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43 Interactions of Decoding, Working Memory, and Mind Wandering on Reading Comprehension

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Objective: Reading is an important skill, and becomes even more so beyond elementary years, when the focus shifts to comprehension as a means of learning and understanding academic material across subjects (Kamil et al., 2008; Shanahan et al., 2010; Snow, 2002). One construct receiving much recent interest in research, especially that related to academic achievement, is mind wandering (MW). MW has been defined as "a shift away from a primary task toward internal information" (Smallwood & Schooler, 2006). Though it is known to be ubiquitous among people (McVay & Kane, 2012), there are numerous theories about why MW occurs, in different contexts, and in relation to various other factors, and no one theory is currently dominant. MW and other factors such as working memory (WM) and decoding are all known to influence functional outcomes such as reading comprehension (RC), but there is little information on how all of these factors interact with one another with regard to RC. Most prior work focuses on adults and thus generalization to children is still needed. Therefore, the goals of this project were to examine the roles of WM, MW, decoding, and their interactions in relation to RC. It was hypothesized that each would demonstrate a significant relationship with the outcome of RC and that they would interact with one another beyond their individual main effects.
Participants and Methods: The sample included 214 6th and 7th grade students with a larger proportion of struggling readers. Participants were each administered the Kaufman Test of Educational Achievement – Third Edition (KTEA-3; Kaufman & Kaufman, 2014) Letter Word Recognition subtest (decoding), the Weschler Intelligence Scale for Children – Fifth Edition (WISC-5; Wechsler, 2014) Digit Span and Picture Span subtests (WM), and the Gates-MacGinitie Reading Tests – Fourth Edition (GMRT-4; MacGinitie, 1978) Comprehension subtest (RC). Four measures of MW were administered: the trait-based Mind Wandering Questionnaire (MWQ; Mrazek et al., 2013); two task-based (or state-dependent) retrospective reporting (TBRR) questionnaires (Matthews et al., 2002), and a researcher-generated single-item task-based retrospective report administered after four tasks. Correlations and regression were utilized to evaluate the relationships among predictor variables, and with regard to RC, including how predictors moderate one another.
Results: All three key predictors demonstrated a significant relationship with RC both via zero-order correlations and main effects in the context of interactive relationships. WM and decoding demonstrated positive relationships with RC and MW demonstrated a negative relationship with RC, though only when one (MWQ) measure of MW was used, rather than the TBRR measure. There was a significant interaction of decoding and MW as measured by the TBRR questionnaires on the outcome of RC. Other interactions were not significant.
Conclusions: These results clarify the interactive relationships of these three key predictors on the important academic achievement outcome of RC, ultimately suggesting that intervention strategies for achievement problems in areas such as RC should consider MW in conjunction with decoding abilities in order to implement effective strategies that capitalize on individual children's strengths and build on their particular weaknesses.

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44 Shared Cognitive Predictors of Achievement

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