Appendix A

Supplementary Figures and Tables

(a) $N = 1000$, $N_{i/p} = 4$

(b) $N = 2500$, $N_{i/p} = 4$

(c) $N = 1000$, $N_{i/p} = 6$

(d) $N = 2500$, $N_{i/p} = 6$

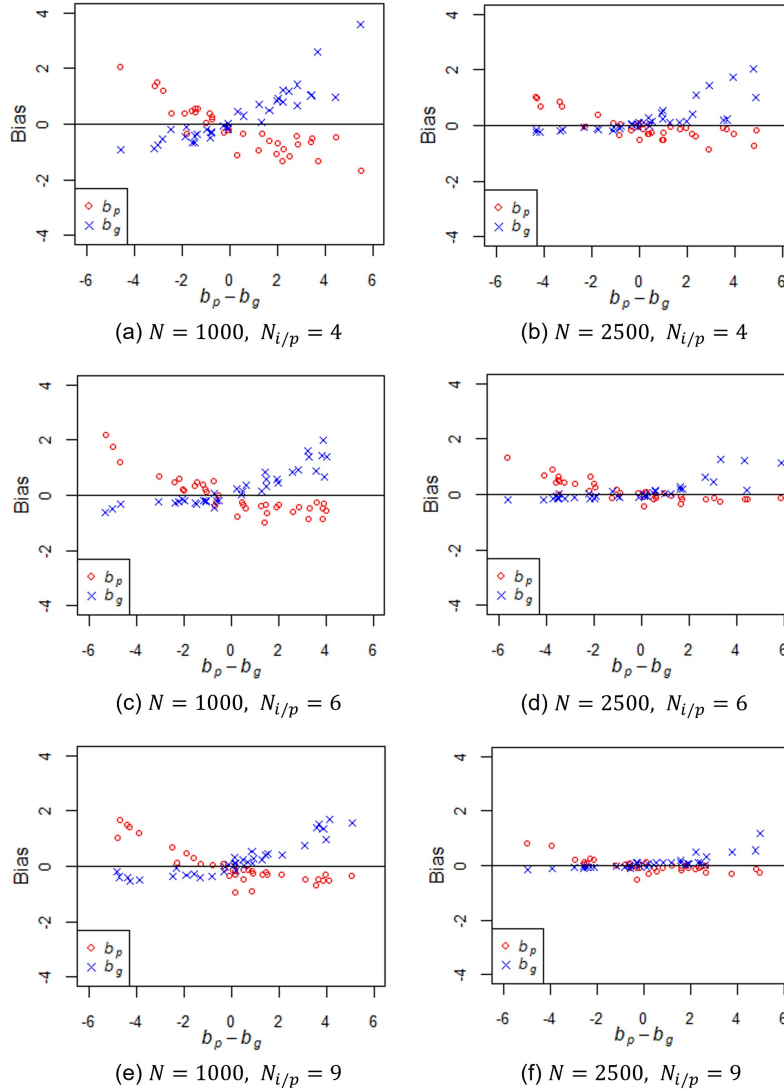(e) $N = 1000$, $N_{i/p} = 9$

(f) $N = 2500$, $N_{i/p} = 9$

FIGURE A1.

Plots of Bias in Difficulty Estimates for Passage-related and Passage-independent Components Under the Passage-Based Noncompensatory Model (PB-NM) Against the Difference in the Two Difficulty Parameters, for Each Generating Condition.

Note. N = The number of respondents; $N_{i/p}$ = The number of items per passage.
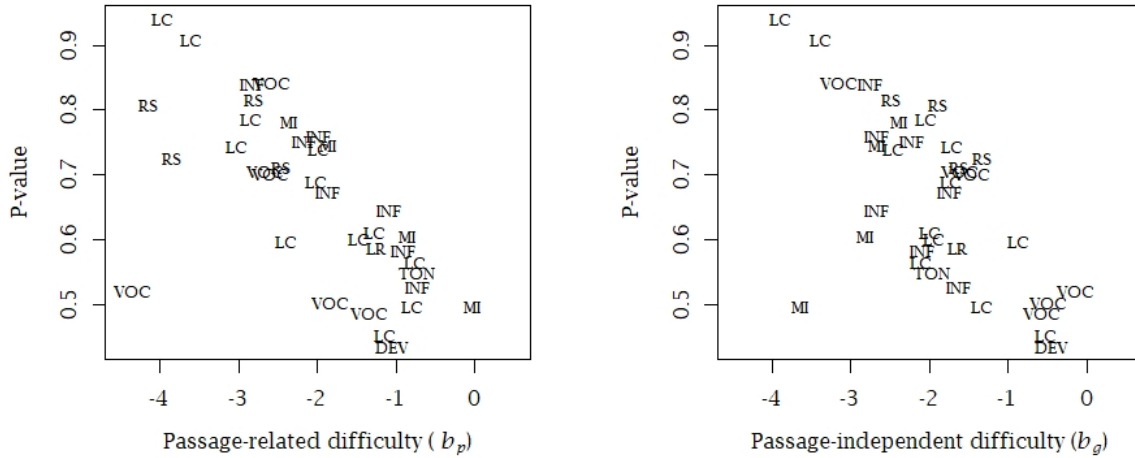
FIGURE A2.

Plots Showing the Relationship between the Proportion-correct (p-value) and Item Component Difficulty Estimates Under the Passage-Based Noncompensatory Model (PB-NM) with Item Type Labels, for Reading Comprehension Test Data

Note. LC = Literal comprehension; MI = Main idea; INF = Inference; VOC = Vocabulary in context; RS = Rhetorical strategy; DEV = Development; TON = Tone; LR = Logical reasoning.

TABLE A1.

A Model Fit Comparison across Rasch, Two-parameter Logistic (2PL), and Bifactor Models, for Reading Comprehension Test Data.

	AIC	*BIC*	*HQ*
Rasch	96558.40	96773.90	96636.64
2PL	96238.29	96657.62	96390.53
Bifactor	95902.23	96531.23	96130.59

Note. *AIC* = Akaike Information Criterion ; *BIC* = Bayesian Information Criterion; *HQ* = Hannan-Quinn Criterion.

Appendix B

Examples of Items for Each Item Type in the Reading Comprehension Test

- **Literal comprehension (LC)**

   The passage claims that seeing is

   A. something our brains do much more effectively than thinking.

   B. something at which humans excel other animals.

   C. an important prerequisite to thinking.

   D. more important than thinking.

   E. closely related to our power of memory.

- **Main idea (MI)**

   The main point of this passage is that barbed wire fences

   A. hurt the American economy.

   B. ruined the land in the American West.

   C. made a huge impact on the make-up of the American West.

   D. made inventors rich.

   E. caused problems between settlers.

- **Inference (INF)**

   The author seems to imply that humans

   A. are much like animals.

   B. do not spend much time thinking.

   C. have the ability to reason.

   D. cannot reason well.

   E. rely on memory.

- **Vocabulary in context (VOC)**

   The word "analogy" in line 13 most nearly means

   A. experiment.

   B. function.

   C. structure.

   D. comparison.

   E. cause.

- **Rhetorical strategy (RS)**

   The first paragraph of this selection serves what purpose?

A. To introduce Edgar Allan Poe's most famous stories.

B. To offer a definition of "detective."

C. To explain characteristics of the detective story genre.

D. To get readers interested in reading the stories of Edgar Allan Poe.

E. To use expert opinion to set up the claims in the second paragraph.

- **Development (DEV)**

   This passage is composed primarily of

   A. comparisons.

   B. examples.

   C. descriptions.

   D. generalizations.

   E. factual claims.

- **Tone (TON)**

   The tone of the passage is

   A. respectful.

   B. objective.

   C. bitter.

   D. ironic.

   E. sarcastic.

- **Logical reasoning (LR)**

   There is no item that can be exposed to public for this item type. A common form for this item type is to ask examinees to identify an unstated assumption the author is making based on a claim that is stated in the passage.