Cognitive Process Profile (CPP)

Introduction

The Cognitive Process Profile (CPP) is an advanced computerised assessment technique which externalises and tracks thinking processes to indicate a person’s cognitive preferences and capabilities.

Using both structured and unstructured (fuzzy) information, the CPP measures a person’s intellectual functioning in unfamiliar contexts.

The CPP indicates a person’s cognitive styles, information processing competencies, learning potential, a suitable work environment and developmental needs.

The CPP is based on a self-contained theoretical model of thinking processes which has construct validity.

It capitalises on a unique assessment methodology.
Applications

CPP results are thus typically used for purposes of:

• intellectual capital management solutions in general
• selection
• placement
• team compilation
• leadership solutions and succession
• career guidance, career pathing, promotion
• people development solutions
• talent pooling
• job- and organisational structuring
• employee engagement
Benefits of the CPP

- The CPP measures the intellectual functioning of adults in a valid and clear manner.

- CPP results thus:
  - guide talent management decisions
  - optimise the effectiveness of the most crucial resource of an organisation, its people
  - reduce people risks in the organisation
  - prevent work- and educational failure, frustration as well as the associated costs
  - ensure the strategic viability of the organisation
  - improve the adaptability and agility of the organisation
  - the comprehensive report has been designed for various applications
  - the data informs analytics for talent management
Benefits of the CPP methodology

In addition, the CPP transcends the methodological limitations of conventional Psychometrics including IQ tests, interviews and assessment centres in that:

- it can be applied cross-culturally in a fair and valid way
- it does not involve subjective evaluation by a facilitator in that all scoring is objectively done by algorithmic expert systems
- it does not unfairly benefit extraverted or verbally skilled test candidates
- its validity is not limited by inter-rater reliability issues
- it does not contaminate power and speed scores as in the case of IQ tests
- it allows for the tracking of a large number of cognitive skills – both preferences and capabilities
- it does not only measure convergent logical-analytical thinking as applied to structured domain-specific knowledge (as IQ tests do)
- its administration takes place in a standardised manner which enables the comparison of profiles
- it does not rely on existing knowledge or domain-specific reasoning skills as are typically used by verbal, numerical and figural / spatial ability tests
Features

The CPP is characterised by:

• interactive and detailed measurement of thinking processes
• automated and web-enabled
• sound theoretical foundation
• convergent, discriminant and construct validity of the theoretical model
• designed for cross-cultural and global application
• indication of current performance and potential performance
• clear indicators for placement, succession planning and development purposes
• integrated developmental guidelines
The theoretical model: information processing constructs

The cognitive processes measured by the CPP

- **Metacognition**
  - Self-awareness, self-monitoring, learning, strategising, using judgement and intuition

- **Transformation**
  - Transferring, restructuring, logical and lateral reasoning, creating

- **Structuring**
  - Categorising, ordering, grouping, generalising, integrating, representing, abstracting, conceptualising

- **Exploration**
  - Searching, scanning, investigating, clarifying, hypothesising, discriminating, selecting

- **Analysis**
  - Differentiating (breaking up), comparing, applying rules, identifying relationships

- **Memory**
  - Retention, recalling, internalising, automation
The theoretical model: metacognition

The metacognitive criteria measured by the CPP

- **Metacognition**
- **Transformation**
  - Purposefulness, application, degree of change, appropriateness, perspective, contextualisation
- **Structuring**
  - Core issues, representation, metaphors, coherence, meaningfulness, abstraction, inclusiveness, parsimony
- **Analysis**
  - Precision, rules, systematic, necessity, detail, appropriateness, level of analysis, relationship (similarity and difference)
- **Exploration**
  - Clarity, depth of exploration, relevance
- **Memory**
  - Relevance, depth
Complexity preferences and suitable work environments
Assessment methodology

• The unique methodology used by the CPP enables the tracking of information processing skills.
• The results are algorithmically analysed and an automated report is generated which maps a person’s scores on the following cognitive constructs:
  o specific cognitive processes, such as: memory, exploration, analysis, structuring / integration, transformation and metacognition
  o complexity preferences and capabilities
  o suitable work environment
  o preferred thinking styles
  o the pace of work
  o the rate of understanding and insight
  o learning potential and cognitive modifiability
  o complex developmental guidelines
The simulation exercise
Research results

• A CPP Technical Manual is available in which a large number of research findings are reported on.

• It includes the following metric properties of the CPP:
  o Construct validity
  o Concurrent Validity
    • IQ tests
    • Structured interviews
    • 360-degree evaluations
    • Assessment centre results
    • Personality tests
    • Emotional Intelligence tests
    • Values
  o Predictive validity
Validity and Reliability

CPP Quick Stats

Reliability *(studies 1-3, Technical Report #5)*
Cognitive styles: .73 - .87
Information Processing Competencies: .77 - .94
Levels of Work: .83 - .87

Validation

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Median r</th>
<th>25th percentile</th>
<th>75th percentile</th>
<th>Maximum r</th>
<th>Study Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilities/IQ</td>
<td>.40</td>
<td>.34</td>
<td>.45</td>
<td>.69</td>
<td>1, 5, 6, 8</td>
</tr>
<tr>
<td>Critical Reasoning</td>
<td>.50</td>
<td>.42</td>
<td>.59</td>
<td>.64</td>
<td>2, 7</td>
</tr>
<tr>
<td>Personality (MBTI)</td>
<td>.09</td>
<td>.04</td>
<td>.19</td>
<td>.31</td>
<td>9, 10, 12</td>
</tr>
<tr>
<td>Personality (Other)</td>
<td>.05</td>
<td>.02</td>
<td>.08</td>
<td>.21</td>
<td>11, 13, 14</td>
</tr>
<tr>
<td>Career Path Appreciation</td>
<td>.25</td>
<td>.22</td>
<td>.29</td>
<td>.45</td>
<td>3, 4</td>
</tr>
<tr>
<td>Job Performance</td>
<td>.25</td>
<td>.16</td>
<td>.33</td>
<td>.52</td>
<td>15-20</td>
</tr>
<tr>
<td>HR Assigned Competencies</td>
<td>.46</td>
<td>-</td>
<td>-</td>
<td>.52</td>
<td>21</td>
</tr>
<tr>
<td>University Performance</td>
<td>.48</td>
<td>.43</td>
<td>.53</td>
<td>.61</td>
<td>22</td>
</tr>
</tbody>
</table>

The CPP SEM Model-Fit (Validity)

Goodness-of-Fit index (GFI) from a RAMONA structured equation model (SEM): .98 (.97 AGFI), study 23
"I would happily endorse the CPP in particular... there is nothing like it in the marketplace and I can completely see its value. I can recommend it in the highest possible terms. Similarly the values profile I found to be excellent"

- Prof Randall Peterson, Professor of Organisational Behaviour, Chair, Organisational Behaviour Faculty – London Business School (2016)

“The Company has in the past capitalized on costly interviews and assessment centre methodologies for executive selection, placement, personal development and succession purposes. Cognadev has, however, offered the organization an innovative and holistic leadership assessment approach which has been well received by the executives assessed, the Executive Committee and the Board. Based on the value add of the Cognadev approach we were able to extend the scope of the assessment initiatives.”

- Holcim Group Services Ltd, Willie Smit, Group Head Human Resources (2014)
## Practicalities

<table>
<thead>
<tr>
<th><strong>Duration</strong></th>
<th>Approximately 1 to 3 hours (no time limitation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responses</strong></td>
<td>Behavioural responses are tracked. No right or wrong answers</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Online cognitive assessment (secure internet connection) One laptop per candidate External mouse, Headphones</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Proctored / supervised (without direct involvement during the assessment)</td>
</tr>
<tr>
<td><strong>Test language</strong></td>
<td>English, French, German, Russian, Mandarin, Polish, Portuguese and Spanish</td>
</tr>
<tr>
<td><strong>Report</strong></td>
<td>Fully customisable reports or summary reports available in specific languages Automated Integrated Competency Report (CPP + other assessments)</td>
</tr>
<tr>
<td><strong>Accreditation</strong></td>
<td>Required for administration, interpretation and feedback, HPCSA and BPS registration</td>
</tr>
</tbody>
</table>
Contact information

www.cognadev.com
+27 (0) 11 884 0878
info@cognadev.com