Alpine
Testing Solutions

Security Deep Dive

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Prevention
Detection
Enforcement
(people)
Mitigation
(content)

Security is about Validity!

Alpine Testing Solutions

- Written policy
- Transparent
- Fair
- Applied consistently…
- …to everyone

Prevention

Detection

Enforcement

(people)

Mitigation

(content)

- It is **NOT** about ‘catching cheaters’

Security is about Validity!

Written policy

Transparent

Fair

Applied consistently…

…to everyone

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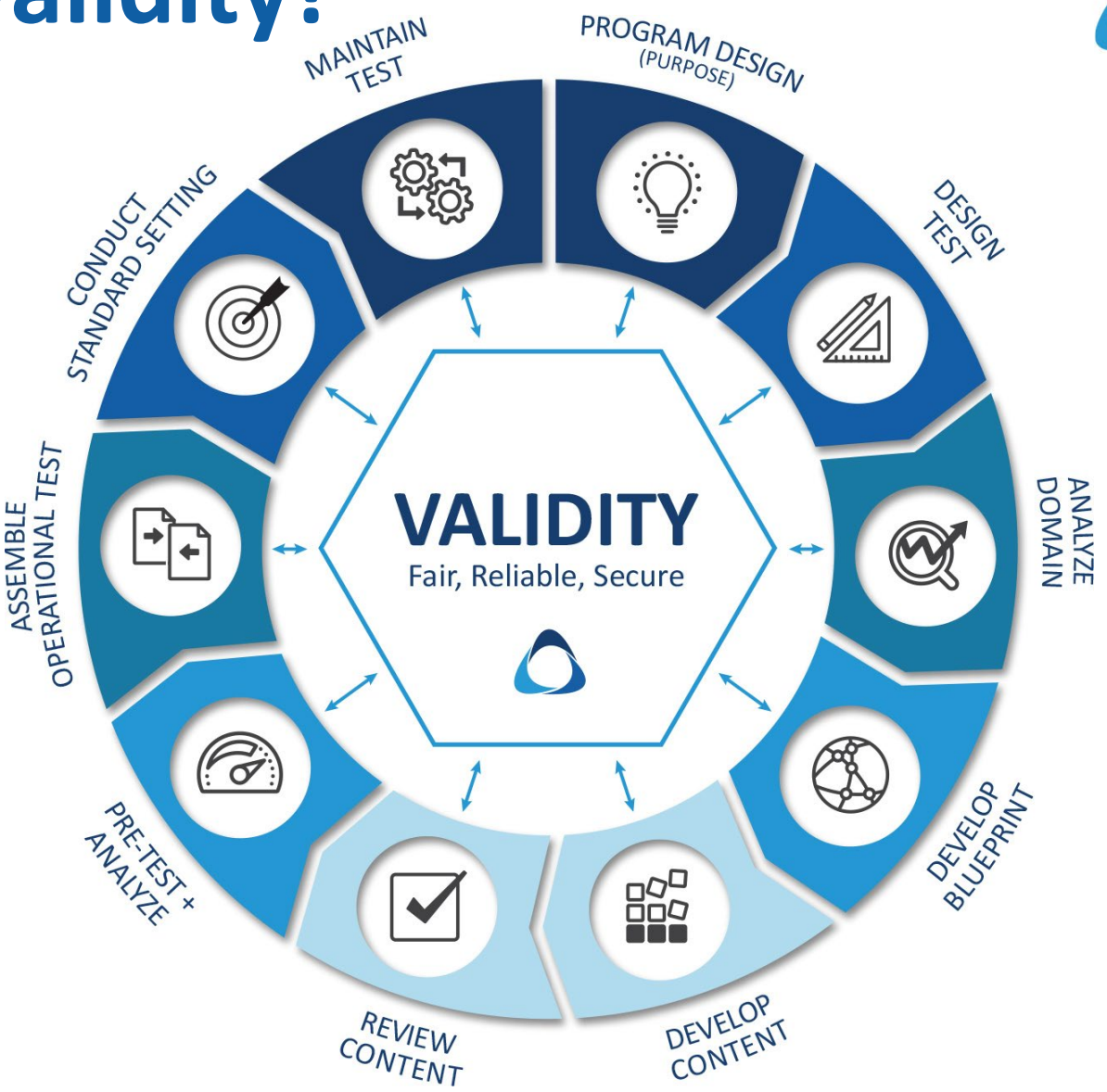
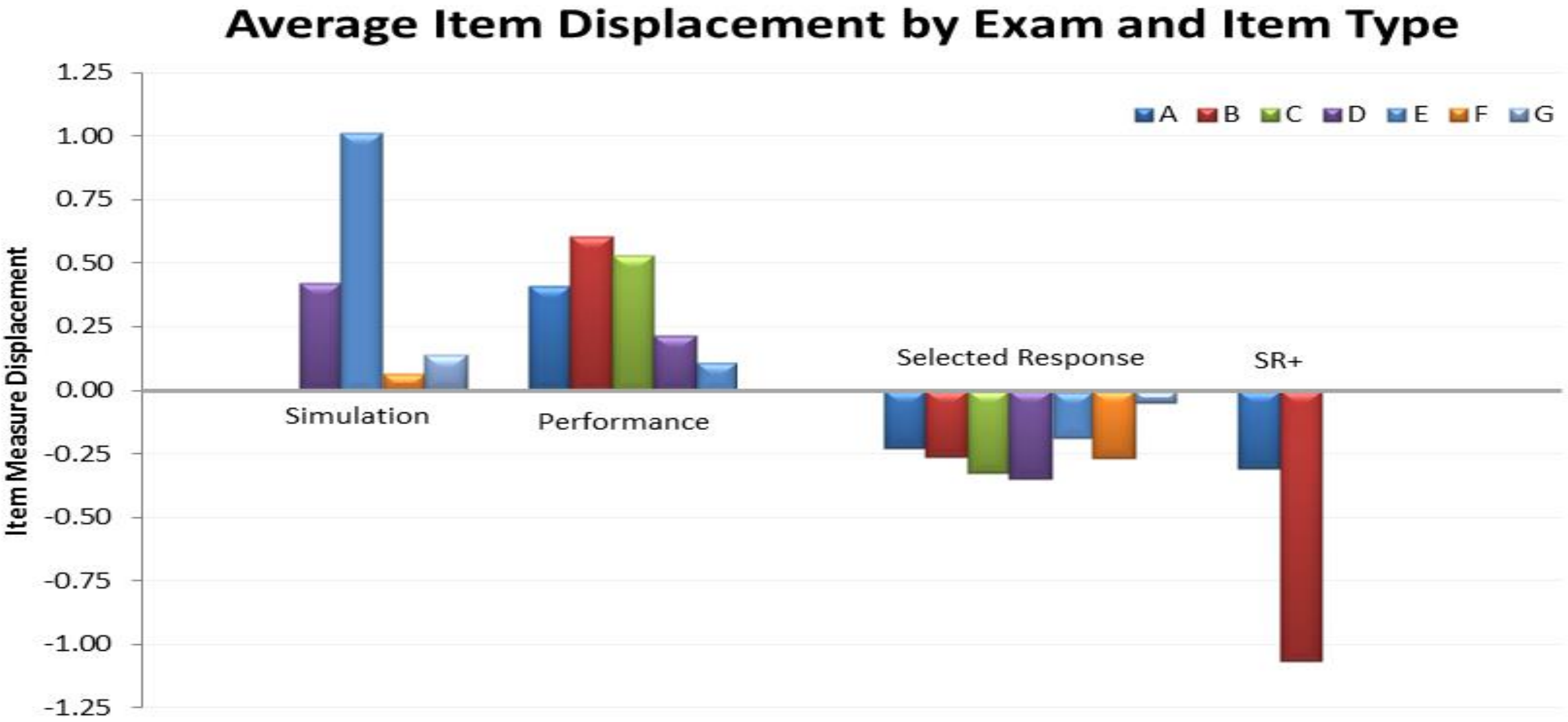


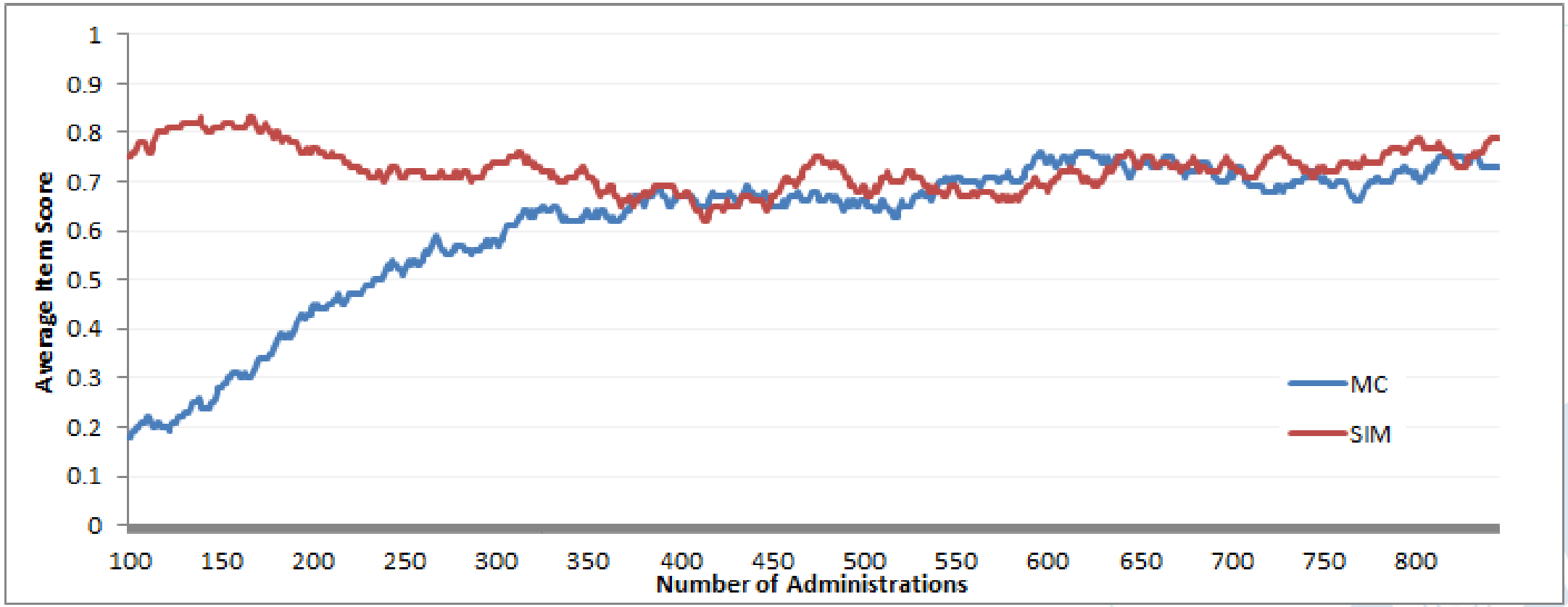
Prevention

- More content!
- Performance items
- Publication strategies
- CAT
- LOFT?
- **More content!**
  - Responsible Artificial Intelligence(AI)/ML
  - Natural Language Processing (NLP)

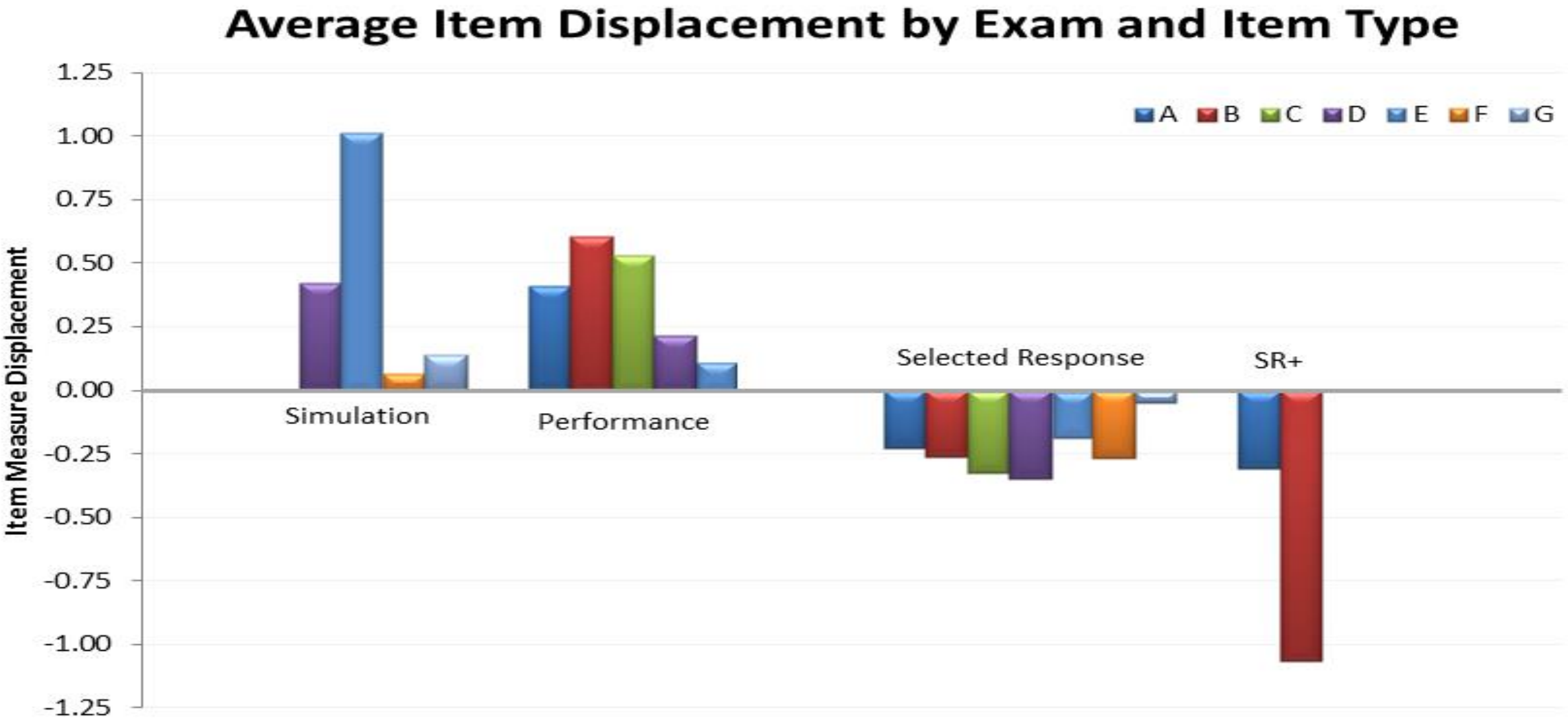
Prevention: Performance Items



Prevention: Performance Items



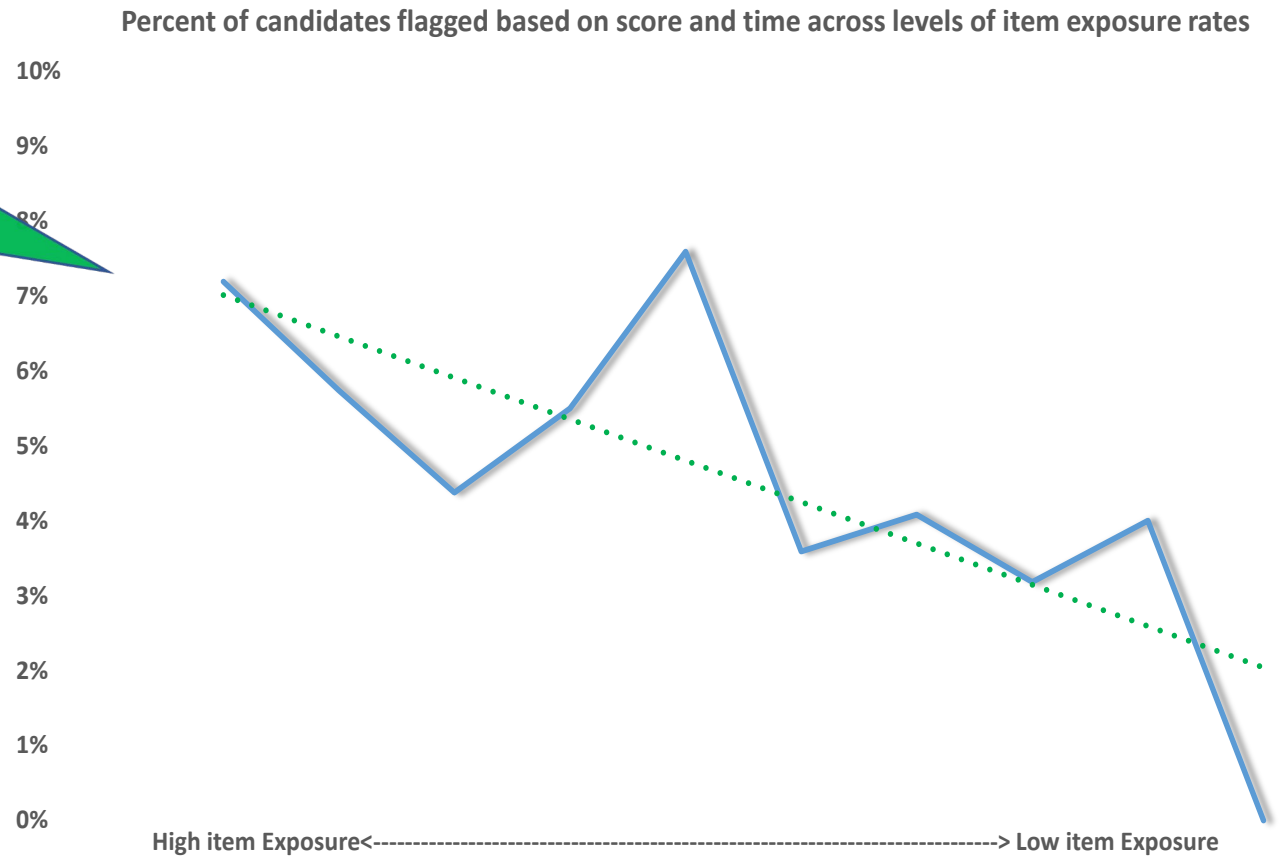
Prevention: Performance Items



Prevention: More Content!

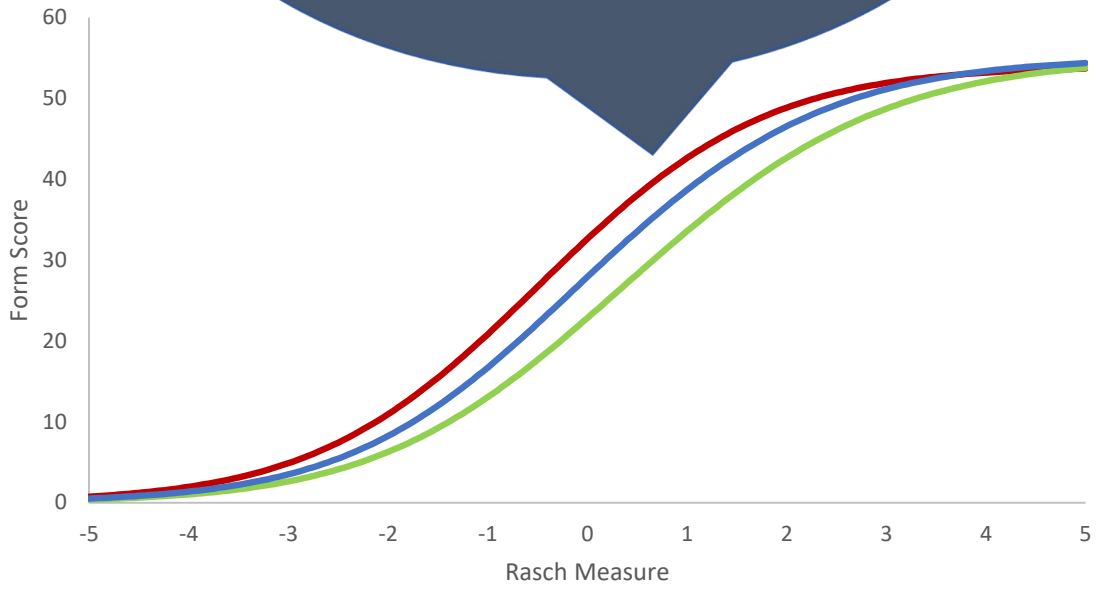
As bank size increases* the percent of candidates with pre-knowledge decreases.

*relative to the number of admins and number of items administered

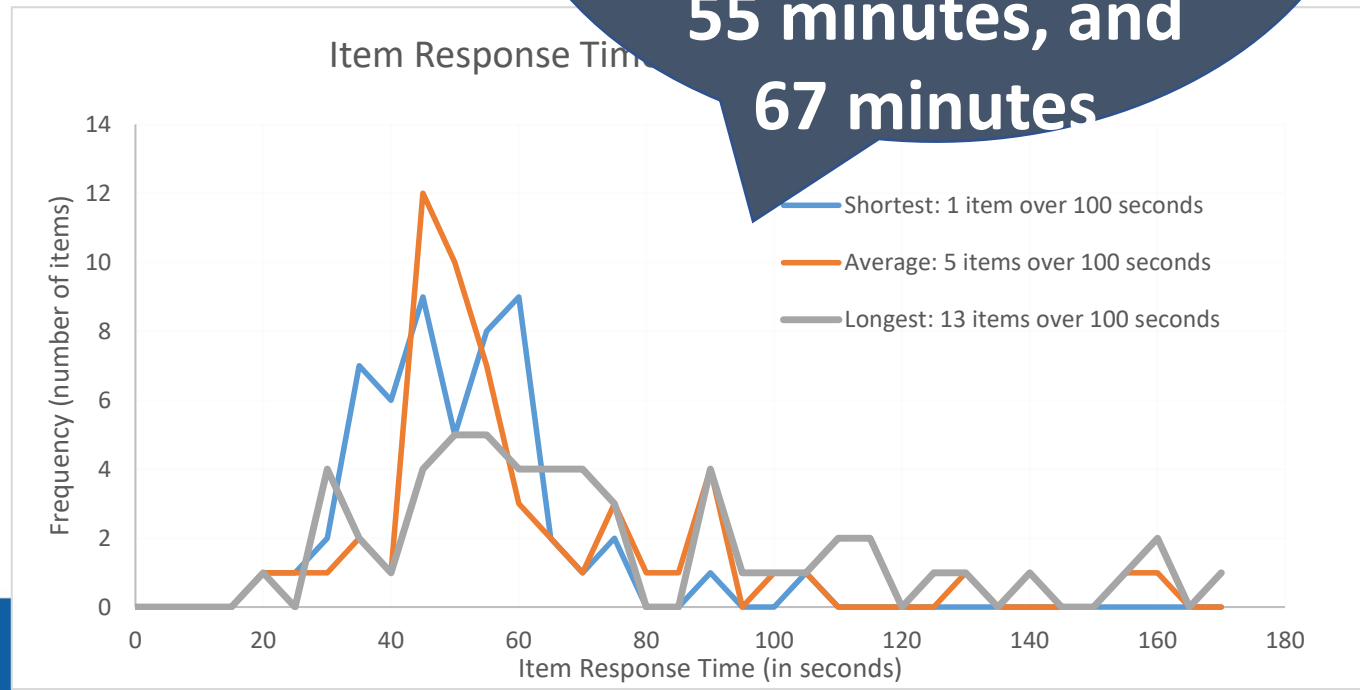


Prevention: CAT and LOFT

If these three forms were fixed, the expected cut score would be:
43.5%,
53.0%, and
62.5%.



If these three forms were fixed, the expected average times would be:
44 minutes,
55 minutes, and
67 minutes



Detection: High Level

- Content found online
- Reports of “cheating”

- Score change
- Time change
- Pass rate change
- Multi-modal distribution
- Score by time

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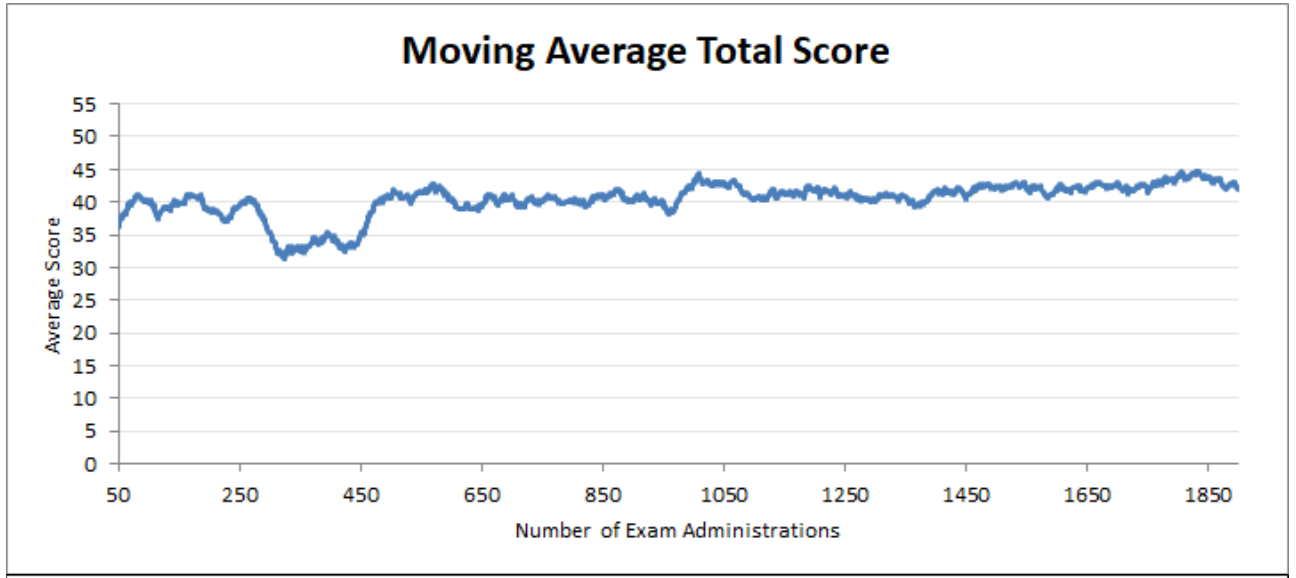
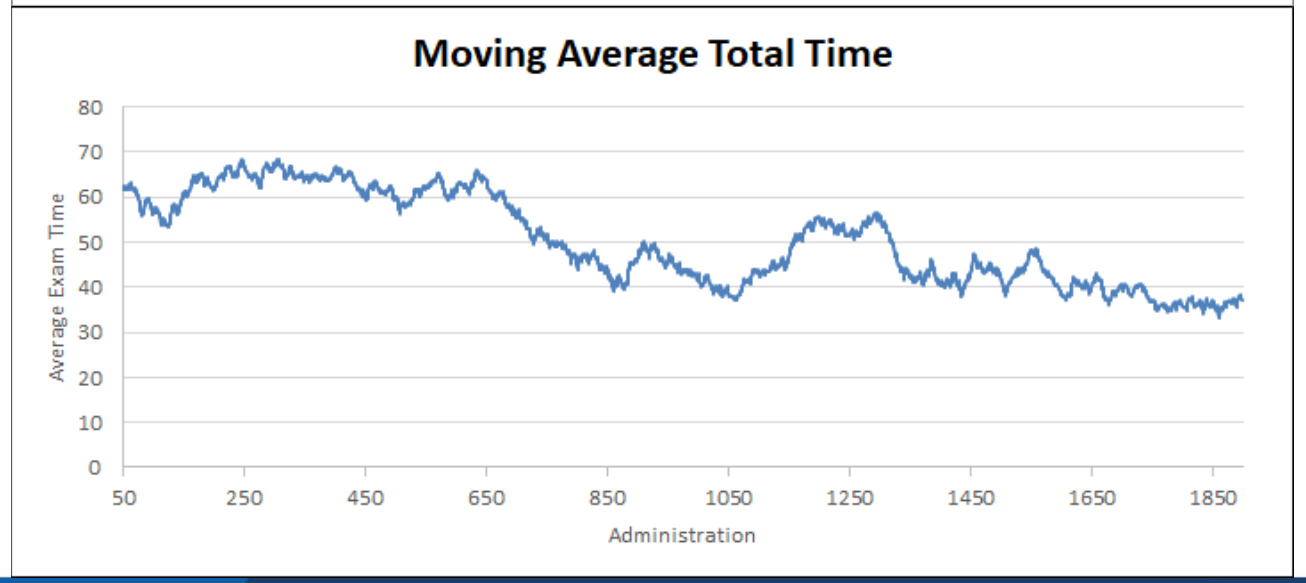


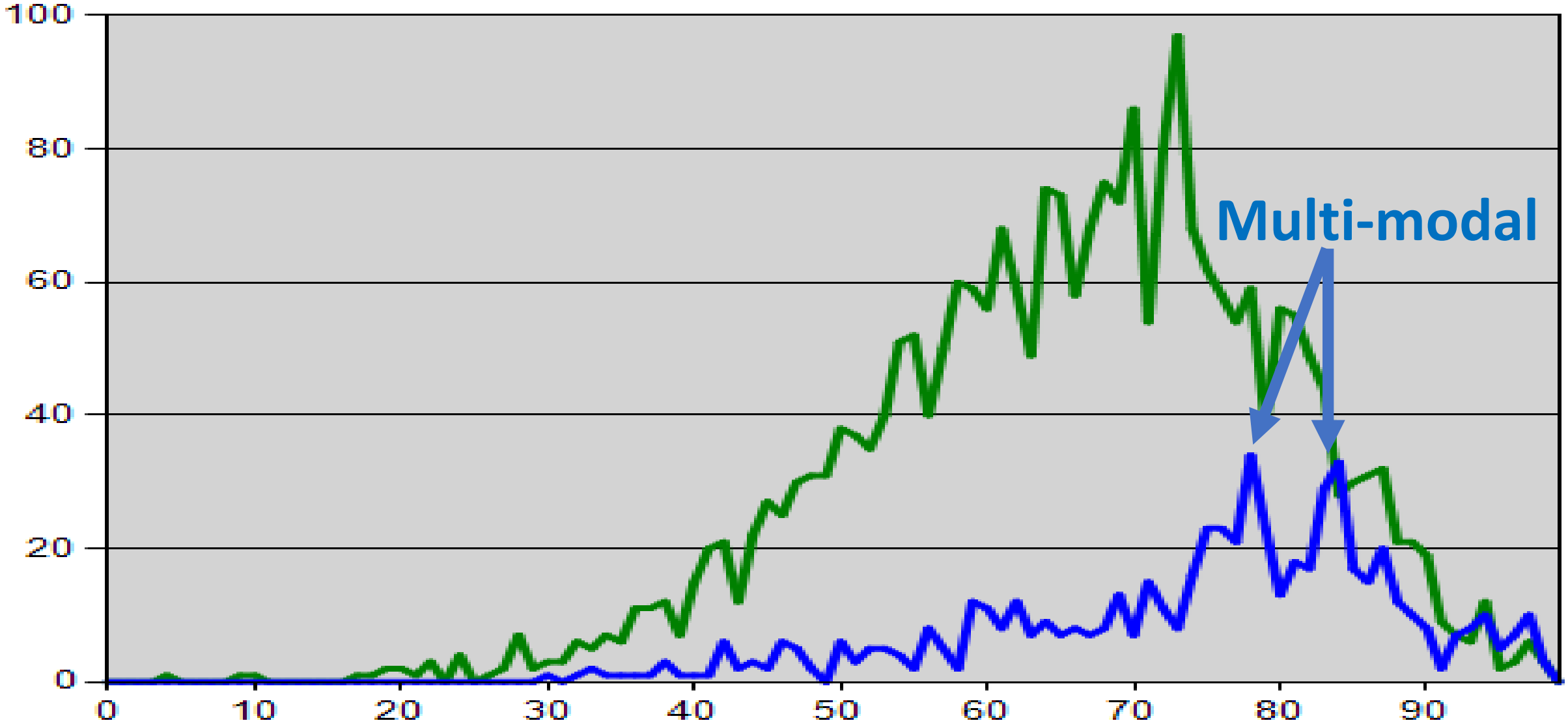


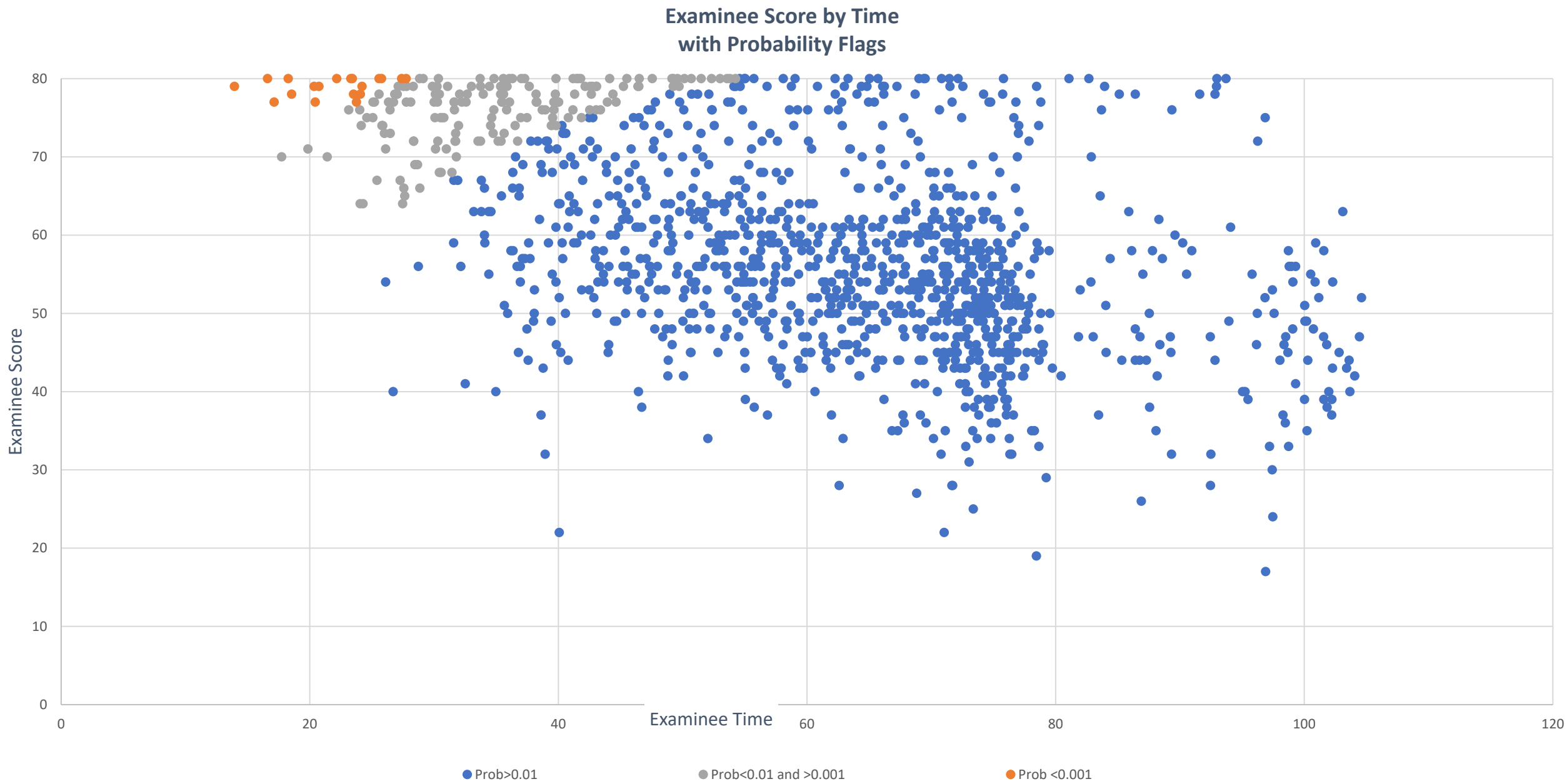
Detection: High Level

	Apr-21			Mar-21			Feb-21			Jan-21			Dec-20			Nov-20		
Exam	Passed	Failed	Pass Rate	Passed	Failed	Pass Rate	Passed	Failed	Pass Rate	Passed	Failed	Pass Rate	Passed	Failed	Pass Rate	Passed	Failed	Pass Rate
A	277	84	76.7%	380	98	79.5%	389	96	80.2%	256	110	69.9%	288	97	74.8%	277	98	73.9%
B	32269	16568	66.1%	30856	15492	66.6%	31587	16058	66.3%	33012	17048	65.9%	31931	16292	66.2%	31394	15892	66.4%
C	672	139	82.9%	832	146	85.1%	780	111	87.5%	749	156	82.8%	758	138	84.6%	795	142	84.8%

April 2021	March 2021	February 2021	January 2021	December 2020
March 2021	February 2021	January 2021	December 2020	November 2020
2.8%	0.7%	**-10.3%**	4.9%	-0.9%
0.5%	-0.3%	-0.4%	0.3%	0.2%
2.2%	2.5%	-4.8%	1.8%	0.2%

Exam Score Frequency Distribution




Examinee Score by Time
with Probability Flags
Examinee Score
Examinee Time
0
10
20
30
40
50
60
70
80
0
20
40
60
80
100
120
Prob>0.01
Prob<0.01 and >0.001
Prob <0.001

Detection: High Level

- Content found online
- Reports of “cheating”

- Score change
- Time change
- Pass rate change
- Multi-modal distribution
- Score by time

- **If something looks weird…**

it probably is!

Join us for Part 2 in two weeks!

- DPF
- DIF and Drift
- ASI/RSI, SSI
- Person Residual Correlations (B3)
- Cluster Analyses

Questions?

To Summarize

- Security is about Validity!
- Plan for it
- Avoid it (prevention)
- Look at a high level, then (detection)…

- Including candidates (enforcement) and content (mitigation)

Questions?

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