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All you need to know about the EBO Exam

The Evaluation Process

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Financial Disclosure

- I, **Danny G.P. Mathysen** DO NOT have a financial interest/arrangement or affiliation with one or more organisations which could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

Structure of the EBOD Examination

- Written examination (MCQ paper)

- 40 % of the total candidate score
- 52 questions, each with 5 true-false items
- 10 pre-defined topics
- Available in English (master), French and German (translations)

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- Oral examination (Viva Voce)

- 60 % of the total candidate score
- 4 topics
- Available in English, French, German (basic languages) and (whenever possible) in native language of the candidate

$$EBOD_i = [0.4 \times MCQ_i] + [0.15 (VVa_i + VVb_i + VVc_i + VVd_i)]$$

40 % MCQ-score

60 % Viva Voce score

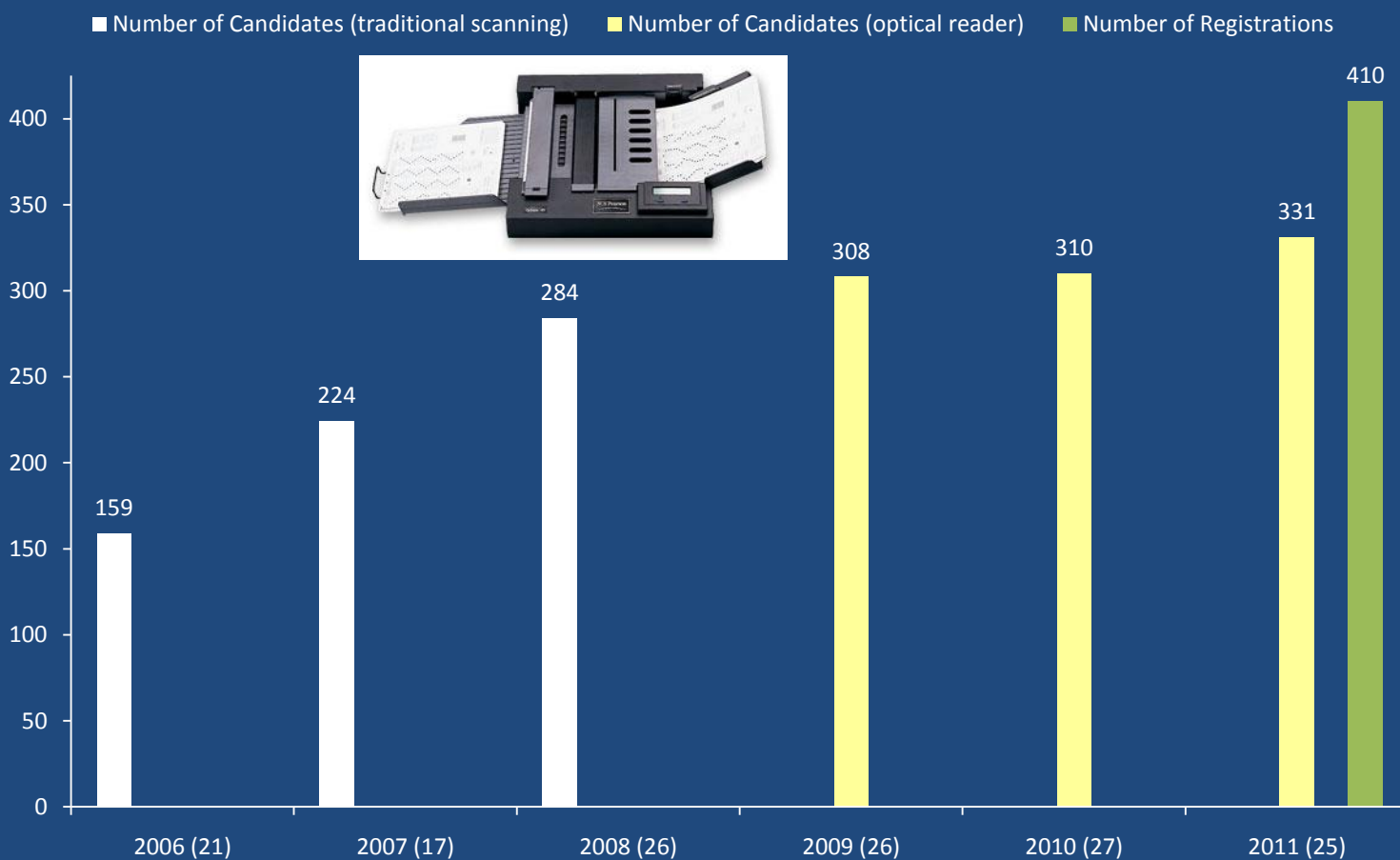


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Increase in interest for the EBOD Examination



Correlation between Scores for Examination Parts and Total EBOD Examination Score

Correlation between and	Correlation Coefficient
MCQ-score (max. 260)	Total EBOD Score	$r = 0.88$
Converted MCQ-score (1 – 10)	Total EBOD Score	$r = 0.90$
Average Viva Voce Score	Total EBOD Score	$r = 0.82$
MCQ-score (max. 260)	Average Viva Voce Score	$r = 0.53$
Converted MCQ-score (1 – 10)	Average Viva Voce Score	$r = 0.51$
Viva Voce Topic A Score	Average Viva Voce Score	$r = 0.66$
Viva Voce Topic B Score	Average Viva Voce Score	$r = 0.68$
Viva Voce Topic C Score	Average Viva Voce Score	$r = 0.66$
Viva Voce Topic D Score	Average Viva Voce Score	$r = 0.75$

Success rate of the EBOD Examination

The EBOD examination **success rate**:

- As the level of candidates tends to be good the overall EBO examination success rate is usually high:

	2006	2007	2008	2009	2010	2011
Success Rate	88.1 %	89.2 %	90.8 %	88.6 %	92.0 %	91.5 %

- Until 2009 no negative marking was used
- Introduction of **negative marking** since EBOD 2010
- Pass rate remains stable because of **relative passmark**



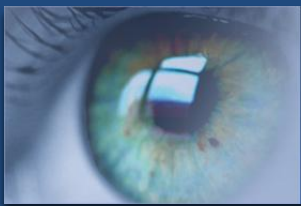
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MCQ-test – Why multiple T/F items?

- Advantages for EBO candidates of T/F items
 - Reliable in case of translation (English, French, German)
 - ➔ choice of language will not result in being (dis)advantaged
 - Accessibility (e.g. dyslexia)
 - ➔ not too complicated for candidates
 - Duration of the examination
 - ➔ stress level of candidates can be kept to a minimum
 - Relatively easy to process
 - ➔ results can be presented on-site



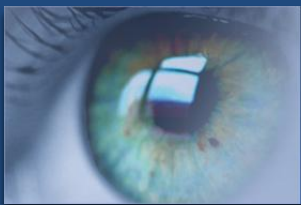
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MCQ-test – Why multiple T/F items?

- Disadvantage for EBO candidates of T/F items
 - Probability of guessing right = 50 %
 - ➔ level of weakest candidates is overestimated (➔ oral examination)
- How to overcome this disadvantage of T/F items?
 - Introduction of negative marking
 - Increase of discriminative power of examination
 - Reduction of guess factor
 - wild guesses will be punished (weakest candidates)
 - guesses by reasoning (partial knowledge) will be stimulated



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MCQ-test – Why negative marking?

- Disadvantage for EBO candidates of T/F items
 - Probability of guessing right = 50 %
→ level of weakest candidates is overestimated (→ oral examination)
- Cronbach-alpha: **Reliability** of the examination
 - Increase from 0.78 (EBOD 2009) to 0.91 (EBOD 2010) / 0.85 (EBOD 2011)
- Rit-value: **Pearson correlation**
 - Increase from 0.14 (EBOD 2009) to 0.18 (EBOD 2010) / 0.16 (EBOD 2011)
- P-value: Underestimation of **level of difficulty**
 - Decrease from 0.79 (EBOD 2009) to 0.66 (EBOD 2010) / 0.63 (EBOD 2011)



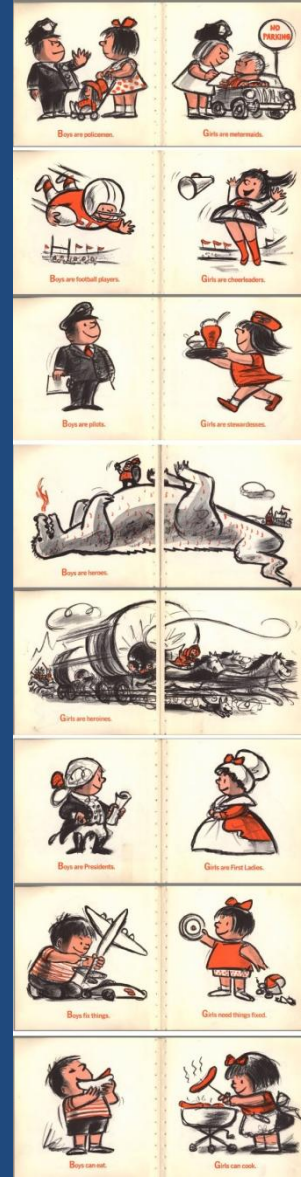
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Is negative marking discriminative towards female candidates?

- The main argument against **negative marking** as formulated in literature is that it **would be discriminative** towards **female candidates**, as they are expected to take less risks (educated guesses)
- On the other hand, **no objective data** are available in literature to support this hypothesis...





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Is negative marking discriminative towards female candidates?

- Different **strategies** to complete EBOD MCQ-test?
Assessed by evaluating the use of “**don’t know**” option
- Statistically **significant** difference between ♂ and ♀
 - EBOD 2010:
 - ♂ : 13.57 % of test items
 - ♀ : 16.47 % of test items $p < 0.01$
 - EBOD 2011:
 - ♂ : 13.37 % of test items
 - ♀ : 15.85 % of test items $p < 0.01$



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Is negative marking discriminative towards female candidates?



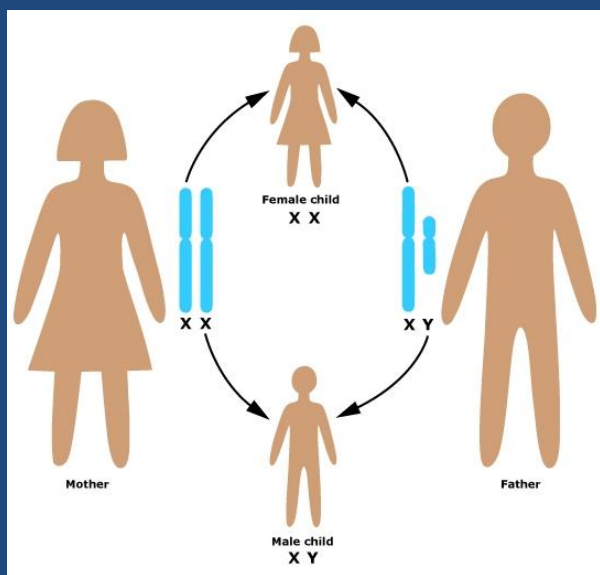


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Is negative marking discriminative towards female candidates?





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Is negative marking discriminative towards female candidates?

- Have we identified a **new concept** by analysing the strategies of male and female candidates?

NO

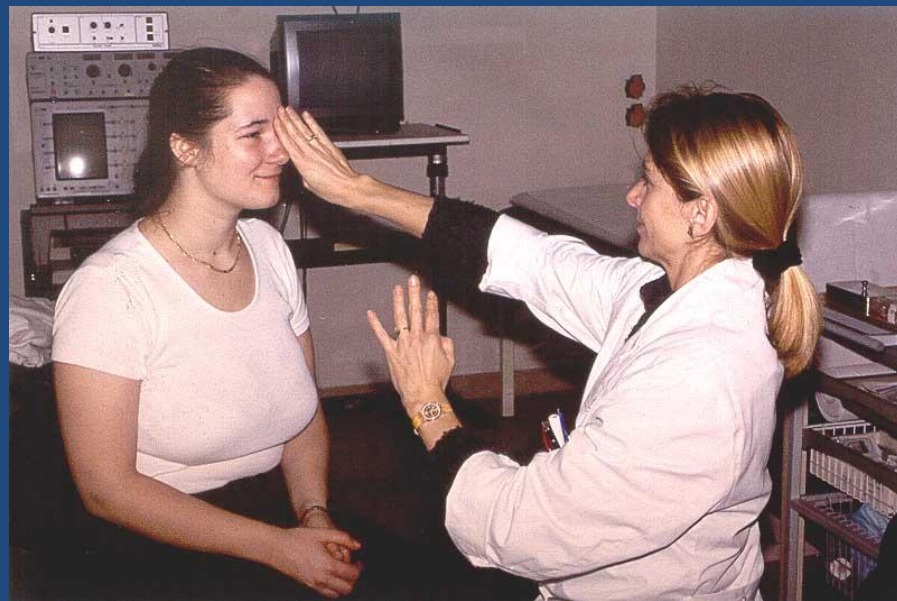


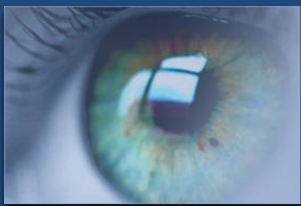
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Is negative marking discriminative towards female candidates?





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Is negative marking discriminative towards female candidates?

EBOD 2010

- Average absolute MCQ-scores
($p > 0.05$)
 - ♂ : 148.21 (n = 168)
 - ♀ : 143.36 (n = 142)
- Converted MCQ-scores
 - All scores: $p > 0.05$
 - Pass-fail: $p > 0.05$

EBOD 2011

- Average absolute MCQ-scores
($p > 0.05$)
 - ♂ : 136.24 (n = 159)
 - ♀ : 132.25 (n = 172)
- Converted MCQ-scores
 - All scores: $p > 0.05$
 - Pass-fail: $p > 0.05$



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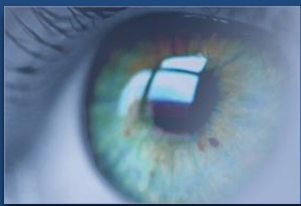


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Is negative marking discriminative towards female candidates?

- Have we identified a statistically significant difference by analysing the MCQ-scores of male and female candidates?

NO



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In conclusion

- Negative marking has turned out to be positive
 - For the **European Board of Ophthalmology** as organiser of the EBOD Examination
(reliability, statistical performance parameters)
 - For the **candidates** of the EBOD Examination
(guessing, no discrimination towards female candidates)



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The next European Board of Ophthalmology
Diploma Examination will take place on

27 - 28 April 2012

Venue: Le Palais des Congrès de Paris



Faleminderit shumë (Albanian) Shterakravetsun (Armenian) Eskerrik asko (Basque)
 Много благодаря (Bulgarian) Dzãkujã (Cassubian) Moltes gràcies (Catalan) Merastawhy (Cornish)
 À ringraziavvi (Corsican) Hvala lijepa (Croatian) Děkuji (Czech) Mange tak (Danish) Dank u wel (Dutch)
 Thank you (English) Ic sæcge eow þancas (English, old) Dankon al vi (Esperanto) Aitäh (Estonian)
 Paljon kiitoksia (Finnish) Merci beaucoup (French) Tanke wol (Frisian) Graciis (Friulian) Grazas (Galician)
 Mèrczi (Gallo) Merci (Gascon) Vielen dank (German) Merci villmahl (German: Zurich Switzerland)
 Ευχαριστώ (Greek) Toda raba (Hebrew) Nagyon köszönöm (Hungarian) Takk fyrir (Icelandic)
 Gratias (Interlingua) Qujanaq (Inuttut) Go raibh mile maith agaibh (Irish Gaelic) Gratias tibi ago (Latin)
 Liels paldies (Latvian) Mouchou gratzia (Lingua Franca) Labai achiu (Lithuanian) Merci (Luxembourgish)
 Grazzi hafna (Maltese) Gura mie mooar ayd (Manx) Merçi (Monegasque) Gràzzie (Napulitano)
 Dziękuję (Polish) Obrigado (Portuguese) Mercé plan (Provençal) Nais tuke (Romani: gypsy)
 Oven saste (Romani) Mulțumesc (Romanian) Grazscha (Romansch) Спасибо (Russian)
 Giitus eanat (Saami Lappish) Moran taing (Scottish Gaelic) Grazzii (Sicilian) Dakujem vám (Slovak)
 Hvala lepa (Slovenian) Dz'akujo so (Sorbian) Muchas gracias (Spanish) Dankeschee (Swabian)
 Tackar så mycket (Swedish) Çok teşekkür ederim (Turkish) Moltes gracies (Valencian)
 Merci (Walloon) Diolch yn fawr iawn (Welsh) A dank aych (Yiddish)