

INTRODUCTION

Human cognition researchers need a rapid tool for assessing cognitive skills. Robust tools to quickly screen performance across the lifespan on primary cognitive skills or that can be administered and scored by non-clinical research personnel are in high demand. The aim of the current study was to examine the reliability of the Gibson Assessment of Cognitive Skills (GACS), a paper-based, brief cognitive screening tool for children and adults measuring working memory, processing speed, visual processing, fluid reasoning, and three auditory processing constructs: sound blending, sound segmenting, sound deletion along with work attack skills.

ASSESSMENT DESCRIPTION

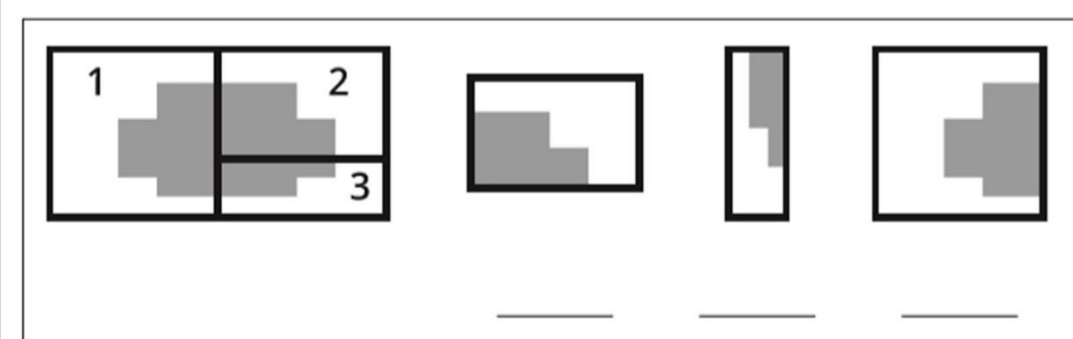
The GACS is comprised of 8 subtests with 166 total items. It takes approximately 30 minutes to administer using a flipchart, student response booklet, and score sheet. All subtests use visual prompts except for the 3 auditory processing tasks and half the working memory tasks which are administered orally.

fgh ghf hhf fhg hhf gfh
838 382 838 283 328 238
zvm mvm zmv zmt mzv zvm

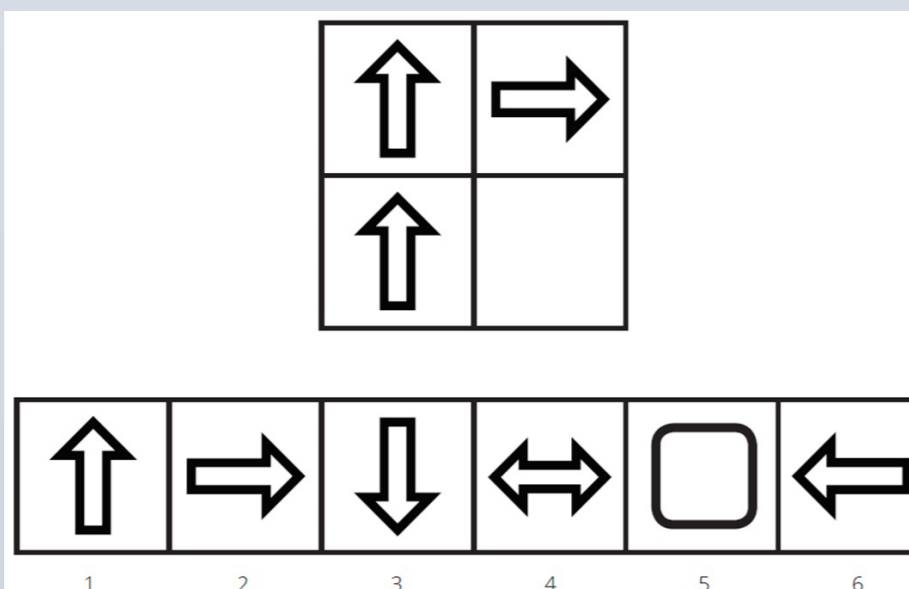
Example Processing Speed test items



Example Working Memory test item



Example Visual Processing test item



Example Fluid Reasoning test item

ASSESSMENT BACKGROUND

- Lifespan test for ages 5-99 based on large norming group ($n = 3,490$)
- Aligned with Cattell–Horn–Carroll theory of cognition, the most widely recognized intelligence model
- Paper and pencil delivery that can be administered by non-clinicians
- Measures cognitive constructs plus auditory processing and Word Attack skills in one battery
- Prior strong evidence of content, construct, and convergent validity but reliability evidence not thoroughly examined previously

STUDY METHODS

- Participants ($n = 103$) ages 6-80 recruited from 4 private practices
- Test administered two times scheduled one week apart
- Internal consistency reliability conducted using JMetrik's Item Analysis procedure to produce a coefficient alpha for each subtest (Table 1)
- Split-half reliability determined with Pearson's correlations on odd and even items and applying a Spearman-Brown formula (Table 2)
- Test-retest reliability determined with Pearson's correlations between the two test administrations (Table 3)

RESULTS

TABLE 1. INTERNAL CONSISTENCY RELIABILITY

Subtest	Children ($n = 73$) α	Adults ($n = 30$) α	Overall ($n = 103$) α
Working Memory	.80	.76	.80
Visual Processing	.94	.88	.94
Auditory Processing	.92	.93	.92
Fluid Reasoning	.82	.60	.81
Processing Speed	.94	.87	.94
Word Attack	.91	.86	.92

Funding for this study was provided by a grant from LearningRx

RESULTS

TABLE 2. SPLIT-HALF RELIABILITY

Subtest	Children ($n = 73$) r	Adults ($n = 30$) r	Overall ($n = 103$) r
Working Memory	.84	.78	.83
Visual Processing	.96	.92	.96
Auditory Processing	.93	.96	.94
Logic & Reasoning	.85	.54	.83
Processing Speed	.94	.86	.94
Word Attack	.93	.92	.94

TABLE 3. TEST-RETEST RELIABILITY

Subtest	Children ($n = 73$) r_{12}	Adults ($n = 30$) r_{12}	Overall ($n = 103$) r_{12}
Working Memory	.89	.73	.83
Visual Processing	.92	.91	.92
Auditory Processing	.97	.99	.98
Logic & Reasoning	.97	.82	.92
Processing Speed	.97	.75	.95
Word Attack	.95	.96	.96

CONCLUSIONS

- Internal consistency reliability is strong with coefficient alphas ranging from .80 to .94
- Split-half reliability is strong with r coefficients ranging from .83 to .96
- Test-retest reliability is strong with r coefficients ranging from .83 to .98
- The GACS is a reliable brief screening tool for assessing cognitive skill performance across the lifespan

REFERENCES

Moore, A.L., Miller, T.M., & Ledbetter, C. (in press). Reliability evidence for the Gibson Assessment of Cognitive Skills (GACS): A brief tool for screening cognitive skills across the lifespan. *Psychology Research and Behavior Management*.

Amy Moore, PhD amoore@gibsonresearch.org or Christina Ledbetter, PhD clledbe@lsuhsc.edu