### Cognitive Ability Factor

**Comprehension-Knowledge (Gc)** is a person’s level of acquired knowledge, including domain knowledge obtained through life experiences, school and work.

<table>
<thead>
<tr>
<th>Gc Cluster Average: ________</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Weakness (&lt;54)</td>
</tr>
<tr>
<td>□ Within Normal Limits (85-115)</td>
</tr>
<tr>
<td>□ Strength (≥116)</td>
</tr>
<tr>
<td>□ Uninterpretable</td>
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</tbody>
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**Long-Term Retrieval (Glr)** is the ability to take and store a variety of information (ideas, names, concepts) in one’s mind, then later retrieve it quickly and easily using association.

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**Short-Term Working Memory (Gwm)** is the ability to apprehend and hold information in one’s mind and then use it within a few seconds; includes working memory (ability to attend to, process, and respond to information).

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### Related Achievement

**Normative Weaknesses**

<table>
<thead>
<tr>
<th>Basic Reading</th>
<th>Reading Comp.</th>
<th>Math Calculations</th>
<th>Math Problem Solving</th>
<th>Written Expression</th>
<th>Oral Expression</th>
<th>Listening Comp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

(Check Normative Weakness <55)

### Relationship to Academic Learning

| *Gc* has a strong and consistent relationship to reading, writing, and math, such as learning vocabulary, answering factual questions, and comprehending oral/written language, all of which are highly predictive of academic success. |
| *Glm* has a significant relationship to reading, writing, and math (working memory in particular), such as attending/following directions, recalling sequences, memorizing actual information, listening and comprehending, and taking notes. |
| *Glm* has a significant relationship with reading and writing especially during early stages of skill acquisition, such as organizing for retrieval, strategies for recall, and learning and retrieving information. |

### Recommended Instructional Interventions

- Create a language and experience rich environment.
- Relate new information to acquired knowledge.
- Assess prior knowledge before introducing new topics or concepts.
- Provide frequent exposure and practice to words.
- Pre-teach relevant vocabulary/background information.
- Develop word consciousness, the awareness of word interest in words and their meanings.
- Provide explicit vocabulary instruction such as the meaning of common prefixes, suffixes, and root words.
- Incorporate interests and prior knowledge experiences into instructional activities.
- Provide clear and concise language when presenting concepts.
- Check for understanding to ensure comprehension.
- Other…

### Recommended Accommodations

- Provide resources to help students participate in class discussion.
- Provide prompts to enhance written expression.
- Provide preferential seating to enhance monitoring of comprehension.
- Other…

- Limit the amount of information to be learned during an instructional session.
- Provide reference sheets, a calculator during math computation.
- Use graphic organizers to reinforce associations between concepts.
- Other…

- Provide visual guides during oral presentations.
- Provide lecture notes or arrange for peer-shared notes.
- Provide a study guide to be completed during pauses in presentation.
- Seat the student in a location away from distractions in order to optimize attention.
- Provide extra time to copy information.
- Read written directions aloud.
- Assign graphic organizers to reinforce associations between concepts.
- Other…

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Texas Woman’s University

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* Cattell-Horn-Carroll Theory
### Cognitive Ability Factor

<table>
<thead>
<tr>
<th>Fluid Reasoning (Gf)</th>
<th>Auditory Processing (Ga)</th>
<th>Processing Speed (Gs)</th>
<th>Visual Processing (Gv)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>is the type of thinking an individual may use when faced with a relatively new task that cannot be performed automatically; a problem solving type of intelligence.</strong></td>
<td><strong>is the ability to perceive, analyze, and synthesize patterns among auditory stimuli (sounds) and to discriminate subtle nuances in patterns of sound and speech when presented under distortion conditions.</strong></td>
<td><strong>is the ability to fluently and automatically perform cognitive tasks, especially when under pressure to maintain focused attention and concentration.</strong></td>
<td><strong>is the ability to think about and generate, perceive, analyze, synthesize, store, retrieve, manipulate, transform, and think with visual patterns and stimuli.</strong></td>
</tr>
<tr>
<td><strong>Gf Cluster Average:</strong></td>
<td><strong>Ga Cluster Average:</strong></td>
<td><strong>Gs Cluster Average:</strong></td>
<td><strong>Gv Cluster Average:</strong></td>
</tr>
<tr>
<td>□ Weakness (&lt; 84%)</td>
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#### Related Achievement Normative Weaknesses

- Reading Comp.
- Math Calculations
- Math Problem Solving
- Written Expression

#### Relationship to Academic Learning

- **Gf** has a significant relationship to higher level skills in reading, writing, and math, such as problem solving, drawing inferences, mental flexibility, transferring and generalizing, and thinking conceptually.
- **Ga** has a significant relationship to reading and writing, especially during early stages of skill acquisition, such as acquiring phonics, sequencing sounds, listening, learning foreign language, and musical skills.
- **Gs** has a significant relationship to reading, writing, and math especially during early stages of learning, such as completing assignments on time, processing information quickly, taking timed tests, and copying from the board.
- **Gv** has some relationship to reading fluency and higher level math, such as using patterns and designs, sensing spatial orientation and boundaries, and noting visual detail.

#### Recommended Instructional Interventions

- Teach problem-solving techniques in the contexts in which they are most likely to be applied.
- Provide over-learning through repetition and multiple review of concepts.
- Use concrete objects and manipulatives to develop conceptual understanding.
- Use metacognitive skills, such as reflective discussions, thought journals, and self-questioning techniques.
- Use think-alouds, guided practice, and feedback.
- Use multiple and complex systems of retrieval and integration, such as compare, classify, abstract, induce, deduct, analyze perspectives.
- Monitor for understanding.

- Provide direct explicit, systematic instruction.
- Provide phonological awareness activities such as rhyming, alliteration, imitation, songs.
- Provide explicit, instructions in sound discrimination, blending, and segmentation.
- Emphasize sound-symbol associations when teaching decoding and spelling.
- Provide visual aids, such as notes or study guides for listening activities.
- Provide assistance with note taking.
- Accompany oral information with visual materials.
- Check for comprehension after directions are given.

- Provide oral discussions.
- Provide activities to increase rate and fluency, such as flash cards or speed drills through educational software.
- Provide strategies that improve the rate of task completion.
- Encourage the student to self-monitor progress, such as graph for reading fluency, writing fluency, and math computation fluency.
- Other...

- Provide multisensory learning using visual, kinaesthetic, vocal, and auditory channels.
- Use manipulatives during instruction.
- Use language to describe visual forms of information as they are manipulated.
- Provide copying, tracing, and drawing activities.
- Provide verbal description of graphics and visually-based concepts.
- Use color coding to illustrate steps.

- Provide in a timely manner.
- Provide assistance with functions throughout a task such as when there are changes in task demands.
- Seat the student next to a peer helper who can provide assistance.
- Use graphic organizers to analyze relationships, such as cause and effect, compare and contrast, classification schemes, and sequential order.
- Other...

- Provide a well managed classroom with control of extraneous activities that create auditory distractions and competing background noise.
- Provide a peer assistant or buddy to assist with information when the student does not understand an oral communication.
- Provide preferential seating that supports monitoring of student comprehension.
- Other...

- Shorten directions.
- Provide lecture outlines such as a formatted script of notes in which only key words need to be added.
- Limit or structure copying activities
- Consider individualizing test taking, such as small group.
- Provide extra time to read the test.
- Provide extra time for processing.
- Provide extra time to complete assignments.

- Provide spatial and sequential guides.
- Provide visual markers to indicate starting location and organization.
- Provide graphic organizers to organize information.
- Other...

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SUMMARY:

References


