Shoot Out!

What predicts Leadership Potential and Performance best? Assessment Centres, Cognitive tests, or Personality tests? The latest research on the topic

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Africa is the world's second largest and second most-populous continent, being behind Asia in both categories. At about 30.3 million km² (11.7 million square miles) with a population of 1.2 billion people, it contains 54 sovereign states with South Africa as its largest economy.
In 2017, the African Development Bank reported Africa to be the world’s second-fastest growing economy and several international business observers have also named Africa as the future economic growth engine of the world. In recent years, the Peoples Republic of China has built increasingly stronger ties with African nations and is Africa's largest trading partner.
Leadership must be one of the most critical challenges in Africa in all spheres, but particularly commerce and industry.

The business organisation will be the main driver in creating employment and eradicating poverty.
The Stock Exchange versus The Human Capital Exchange

How do they differ?
Is a comparison possible?
Human Capital Exchange

• In the USA 5 million human capital exchanges takes place per year.
  – Or 5 million stocks are traded per year.
  – Or 5 million people change jobs per year.
  – Or 5 million judgements are made in terms of the value of the prospective employee.

• In SA 9 million people employed (Stats SA).
  – Assume staff turn over of 10%.
  – Almost 1,000,000 staff decisions or value decisions per year.
  – Of which 25% leadership positions.

• During this trading (employment) process the value of the stock (human asset) is defined.

• It is the point at which value is assessed and determined.
The Talent Assessment Specialist and the Human Capital Exchange

• Our profession has the privilege of operating in this human capital exchange where we need to do the assessment of the value of the “human capital” for job switching and development purposes.

• Sitting at the heart of this exchange, we are in a position to add significant value to our clients and economies, but also collect valuable data for research purposes.

• The EvaleX assessment technology is involved in thousands of appointments per year in our client companies.

• Every year, we analyse the data and draw research conclusions based on the findings.

• This presentation will present a snapshot of our data regarding the relative power of different instruments in predicting talent and potential.
The Big Question?

Which tools to use?
What predicts Leadership Potential the best?

- Leadership competencies assessed through AC simulations,
- Cognitive abilities assessed through traditional cognitive tests,
- Cognitive abilities as assessed through “Levels of Work” tests and finally,
- Personality as assessed through personality questionnaires
What does the Research to date say?
Some Context

- In 1998 Hunter and Schmidt (updated in 2016) published research showing that Cognition is the most powerful determinant of performance and in the process inadvertently devalued other constructs such as Personality and AC Competencies, arguing they add little extra incremental validity.


- In 2016 Bronkhorst & Bronkhorst (EvaleX) did research on the same phenomenon. The results will be communicated during this presentation and it also challenges some of Hunter and Schmidt’s findings. (Unpublished)

- In 2019 Bronkhorst & Bronkhorst (Evalex) did another study confirming the findings of our 2016 study. (Unpublished)
The Challenges with Meta studies

- Assessment settings variation.
- Sample impurities.
- Variation of assessment instruments within each construct measured.
- Different and often in-comparable criterion scores
- Outdated studies e.g. 2003 as the latest study
How did OMT / EvaleX (2016 & 2019) deal with Sample and Criterion score impurities?

- **Overall**: Ensured that the assessment settings, assessment tools used and criterion scores are perfectly comparable for all candidates included in the sample.

- **Sample Purity**: A unique aspect of the EvaleX research is that all candidates in the sample completed the same set of assessments.

- **Criterion score purity**: The assessment results were correlated with exactly the same criterion for all.
Let the Research Speak

Two specific studies will be presented
Two Research Studies

• Study 1:
  – 2016
  – Criterion: Career Velocity (Potential)
  – N = 700

• Study 2:
  – 2019
  – Criterion: Performance
  – N = 2,207
Sample Characteristics

Study One
Sample Characteristics

• The assessment results of approximately 700 managers who all completed the same Assessment centre (5 simulations), Cognitive and Personality tests were analysed. The sample included managers across levels of work two to five, 179 companies and 10 Industries.

• The sample of 700 leaders researched closely resembles the demographics of the African leadership landscape.

• They were all assessed at the exchange point in the value chain: Changing from one company to another or one position to another.

• Normal Age, Gender, Position level and Race distribution applied.
Sample Characteristics

Study Two
Sample Characteristics: Study Two

• From the EvaleX Database selected 2207 Middle managers who had completed the Evalex35 Leadership Assessment battery.
• From a range of different industries, organisations, ages, role types, genders and races.
• Assessments took place at time of selection and promotional decisions as well as talent landscaping and merger & acquisition projects.
Sample Characteristics: Study Two

- Of the 2207 managers, we also had Supervisor rated job performance data for 803 candidates based on the balanced scorecard principle, collected during talent management sessions:
  - Financial: Revenue/profit growth, managing budgets, etc.
  - Customer: Customer satisfaction, customer understanding, needs identification, etc.
  - Delivery: Execution of job targets, outputs and deliverables.
  - People Management: Attracting, retaining, developing, supporting, motivating and directing.
  - Commercial: Defining strategic intent, business model alignment, etc.
  - Technical: Delivery on technical elements of the job, own technical skills.
- 5-point scale: 1 = Poor, 5 = Excellent.
Assessment Process
Assessment Centre Overview

• Candidates in both studies completed the Evalex35 Leadership Assessment:
  • 5 Cognitive Dimensions (BCT),
  • 55 Personality, Styles, Values (OPCS) and Interest (WOS) Dimensions,
  • 5 Simulations, 27 Competencies (EBS).
Psychometrics

5 HUMAN CONSTRUCTS DRIVING HIGH PERFORMANCE

WORK STYLES
What is the best role to fulfill?

COGNITION
At what level can I function?

VALUES
What is my approach to my work?

PERSONALITY
Who am I?

INTERESTS
What kind of work interests me?
Assessment Centre Simulations

EVALEX LEADERSHIP SIMULATIONS

PROBLEM ANALYSIS & DECISION EFFECTIVENESS
• Analysis of causes
• Analysis of recommendations

LEADERSHIP IN GENERAL MANAGEMENT SITUATIONS
• 10 item in-basket

LEADERSHIP IN CLIENT MANAGEMENT
• Consider issues, respond to sender, activate internally

LEADERSHIP IN STAFF MANAGEMENT
• Consider issues, respond to sender, activate internally

LEADERSHIP IN PROJECT MANAGEMENT & PLANNING
• Project plan
• Design overall program system and process
• Design work breakdown
Top Down Approach

• I will present the results and conclusions first.

• Followed by the evidence
Findings

Study One: Career Velocity / Potential
Research Questions

- What predicts Leadership Potential the best?
  - AC simulations.
  - Cognitive tests.
  - Personality questionnaires.
Contribution of Four Assessment Constructs in predicting Potential and Career Velocity

- Leadership Competence: 49%
- Personality: 26%
- Cognitive (BCT): 13%
- Thought Leadership: 12%

Multivariate regression analysis of a sample of 700 Managers across multiple companies.
Conclusions: In this stepwise regression the order was forced starting with Cognitive (BCT) then Personality (OPCS) then Competence (EBS) last, in order to see what additional value AC simulations add to an assessment battery consisting of Cognitive and Personality.
Average competence declares the majority of the variance, no matter how you model it.

In assembling a management or leadership assessment battery, we would suggest that the foundational instrument, the start point, should be Assessment Centre Simulations then augmented with Cognitive or Levels of Work assessments and Personality.
• By adding Leadership Competence as assessed through Business Simulations to Cognitive and Personality in an assessment solution, predictive validity is DOUBLED.

• Conversely, in only doing Cognitive and Personality only half the story about an individual’s potential is explained.
The Latest research shows that the correlation amongst Cognitive, AC and Personality is Low.

“In sum, although the AC dimensions are related to both cognitive ability and personality, the magnitude of the relationship is modest at best. The AC dimensions shared 12% common variance with ability and personality” (Meriac et all)

Bronkhorst & Bronkhorst founds 30%
Using multivariate, hierarchical and step-wise regression analysis, Assessment centres came out as the strongest predictor in all three models followed by Personality and then only Cognitive.
Findings

Study Two: Performance
Research Questions

- What effect does using different assessments have on performance in the workplace?
- What effect does using different cut-lines have on subsequent performance in the workplace?
- What do the validities translate to in real life in terms of on the job performance?
• Applied middle management benchmarked cut-lines for each of the methods on each candidate.
  • Abilities – 60th Percentile of Global Norm - Middle manager cutline,
  • Personality – Job Fit of 50% +
  • Simulations - 40th percentile of Global norm, cutline for Middle Managers.

• Analyzed data from different angles.
Conclusions: Study Two (2019)

- All the assessment methods increase performance in varying degrees.
- Abilities increase performance more in cognitively loaded areas like Financial, Commercial and Technical
- Simulations increase performance more in management, leadership, execution and at a wider range.
- Personality increases performance the most in Client performance
- Each method yields higher average performance as the cut-lines increase.
- Some methods do so more than others.
- The greatest increase in Performance is when all three methods are combined.
Conclusions: Study Two (2019)

- Personality only increases performance:
  - At a cut-off of 50th percentile by 2.2%
  - At a cut-off of 60th percentile by 5.4%

- Cognitive only increases performance:
  - At a cut-off of 50th percentile by 0.7%
  - At a cut-off of 60th percentile by 2.8%
  - At a cut-off of 70th percentile by 7.3%
  - At a cut-off of 80th percentile by 10.5%

- Simulations only increase performance:
  - At a cut-off of 50th percentile by 7.9%
  - At a cut-off of 60th percentile by 12.4%
  - At a cut-off of 70th percentile by 12.4%
  - At a cut-off of 80th percentile by 14.9%

- All three methods combined increases performance:
  - At middle management cut-off by 23.7%
  - At top end cut-off by 36.2%
Summary of Findings

- The latest research consistently indicates that at a leadership level, simulations should form part of the assessment process.

- A sample of behaviour (AC/simulation) may be better than relying only on a sign of behaviour.

- Our research indicates that AC simulations outperformed Cognitive and Personality in both predicting potential and improving performance.

- The diagram indicates where the AC simulations can fit into the talent equation.
End of Presentation

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Deeper Analysis and Results
Study 2016

Research Design and Results
Research Questions

- Which assessment constructs predict potential best

- Which assessment tools should form the cornerstone of a talent assessment battery
Correlation Analysis
Comparison of four main studies: Shift over the years....

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Cognitive</th>
<th>Simulations</th>
<th>Personality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunter and Schmidt</td>
<td>1998</td>
<td>0,51</td>
<td>0,37</td>
<td>0,31</td>
</tr>
<tr>
<td>Meriac, Hoffman, Woehr and Fleisher</td>
<td>2008</td>
<td>0,32</td>
<td>0,24-0,35 highest 7 dims</td>
<td>0,26</td>
</tr>
<tr>
<td>Sacket, Shewach and Keiser</td>
<td>2015</td>
<td>0,22</td>
<td>0,44</td>
<td></td>
</tr>
<tr>
<td>EvaleX</td>
<td>2016</td>
<td>0,32</td>
<td>0,60</td>
<td>0,41</td>
</tr>
</tbody>
</table>
Correlation Analysis

Notes on Interpretation
In both models, Cognitive (BCT) and Personality (OPCS) achieved essentially the same correlations, but for Thought Leadership, mplus showed a higher correlation.

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLE</th>
<th>DEPENDENT VARIABLE</th>
<th>BETA PARAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SPSS</td>
</tr>
<tr>
<td>Average Competence</td>
<td>Career Velocity</td>
<td>.600</td>
</tr>
<tr>
<td>Thought Leadership</td>
<td>Career Velocity</td>
<td>.210</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Career Velocity</td>
<td>.351</td>
</tr>
<tr>
<td>Personality</td>
<td>Career Velocity</td>
<td>.412</td>
</tr>
</tbody>
</table>

Conclusions: The AC simulations achieved the highest correlation, followed by Personality, then Cognitive and last the Levels of Work Test.
Regression Analysis
Notes on Interpretation

A multivariate regression involves giving each chosen variable an equal chance to prove its contribution to predicting Potential.

<table>
<thead>
<tr>
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<th>BETA PARAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SPSS</td>
</tr>
<tr>
<td>Average Competence</td>
<td>Career Velocity</td>
<td>.430</td>
</tr>
<tr>
<td>Thought Leadership</td>
<td>Career Velocity</td>
<td>.099</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Career Velocity</td>
<td>.099</td>
</tr>
<tr>
<td>Personality</td>
<td>Career Velocity</td>
<td>.225</td>
</tr>
</tbody>
</table>

Conclusions: The focus should be on the far right column indicating each instrument’s relative contribution to explaining the total variance of Potential.
Contribution of Four Assessment Constructs in predicting Potential and Career Velocity

Multivariate regression analysis of a sample of 700 Managers across multiple companies

- Leadership Competence: 49%
- Personality: 26%
- Cognitive (BCT): 13%
- Thought Leadership: 12%
The pie chart shows the results of a multivariate regression analysis, where all four instruments were given an equal chance to compete for the best predictor slot.

But, we also wanted to consider the results from another angle. Rather than looking at which instrument explains job level the best (the simulations as seen above), we wanted to see how much additional variance in career velocity can be explained when we add Simulations to a cognitive / personality assessment.

So, if your assessment/selection model includes a cognitive and personality test, how much more value does a Simulation like the Evalex Business Simulation add?

For this a step-wise regression model was chosen. Step-wise allows the researcher to “feed” the instrument results in one at a time in a defined order. We chose to start with Cognitive, then Personality and then only Competence (EvaleX Business Simulation). The reason was to measure the exact additional validity added to a standard Cognitive + Personality test battery that Simulations would contribute.
Stepwise Regression Analysis

Conclusions: In this stepwise regression the order was forced starting with Cognitive (BCT) then Personality (OPCS) then Competence (EBS) last, in order to see what additional value AC simulations add to an assessment battery consisting of Cognitive and Personality.
Study 2019

Research Design and Results
Does one get an increase in performance if you increase the cut lines?
<table>
<thead>
<tr>
<th>Overall Performance</th>
<th>Rating</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Performance All Candidates</td>
<td>3.29</td>
<td></td>
</tr>
<tr>
<td>Personality 50th percentile</td>
<td>3.35</td>
<td>2.15</td>
</tr>
<tr>
<td>Personality 60th percentile</td>
<td>3.45</td>
<td>5.39</td>
</tr>
<tr>
<td>Abilities 40th percentile</td>
<td>3.31</td>
<td>0.86</td>
</tr>
<tr>
<td>Abilities 50th percentile</td>
<td>3.31</td>
<td>0.74</td>
</tr>
<tr>
<td>Abilities 60th percentile</td>
<td>3.37</td>
<td>2.85</td>
</tr>
<tr>
<td>Abilities 70th percentile</td>
<td>3.51</td>
<td>7.27</td>
</tr>
<tr>
<td>Abilities 80th percentile</td>
<td>3.60</td>
<td>10.50</td>
</tr>
<tr>
<td>Simulations 40th Percentile</td>
<td>3.45</td>
<td>5.26</td>
</tr>
<tr>
<td>Simulations 50th Percentile</td>
<td>3.53</td>
<td>7.99</td>
</tr>
<tr>
<td>Simulations 60th Percentile</td>
<td>3.66</td>
<td>12.39</td>
</tr>
<tr>
<td>Simulations 70th Percentile</td>
<td>3.74</td>
<td>14.95</td>
</tr>
</tbody>
</table>

- Each method yields higher average performance as the cut lines increase.
- Some methods do so more than others.
Which methods were better at predicting different performance elements?
<table>
<thead>
<tr>
<th></th>
<th>Overall Performance</th>
<th>Financial</th>
<th>Client</th>
<th>Execution and Delivery</th>
<th>People Management</th>
<th>Commercial</th>
<th>Relationship Building</th>
<th>Technical Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating % Increase</td>
<td>Rating % Increase</td>
<td>Rating</td>
<td>% Increase</td>
<td>Rating</td>
<td>% Increase</td>
<td>Rating</td>
<td>% Increase</td>
</tr>
<tr>
<td>Average Performance All Candidates</td>
<td>3.29</td>
<td>3.34</td>
<td>3.34</td>
<td>3.40</td>
<td>2.94</td>
<td>2.92</td>
<td>3.12</td>
<td>3.73</td>
</tr>
<tr>
<td>Personality 60th percentile</td>
<td>3.45</td>
<td>5.39</td>
<td>3.65</td>
<td>7.65</td>
<td>3.79</td>
<td>11.21</td>
<td>3.75</td>
<td>8.70</td>
</tr>
<tr>
<td>Abilities 80th percentile</td>
<td>3.60</td>
<td>10.50</td>
<td>3.85</td>
<td>12.65</td>
<td>3.39</td>
<td>1.10</td>
<td>3.53</td>
<td>3.23</td>
</tr>
<tr>
<td>Simulations 70th Percentile</td>
<td>3.74</td>
<td>14.95</td>
<td>3.70</td>
<td>8.90</td>
<td>3.52</td>
<td>4.51</td>
<td>3.76</td>
<td>9.00</td>
</tr>
</tbody>
</table>

- All the methods increase performance in varying degrees.
- Abilities increase performance more in cognitively loaded areas like Financial, Commercial and Technical.
- Simulations increase performance more in management, leadership, execution and at a wider range.
- Personality increase performance the most on Client performance.
On-the-Job Performance using the methods combined, and at different cut lines for Middle Managers.

<table>
<thead>
<tr>
<th>Overall Performance</th>
<th>Rating</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>All candidates, no cut-lines applied</td>
<td>3.29</td>
<td></td>
</tr>
<tr>
<td>Personality Above Cutline</td>
<td>3.35</td>
<td>2.15</td>
</tr>
<tr>
<td>Personality Below Cutline</td>
<td>3.25</td>
<td>-1.21</td>
</tr>
<tr>
<td>Abilities Above Cutline</td>
<td>3.37</td>
<td>2.85</td>
</tr>
<tr>
<td>Abilities Below Cutline</td>
<td>3.14</td>
<td>-4.85</td>
</tr>
<tr>
<td>Simulations Above Cutline</td>
<td>3.45</td>
<td>5.26</td>
</tr>
<tr>
<td>Simulations Below Cutline</td>
<td>3.01</td>
<td>-9.37</td>
</tr>
<tr>
<td>Abilities + Personality Above Cutline</td>
<td>3.46</td>
<td>5.72</td>
</tr>
<tr>
<td>Abilities + Personality Below Cutline</td>
<td>3.08</td>
<td>-7.05</td>
</tr>
<tr>
<td>Simulations and Personality Above Cutline</td>
<td>3.60</td>
<td>10.39</td>
</tr>
<tr>
<td>Simulations and Personality Below Cutline</td>
<td>3.09</td>
<td>-6.49</td>
</tr>
<tr>
<td>Simulations and Abilities Above Cutline</td>
<td>3.46</td>
<td>5.62</td>
</tr>
<tr>
<td>Simulations and Abilities Below Cutline</td>
<td>2.96</td>
<td>-10.80</td>
</tr>
<tr>
<td>All Top End Cut lines</td>
<td>4.00</td>
<td>23.72</td>
</tr>
<tr>
<td>All Above Cut lines</td>
<td>3.63</td>
<td>11.22</td>
</tr>
<tr>
<td>All Below Cut lines</td>
<td>2.91</td>
<td>-12.51</td>
</tr>
</tbody>
</table>