

Thinking Skills for high-stakes selection

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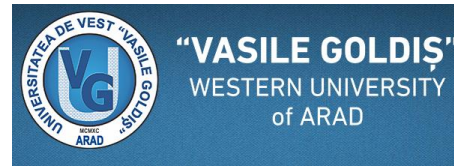
Cambridge Assessment Admissions Testing: A brief introduction



Who we are

- A unit within Cambridge Assessment, a non-teaching department of the University of Cambridge
- Produces admissions tests for a wide range of HE institutions and courses in the UK and internationally; also selection into secondary education
- Mainly focused on Thinking Skills and STEM
- Thinking Skills items included in TSA (Thinking Skills Assessment) and BMAT (BioMedical Admissions Test)

A selection of institutions we work with



Presentation overview

Why do institutions use admissions tests?

What are 'thinking skills'?

Why use thinking skills for selection?

Why do institutions use admissions tests?



To discriminate between highly-able applicants

- An increasing problem for selective universities and particular courses (Medicine, Engineering, Law)
- In the UK, offers decisions are typically made before A level grades are available
- In 2018, 26.2% of A levels taken in England resulted in a grade of either A or A*

To provide a single, common piece of evidence for the entire applicant field

- Increasing internationalisation of Higher Education – number of international students in UK has doubled over the last 20 years.
- EMI (English as a medium of instruction) courses also increasingly popular around the world
- Issue of how to compare many different qualifications accurately and consistently

To help widen participation from under-represented groups

- 2018 report in UK found that students from independent, fee-paying schools are seven times more likely to get a place at Oxford or Cambridge, and four times more likely to get a place at a high-ranking (Russell Group) university, than students from state schools.
- Well-designed admissions tests can help create a more ‘level playing field’ than interviews, personal statements, predicted grades.
- But they are, of course, not immune to the effects of preparation and coaching...

What are 'thinking skills'?



Thinking Skills – an overview

- Two main types of reasoning: **Critical Thinking** (verbal reasoning) and **Problem Solving** (numerical reasoning)
- General, transferable skills important for success in higher education
- *Teachable* skills and abilities, which can be developed through practice

Critical Thinking

- The analysis and evaluation of arguments
- ‘The analytical thinking which underlies all rational thought and enquiry’ (Black: 2008)

Seven types of Critical Thinking question

- Summarising the main conclusion of an argument
- Drawing a conclusion
- Identifying assumptions
- Assessing the impact of additional evidence
- Identifying reasoning errors
- Matching arguments
- Applying principles

An example item (Critical Thinking)

Polar bears in captivity frequently engage in obsessive patterns of behaviour, pacing back and forth on the same spot, swinging their heads from side to side, and other signs of stress. They do this even when their living areas are quite spacious. What this shows is that conditions of captivity are not a satisfactory substitute for the natural environment of the polar bear species.

Which of the following, if true, would most weaken the above argument?

- A** Polar bears are especially ill-suited to a life in captivity.
- B** Many polar bears in the wild engage in obsessive patterns of behaviour.
- C** Polar bears in captivity are much better fed than those living in the wild.
- D** Polar bears in the wild cover many miles a day when they are hunting for food.
- E** Polar bears which have been raised in captivity are incapable of surviving in the wild.

Problem Solving

Assesses the candidate's ability to analyse numerical and graphical information, based on real-life situations, and apply the right techniques to find a solution.

Three main types of question:

- Finding procedures
- Relevant selection
- Identifying similarity

An example item (Problem Solving)

Three thermometers are each accurate to within 2 degrees above or below the temperature they actually read. One reads 7° , one reads 9° and one reads 10° .

What is the minimum range in which the true temperature lies?

- A** $5^\circ - 12^\circ$
- B** $7^\circ - 9^\circ$
- C** $8^\circ - 10^\circ$
- D** $8^\circ - 9^\circ$
- E** $7^\circ - 10^\circ$

Why use thinking skills for selection?



Why use thinking skills for selection?

They are important, generic skills for higher-level academic study:

OECD's AHELO study (2011) ranked CT and PS in the top five learning outcomes for higher education.

They have predictive power:

Despite a number of confounding variables, thinking skills items in our BMAT and TSA exams have shown significant correlations with on-course performance.

Why use thinking skills for selection? (continued)

They are curriculum-agnostic:

Appropriate for students from a wide range of different educational backgrounds

Complement traditional, subject-specific school-leaving exams

They are relatively stable traits:

Not a test of factual recall; less susceptible to intensive coaching or 'cramming'

Ensuring fairness and reliability

Admissions Testing uses a large number of short, discrete, single-answer, objectively marked, multiple-choice questions in Thinking Skills Assessments.

This allows for:

- a broad coverage of skills
- a more reliable test score (TSA, a 50-item test, typically reports Cronbach's Alpha of 0.8 and above)
- the elimination of examiner bias



Questions?





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