2 (“Figural/spatial”): figural coordination, figural short term memory, switching figural
Friedman & Miyake (2004)	220 young adults	CFA	Correlations between functional factors ranged from .30 to .51 Two-factor model Factor 1 (“Response-distractor inhibition”): antisaccade, Stroop, stop-signal, Eriksen flanker, word naming, shape matching Factor 2 (“Resistance to interference”): Brown-Peterson, AB-AC-AD, cued recall (residuals from correlations between interference and control condition)
Gathercole, Pickering, Ambridge, & Wearing (2004)	592 children (6-14 years) divided into 4 age groups (6-7, 8-9, 10-12, 13-15 years)	CFA conducted separately for each age groups	The correlation between factors was .01 Three-factor model (best-fitting for all age groups) Factor 1 (“Central executive”): Backwards digit recall, listening recall, counting recall Factor 2 (“Phonological loop”): digit recall, word recall, nonword recall Factor 3 (“Visuospatial sketchpad”): visual pattern recall, block recall, mazes memory Correlations between Factor 1 and Factors 2/3 ranged from .68 to .92; correlations between Factors 2 and 3 ranged between .32 and .41
Miyake et al. (2000)	137 young adults	CFA	Three-factor model Factor 1 (“Shifting”): plus-minus, number-letter, local-global Factor 2 (“Updating”): keep track, tone monitoring, letter memory Factor 3 (“Inhibition”): antisaccade, stop-signal, Stroop Correlations between factors ranged from .42 to .63

Miyake et al. (2001)	167 young adults	CFA	Two-factor model Factor 1 (“Executive functioning”): ToH, random number generation Factor 2 (“Visuospatial short-term/working memory”): letter rotation, dot matrix, Corsi blocks, dot memory Correlations between factors was .59
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Note: To facilitate comparison across studies, for exploratory studies only tasks with standardized factor loadings above .40 are listed. BVRT = Benton Visual Retention Test; CFA = confirmatory factor analysis; CNT = Contingency Naming Test; CPT = Continuous Performance Test; CVLT = California Verbal Learning Test; DMTS = Delayed Match to Sample; EFA = exploratory factor analysis; MFFT = Matching Familiar Figures Test; PCA = principal components analysis; PPVT-R = Peabody Picture Vocabulary Test-Revised; RT = response time; TMT = Trail Making Test; ToH = Tower of Hanoi; ToL = Tower of London; WCST = Wisconsin Card Sorting Test.

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