***Supplementary Material***

**Effectiveness of an impairment-based individualized rehabilitation program using an iPad-based software platform**

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1. **Supplementary Table**

**1.1 Supplementary Table 1. Table of tasks**, including: names, descriptions, number of and description of levels, cognitive/language operation, and evidence.

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| **Task** | **Task Description** | **Level description** | **Cognitive/Language Operation** | **Evidence** |
| Category Matching | Choose the category in which the presented image belongs | One level (n=685) | Semantically categorizing items to strengthen semantic representations | (Drew and Thompson, 1999), (Kiran and Thompson, 2003), (Kiran et al., 2011) |
| Feature Matching | Yes/no questions about semantic features | Three levels with decreasing written frequency (n=1096) | Strengthening semantic representations | (Hashimoto and Frome, 2011), (Kiran et al., 2011), (Kiran and Bassetto, 2008;Kiran and Johnson, 2008), (Kiran and Thompson, 2003), (Rose and Douglas, 2008), (Stanczak et al., 2006) |
| Naming Picture | Speak the name of a presented image | Three levels with decreasing written frequency (n=685) | Retrieving semantic- phonological representations of words | (Corsten et al., 2007), (Abel et al., 2007) |
| Rhyming | Yes/no questions about whether the name of the image presented rhymes with a given word | One level (n = 590) | Retraining phonological encoding and processing | (Renvall et al., 2007), (Raymer and Ellsworth, 2002), (Doesborgh et al., 2004), (Rochon et al., 2010) |
| Sound Identification | Yes/no questions about whether the name of the image presented contains a given phoneme | One level (n=685) | Retraining phoneme processing | (Franklin et al., 2002), (Raymer and Ellsworth, 2002), (Stanczak et al., 2006), (Tessier et al., 2007), (Kendall et al., 2008) |
| Syllable Identification | Yes/no questions about whether the name of the image presented has 2 syllables | One level (n=680) | Retraining phonological segmentation | (Leonard et al., 2008), (Rochon et al., 2010) |
| Category Identification | Yes/no questions as to whether the two given words are within the same category | One level (n=683) | Distinguishing between semantically related and non-related words to strengthen semantic representations | (Kiran et al., 2009), (Sandberg and Kiran, 2014), (Raymer and Ellsworth, 2002), |
| Letter to Sound Matching | Pick the phoneme that matches the given letter | Two levels with increasing difficulty of distracters (n=52) | Retraining phoneme to grapheme conversion skills; develop sub-lexical analysis of words by identifying phonemes at the start/end of words | (Kiran et al., 2001), (Kiran, 2005), (Kiran and Viswanathan, 2008) |
| Sound to Letter Matching | Pick the letter that matches the given phoneme | Two levels with increasing difficulty of distracters (n=52) | Retraining grapheme to phoneme conversion skills; develop sublexical analysis of words by identifying phonemes at the start/end of words | (Tessier et al., 2007), (Tsapkini and Hillis, 2013), (Kiran and Viswanathan, 2008), Kiran (2005), (Kiran et al., 2001) |
| Reading Passage | Comprehend and retain information from a passage of text (recipes, weather, phone book pages, facts, menus, calendars, emails, prescriptions, online store product descriptions, and news articles) | Three levels with increased randomization of passages (n=500) | Retraining sentence and story comprehension; literacy | (Katz and Wertz, 1997), (Cherney et al., 1986) |
| Long Reading Comprehension | Comprehend and retain information from a reading passage (news articles) of roughly 225 words in order to answer a related question | Three levels with increased randomization of passages (n=247) | Retraining sentence and story comprehension; literacy | Same as Reading Passage |
| Word Identification | Pick the word heard out of multiple choices | One level (n=685) | Auditory word recognition | (Corsten et al., 2007), (Annoni et al., 1998), (Franklin et al., 2002) |
| Word Copy | Copy the written word | Five levels with increased length of words (n=685) | Retraining visuospatial skills and orthographic representation in agraphia | (Beeson et al., 2002), (Ball et al., 2011), (Beeson and Egnor, 2006), (Beeson et al., 2003), (Robson et al., 2001) |
| Word Copy Completion | Copy the written word; some letters are already filled in | Five levels with increased length of words and increased letters left blank (n=685) | Retraining visuospatial skills and orthographic representation in agraphia | Same as Word Copy |
| Word Spelling | Spell the word they hear | Five levels with increased length of words (n=685) | Retraining orthography via auditory stimuli; phonological cueing, using phoneme to grapheme conversion | (Kiran, 2005), (Rapp, 2005), (Beeson et al., 2008) |
| Word Spelling Completion | Spell the word they hear; some letters are already filled in | Five levels with increased length of words and increased letters left blank (n=685) | Retraining orthography via auditory stimuli; phonological cueing, using phoneme to grapheme conversion | Same as Word Spelling |
| Picture Spelling | Spell the word associated with the image shown | Five levels with increased length of words (n=685) | Retraining orthography via picture stimuli; phonological cueing, using phoneme to grapheme conversion | (Beeson et al., 2002), (Kiran, 2005) |
| Picture Spelling Completion | Spell the word associated with the image shown; some letters are already filled in | Five levels with increased length of words and increased letters left blank (n=685) | Retraining orthography via picture stimuli; phonological cueing, using phoneme to grapheme conversion | Same as Picture Spelling |
| Active Sentence Completion | Complete the sentence out of multiple choices | Two levels with increased difficulty of distracters (n=393) | Comprehension and production of canonical sentence structures | (Salis and Edwards, 2010) |
| Passive Sentence Completion | Complete the sentence out of multiple choices | Two levels with increased difficulty of distracters (n=393) | Comprehension and production of non-canonical sentence structures | (Stadie et al., 2008), (Weinrich et al., 2001) |
| Voice Mail | Answer the questions using an auditory voice mail | Two levels with increased randomization of auditory stimuli (n=297) | Functionally reestablishing auditory working memory skills and task related strategies | (Hart et al., 2002) |
| Sound Matching | Find all of the matching sounds | Five levels with increased number of stimuli (n=unlimited) | Incrementally retraining auditory and spatial working memory | (Westerberg et al., 2007)\* training working memory |
| Picture Matching | Find all the matching pictures | Five levels with increased number of stimuli (n=unlimited) | Incrementally retraining visuospatial working memory | (Klingberg, 2010), (Westerberg et al., 2007) |
| Word Matching | Find all the matching words | Five levels with increased number of stimuli (n=unlimited) | Incrementally retraining visuospatial working memory | Same as Sound Matching |
| Clock Reading | Pick the time of an analog clock out of multiple choices | Two levels with increased difficulty of distracters (n=130) | Functionally strengthening visuospatial and spatial organization deficits via time judgment tasks |  |
| Symbol Matching | Find all the symbols that match one displayed | Ten levels with increased number of stimuli (n= unlimited) | Systematically retraining visuospatial scanning and organization skills | (Berryman et al., 2010) |
| Flanker | Choose the direction of the red arrow | One level (n=30) | Response inhibition and mental flexibility; improving selective attention | (Eriksen, 1995)  |
| Map Reading | Answer multiple choice questions based on a map | Three levels with increased randomization of passages (n=468) | Multimodal interventions to reinforce visuo-perceptual, scanning, and analytical reasoning skills |  |
| Picture Ordering | Order the given pictures alphabetically based on the name of the picture | Five levels with increased number of stimuli (n=unlimited) | Multimodal intervention to improve task-related strategies while retraining analytical reasoning and working memory skills; retrieving phonological representations of words | (Vallat-Azouvi et al., 2009) |
| Word Ordering | Order the given words alphabetically | Five levels with increased number of stimuli (n=unlimited) | Multimodal intervention to improve task-related strategies while retraining analytical reasoning and working memory skills | Same as Picture Ordering |
| Arithmetic | Add/subtract/multiply/divide the given numbers | Five levels with increased number lengths (n=unlimited) | Strengthening non-linguistic cognitive processing and selective working memory deficits | (Whetstone, 1998), (Domahs et al., 2003), (Girelli et al., 1996), (Girelli and Seron, 2001) |
| Clock Math | Answer multiple choice questions about math related to time using an analog clock | Five levels with increased difficulty of operations (n=325) | Incrementally retraining quantitative reasoning skills by targeting linguistic cognitive processing, visuospatial, and working memory deficits | (Delazer et al., 1998) |
| Word Problem | Solve the given word problem | Five levels with increased number lengths, increased difficulty of distracters in questions, and increased difficulty of operations (n=unlimited) | Incrementally retraining quantitative reasoning skills by targeting linguistic cognitive processing, visual scanning, and working memory deficits | Same as Clock Math |
| Instruction Sequencing | Place written instructions (begin out of order of steps) in the correct order | One level (n=74) | Integrative reinforcement of goal directed executive functioning skills via functional planning and organization | (Ehlhardt et al., 2005) |

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