

# Test use in Belgium: personnel selection of older candidates



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# Paul F. van Leest

- Research psychologist
- Arnhem, Netherlands, 1955
- PhD: *Assessment of personality for ethnic minorities* (1997)
- 37 years of experience in personnel selection



# Content

- **Center for Basic Interactive Research (CEBIR)**
- Age-related differences: literature
- Age-related differences: personnel selection (CEBIR data)
- Take-home message

# CEBIR



- Founded in 1987
- Developer of tests and computerized test systems (TASCNET)
- Based in Belgium, service world wide
- Provides > 150 psychometric tests

# CEBIR



- **Major market:** personnel selection and employee development
- **Test languages:** Dutch, French, English and German
- **Database:** 10 million test administrations (between 1990 – 2018)

# Content

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## ■ Competencies

- Increases with age
  - Crystallized intelligence
    - Using acquired knowledge, e.g. verbal reasoning
    - Solving problems representative of tasks frequently encountered
  - Professional expertise
  - Social judgment
  - Organizational citizenship ( $\approx$  integrity)
  - Safety performance

## ■ **Competencies**

- Decreases with age
  - Fluid intelligence
    - Abstract reasoning & solving of new problems
  - Short-term working memory
  - Perceptual and processing speed

*Klein et al., 2015; Kievit et al., 2014; Truxillo et al., 2015; Montefinese et al., 2015*



## ■ Personality

- Increases with age
  - Agreeableness
  - Conscientiousness
    - Self-discipline > Order
  - Emotional stability
  - Dominance
  - Feeling well
  - Intrinsic motivation (from the work tasks themselves)

*Truxillo et al., 2015; Allemand et al., 2008; Hutteman et al., 2014; Soto et al., 2010*

## ■ Personality

- Decreases with age
  - Social vitality (higher in early 20s, then stable till 50)
  - Extrinsic motives (pay, promotion)
  - Growth motives (achievement, mastery)

*Truxillo et al., 2015; Allemand et al., 2008; Hutteman et al., 2014; Soto et al., 2010*

- **Important:** Experience can compensate for losses in fluid abilities
  
- **Research questions:**
  - Can we replicate these findings in personnel selection?
  - What are the consequences for test use?

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- **Age-related differences: personnel selection (CEBIR data)**
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- Psychological tests: **important selection tools**
  
- Advantages:
  - High predictive validity of mental ability tests
  - Questionnaires of personality and behavior correlate positively with job performance criteria

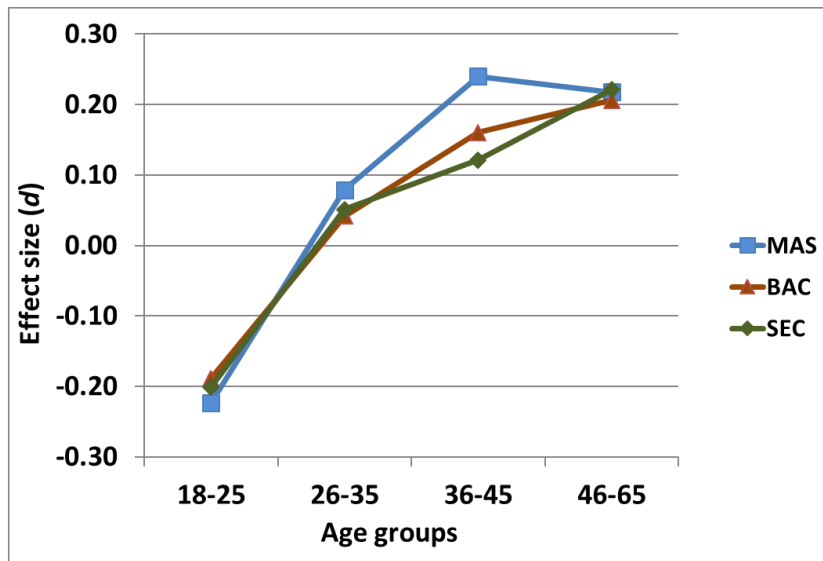
*Schmidt et al., 2016; Salgado et al., 2014*

- Examples of tests with + or - relationship
  - + : higher scores of older candidates
  - - : lower scores of older candidates
  
- Per test
  - Four different age groups
  - Three different education levels
  - **Candidates:** Belgium, Dutch speaking
  
- Number of participants per test
  - $1950 < N < 83500$
  - **Important:** always at least 400 candidates per group

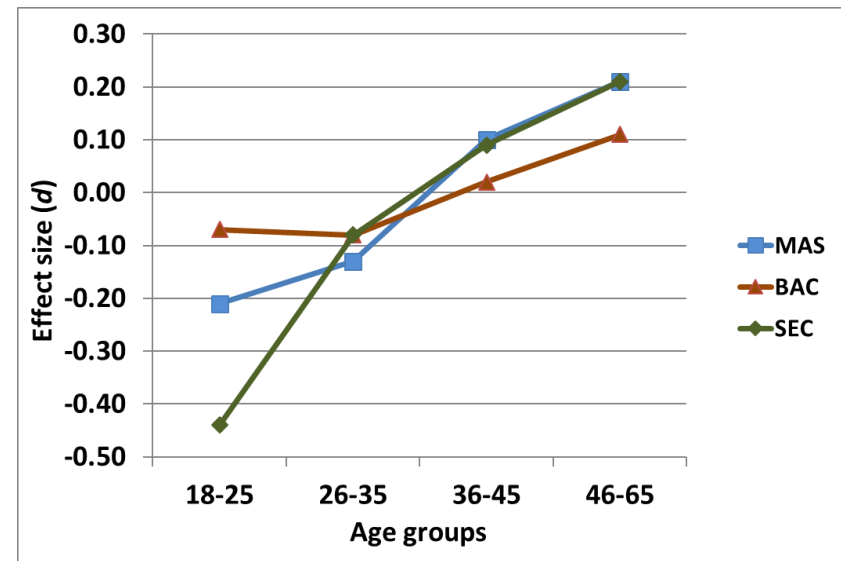
# CEBIR data: competencies

- **Verbal reasoning (+)**

**Verbal analogies**  
(Test = Anabo N)



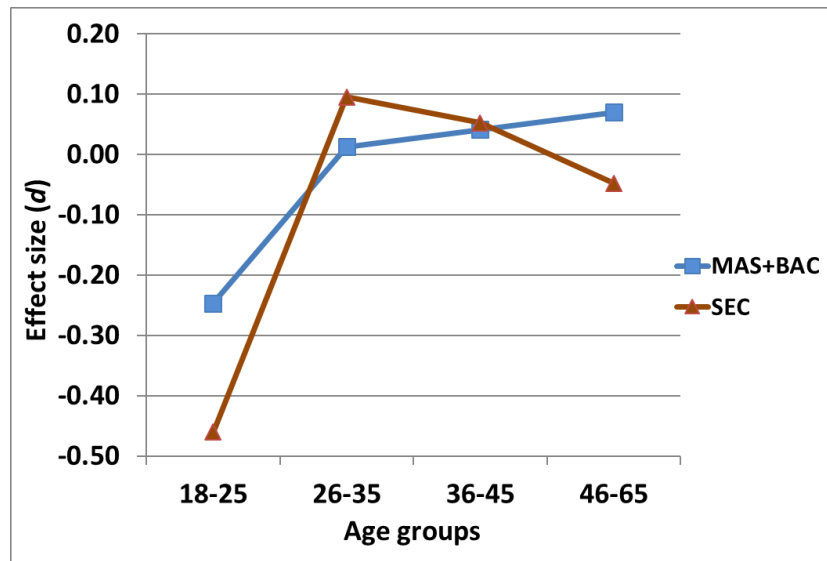
**Finding omitted words**  
(Test = FWT N)



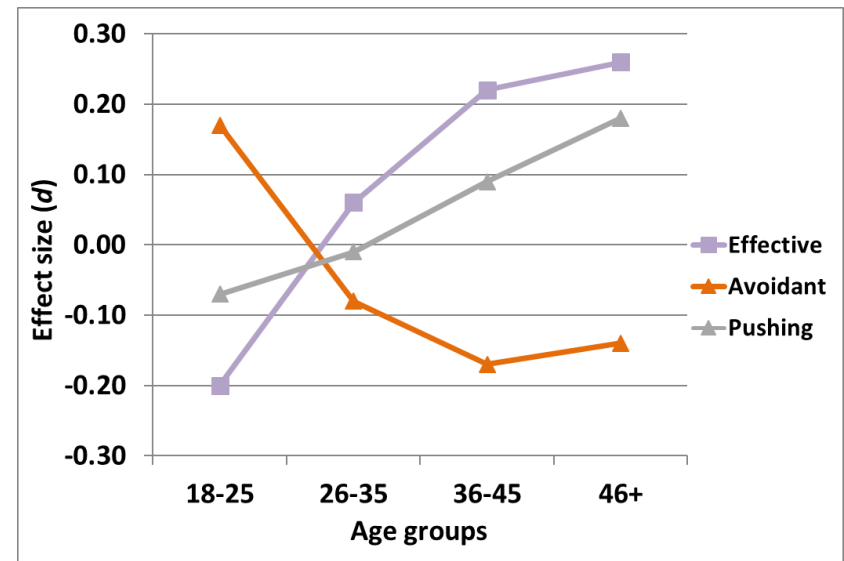
# CEBIR data: competencies

## ■ Social judgment (+)

**Social judgment: leadership**  
(Test = SCV Leader)



**Social judgment: commercial**  
(Test = Comva)

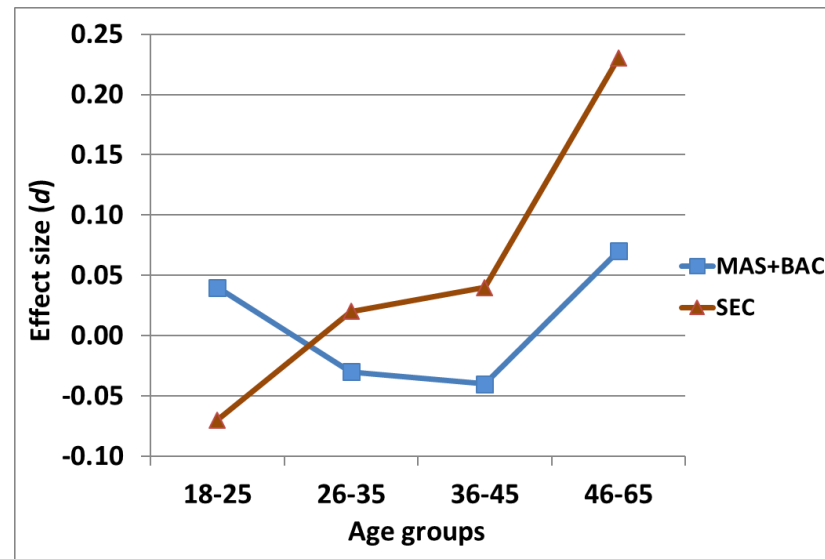




# CEBIR data: competencies

- **Technical insight (+)**

**Technical insight**  
(*Test = Tech*)



# CEBIR data: competencies

- Verbal reasoning
- Social judgment
- Technical insight

**Increase with age due to:**

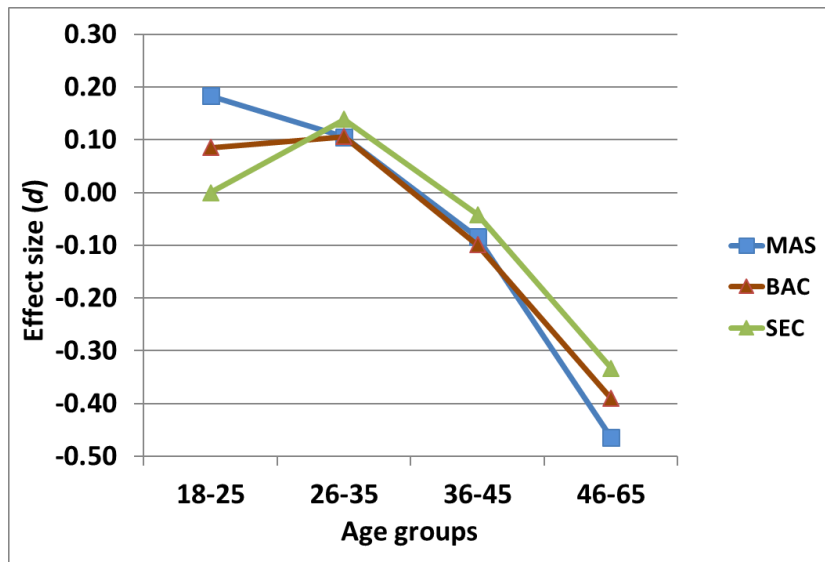


- Acquired knowledge
- Expertise

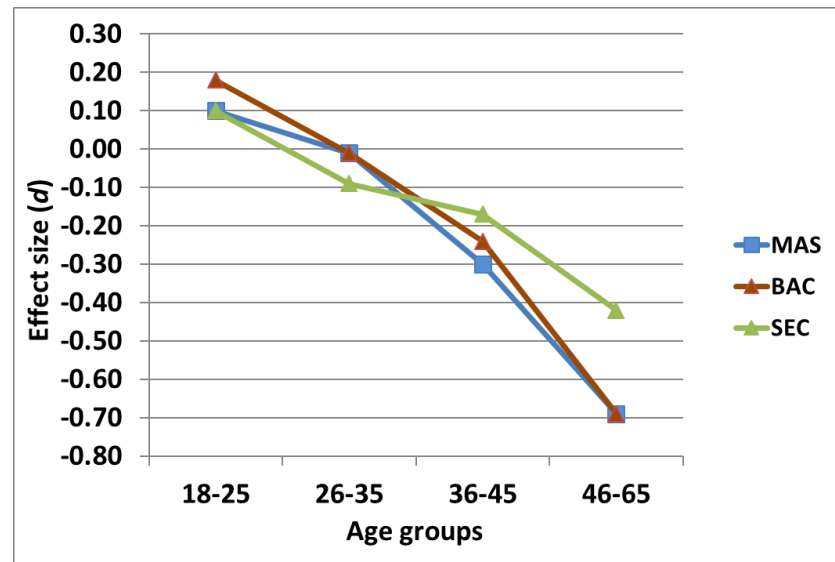
# CEBIR data: competencies

- Fluid intelligence (-)

**Abstract fluid intelligence**  
(Test = *Abalet*)



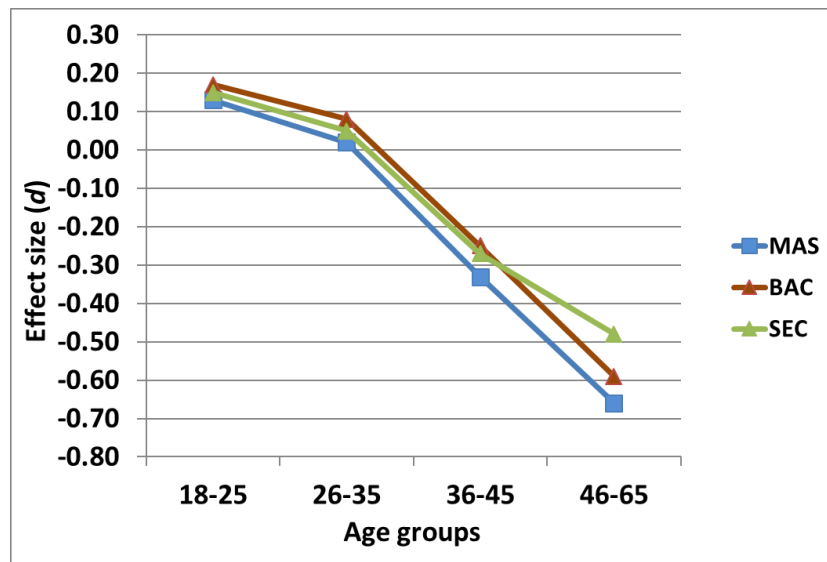
**Learning code language**  
(Test = *Symbol A*)



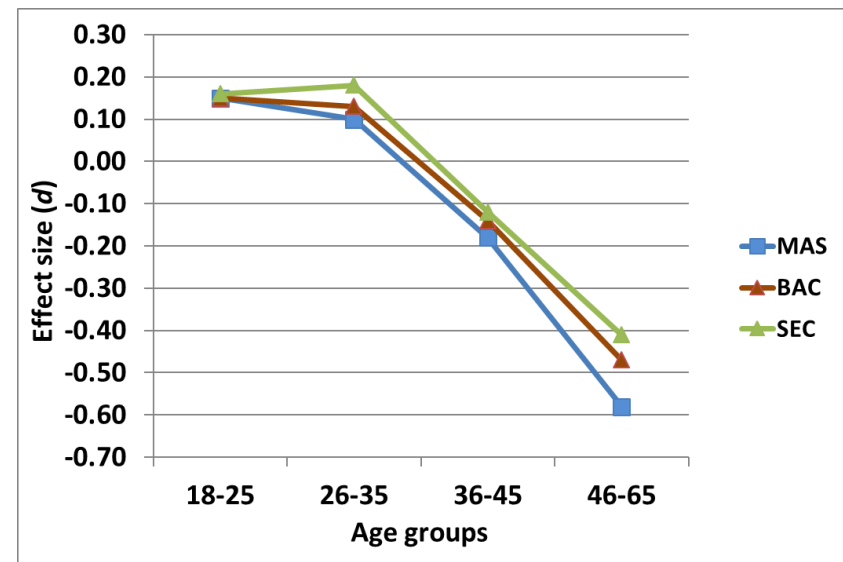
# CEBIR data: competencies

- Administrative and planning behavior (-)**

**Control and coding of names**  
(*Test = ADM*)



**Planning of a work group**  
(*Test = Rapid*)



# CEBIR data: competencies

- Fluid intelligence
- Administrative and planning behavior

## Decrease with age due to:



- Slower cognitive processing
- Decline in sensory-motor performance

# CEBIR data: competencies

- Flynn effect
  - = rising intelligence test performance across time and generations
  
- Not visible in Cebir data
  - Tests are not used long enough
  - Confounding with developments in candidate groups
  
- Possible explanation: **recent reversal** of the effect

**Big Five personality test**  
(*Bfac Plus*)

# CEBIR data: personality

Big five	MAS	BAC	SEC
Agreeable	↓	↓	↓
Extravert			
Conscientious		↑	↑
Stable	↑	↗	↓
Open	↑	↗	↑

**Big Five personality test**  
(*Bfac Plus*)

# CEBIR data: personality

Big five	MAS	BAC	SEC	Subscales	MAS	BAC	SEC
Agreeable	↓	↓	↓	Helpful	↓	↓	↓
				Supple	↓	↓	↓
Extravert				Cheerful	↓	↓	↘
				Dominant	↑	↑	
				Dynamic			
				Spontaneous	↘	↘	
Conscientious		↑	↑	Dedicated			↑
				Honest	↗	↑	↑
				Precise	↓	↗	↑
Stable	↑	↗	↓	Even-tempered		↘	↓
				Self-assured	↑	↑	↑
Open	↑	↗	↑	Creative			
				Critical	↑	↑	↑
				Wide Interest		↓	↓

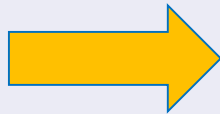


# CEBIR data: personality

- Expected findings
  - Honest, Self-assured, Dominance +
  - Cheerful, Spontaneous -
  
- Unexpected finding
  - Agreeableness -

# CEBIR data: personality

- Agreeableness: **Possible explanation?**
  - Younger candidates are tested at the start of their career (junior positions, have to be friendly)



Selection is **high-stakes testing**, candidate responses are in line with the job expectations

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- **Age-related differences** in competencies and personality in personnel selection **are not a result of bias**
- Older candidates can be **as valuable** as younger candidates.
- Flexibility & response speed <> experience and expertise

- Choose your tests and norm groups with the **age effects in mind**.
- Cebir: continuous research on **potential biases** due to age (but also ethnicity, gender,... etc.)
- We are always open to suggestions or **potential research collaborations**

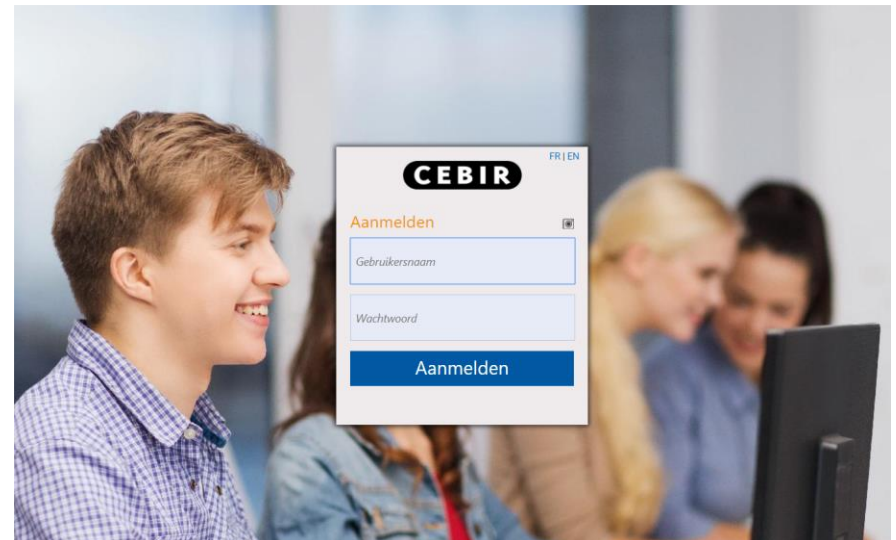
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Thank you for attending!