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## Psychometrics of Online Proctoring (OP): *Comparing OP and Test-Center Deliveries*

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# Speakers

- Liberty Munson, PhD, Microsoft
- Sara Rupp, MBA, CompTIA
- Russell Smith, PhD, Alpine Testing Solutions





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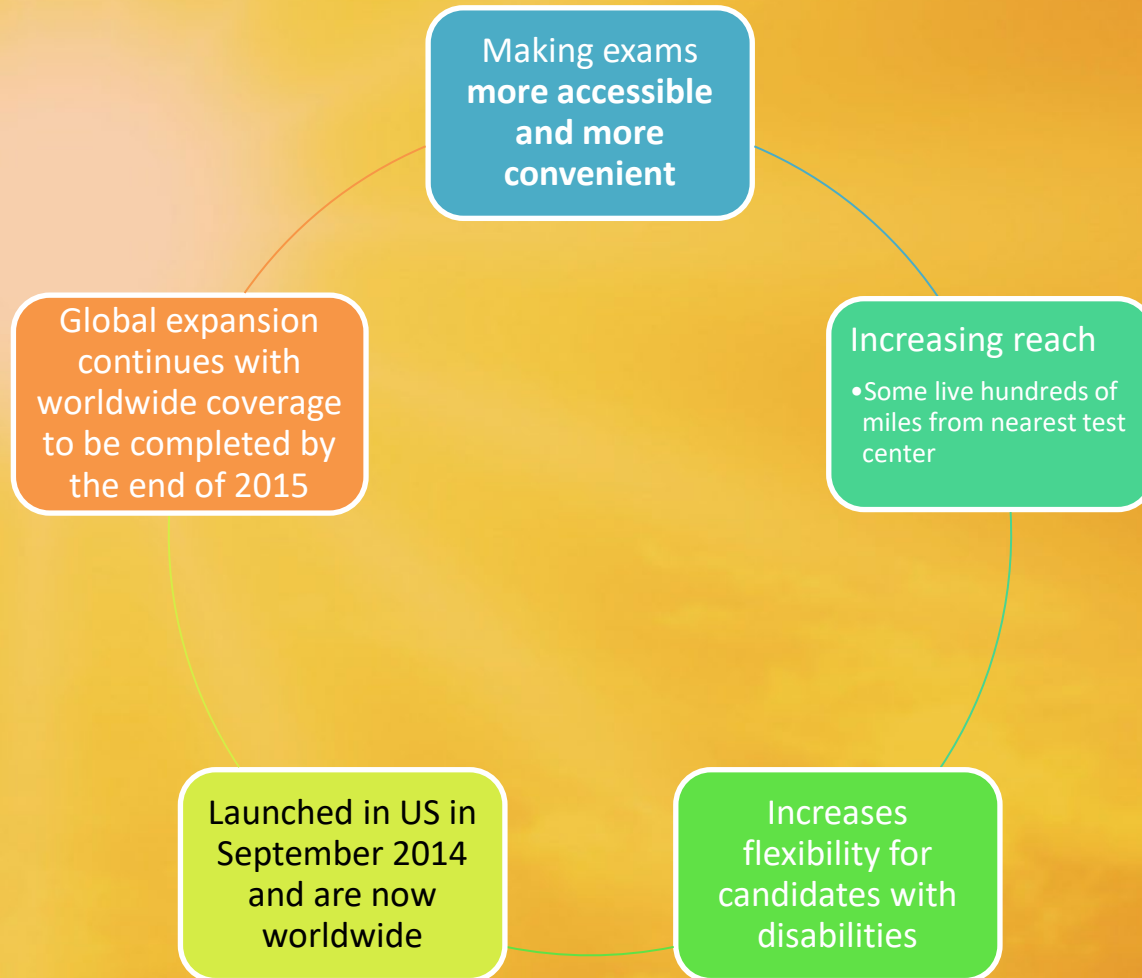
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## **Microsoft's Foray into Online Proctoring**

*What We've Learned So Far...*

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# Why Did Microsoft Launch Online Proctoring?





# Overview of Microsoft's Research on Candidate's Perspectives on OP

## Why OP?

- Convenience
- Flexibility

## Why not OP?

- Worried about internet connection
- Failing to meet system requirements
- Finding distraction free location
- Don't believe it's secure

# Online Proctoring

Value of OP	Response	%
Very Valuable	729	38%
Valuable	725	38%
Somewhat Valuable	327	17%
Not at All Valuable	135	7%

	% Very Valuable or Valuable	NVALUE
APAC	70.13	103.25
Canada	72.73	107.95
Central and Eastern Europe	76.06	109.57
France	82.61	121.74
Germany	72.23	98.15
Greater China	90	126.67
India	83.43	125.76
LATAM	88.57	147.14
MEA	85.36	129.27
UK	64.86	97.29
United States	71.16	109.9
Western Europe	73.33	103.7

Awareness of OP	% of Active Test Takers	% of MCPs
Yes	68%	49%
No	32%	51%

	% Aware
Greater China	70
Canada	64.77
Germany	60.38
Western Europe	60.15
LATAM	54.61
France	54.17
Central and Eastern Europe	53.68
UK	49.55
India	47.85
MEA	44.8
APAC	42.95
United States	37.63

# Online Proctoring Preferences

	% preferring OP over test center deliveries
Greater China	75.86
APAC	68.21
Germany	66.67
India	66.67
MEA	65.83
Canada	64.71
LATAM	60.58
Western Europe	59.92
United States	59.21
France	58.33
UK	57.66
Central and Eastern Europe	56.11

	Very Likely or Likely %
LATAM	88.65
India	87.87
MEA	85.48
Greater China	83.87
France	83.33
Central and Eastern Europe	78.31
APAC	70.77
Western Europe	68.89
Germany	68.51
Canada	68.18
UK	64.55
United States	64.22

Likelihood of taking OP Exam	%
Very likely	37%
Likely	37%
Neither Likely nor Unlikely	16%
Unlikely	6%
Very Unlikely	4%

	% of Active Test Takers	% of MCPs
6pm-10pm (1800-2200)	20%	28%
10pm-2am (2200-200)	8%	10%
2am-6am (200-600)	2%	2%
6am-10am (600-1000)	8%	9%
10am-2pm (1000-1400)	21%	18%
2pm-6pm (1400-1800)	12%	10%
No preference	30%	24%

# Barriers to OP

	% of Active Test Takers	% MCPs
May not be able to meet system requirements	12%	8%
May not be able to find a space in which to test where I would not be interrupted	18%	14%
Concerns related to Internet bandwidth or connectivity	20%	16%
Appointment availability does not fit my schedule	5%	9%
I need to take notes and can only do that at a test center	7%	3%
I prefer to take exams at test centers	21%	14%
Other. Please specify.	3%	2%
None	14%	34%

% of MCPs by Region	System requirements concerns	No interruptions	Internet concerns	Appointment time	Ability to take notes	Prefer TC deliveries	None
APAC	7.19	12.42	25.49	15.03	3.92	13.07	22.88
Canada	4.65	10.47	8.14	12.79	5.81	19.77	36.05
Central and Eastern Europe	8.15	13.59	14.13	7.61	2.72	17.39	33.15
France	4.17	12.5	25	8.33	8.33	8.33	33.33
Germany	3.77	16.98	15.09	1.89	1.89	13.21	45.28
Greater China	25.81	19.35	25.81	16.13	3.23	0	6.45
India	15.72	4.4	23.9	14.47	4.4	11.95	23.9
LATAM	7.97	10.14	23.19	9.42	2.9	13.77	30.43
MEA	11.48	14.75	27.05	5.74	2.46	11.48	26.23
UK	2.7	15.32	13.51	10.81	0.9	15.32	40.54
United States	4.03	14.23	7.86	8.7	3.61	13.16	45.65
Western Europe	6.34	20.52	12.31	7.46	1.87	14.18	35.82

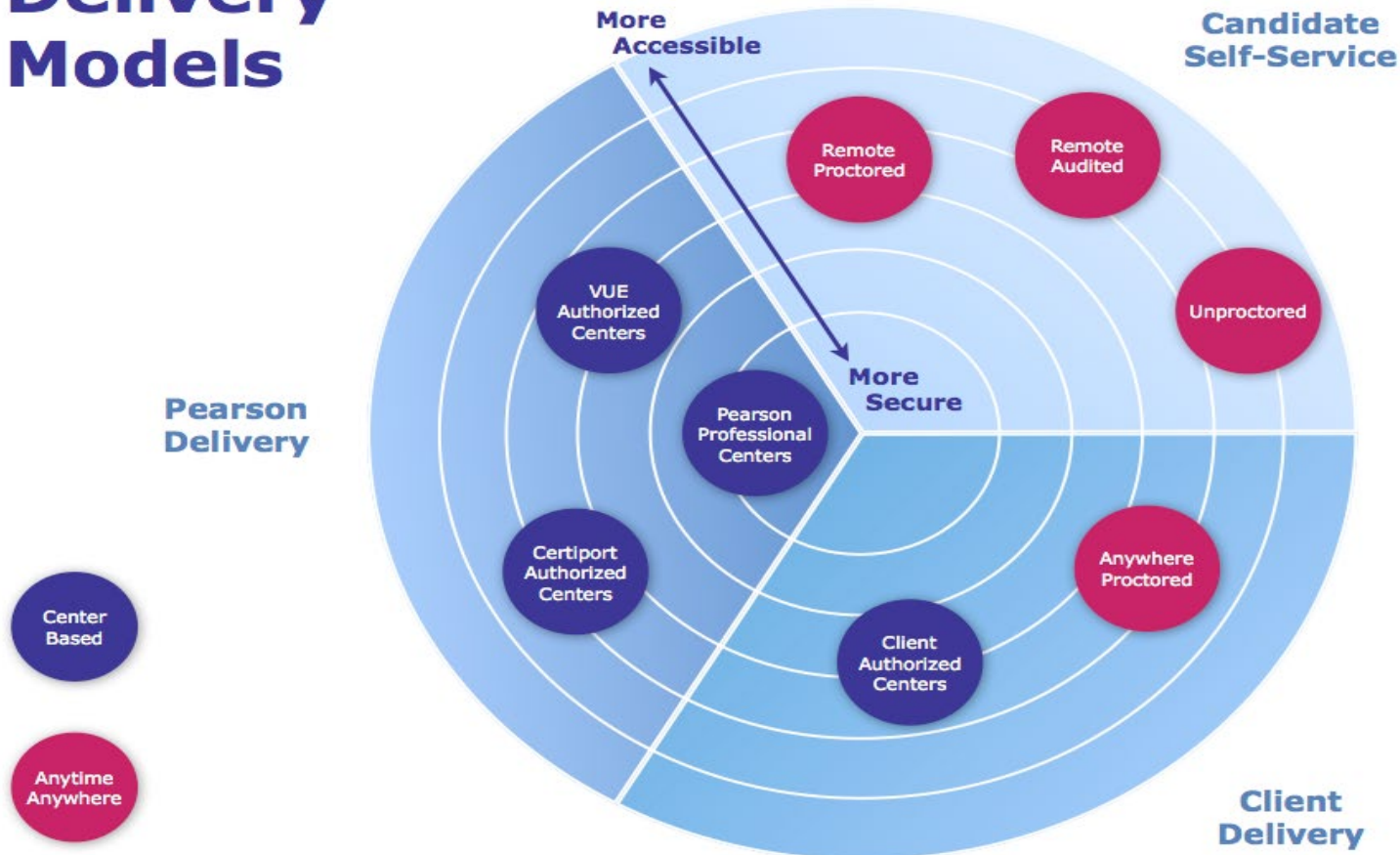


# Satisfaction with Those Who Took Online Exam

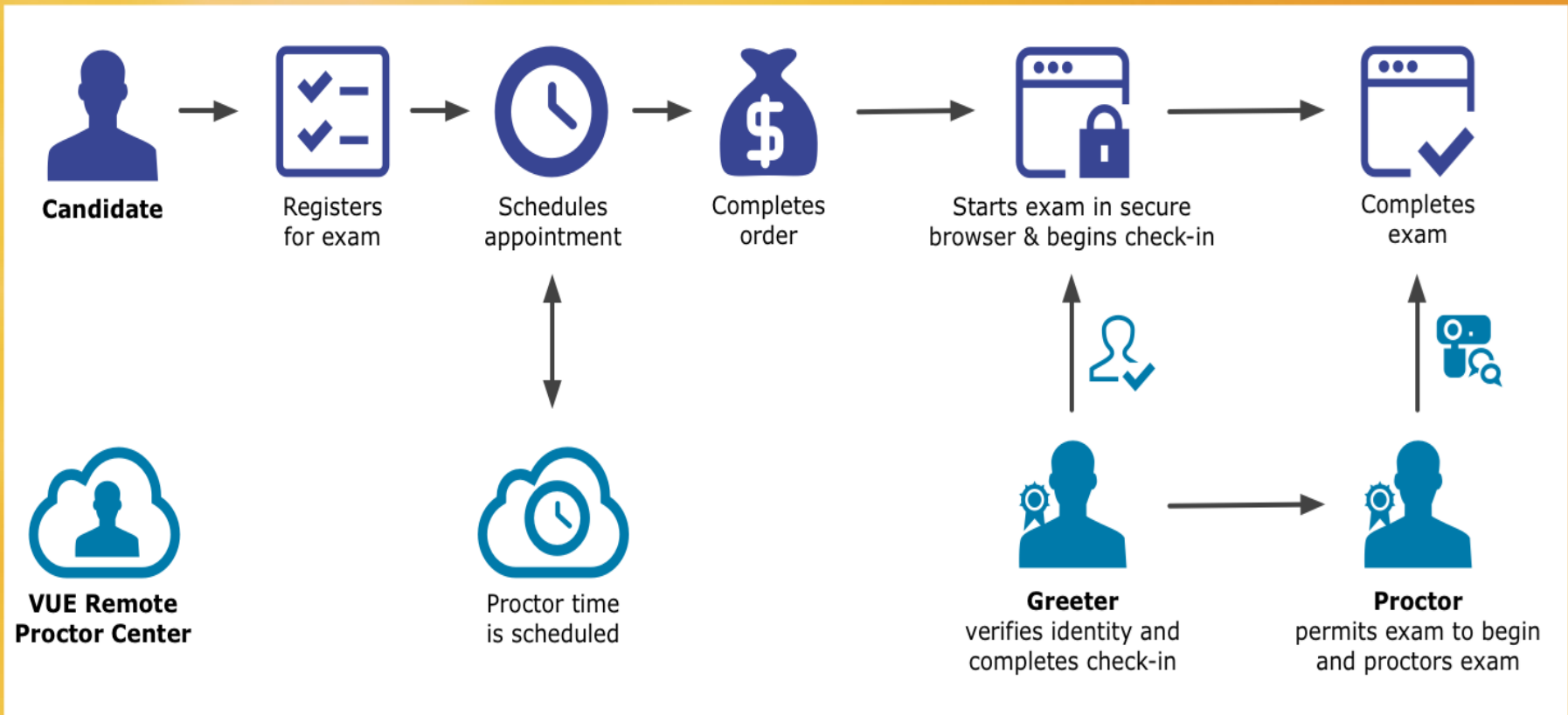
	% Agree/Strongly Agree	NSAT
Overall online exam experience	66.7%	157
Interactions with the greeter	72.6%	165
Ease of preparing your computer for the online exam session (including setting up the webcam, audio, browser, etc.)	64%	156
Clarity of instructions for preparing for the online exam session	72%	168
Interactions with the online proctor - Q10a. Reason for taking English version of exam/	65.4%	157

# Where does Online Proctoring fit?

## Delivery Models



# Microsoft's Online Proctoring Overview





# Microsoft

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# CompTIA's Foray into Online Proctoring

*What We've Learned So Far...*

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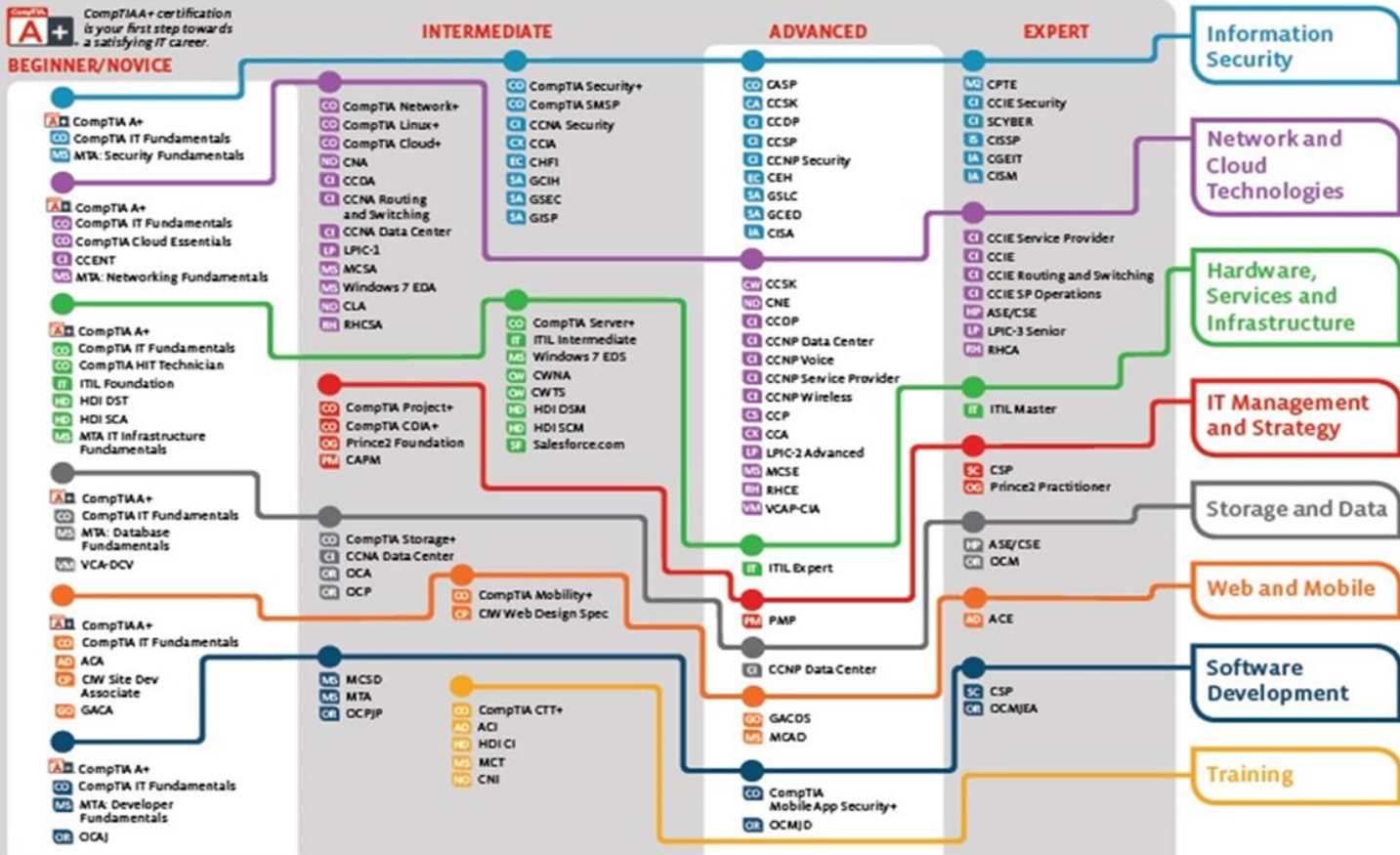
# Who is CompTIA?

## IT Certification Roadmap

Explore the possibilities with the CompTIA Interactive IT Roadmap at: [CompTIA.org/CertsRoadmap](http://CompTIA.org/CertsRoadmap)

CompTIA

Certifications validate expertise in your chosen career.



For those considering a career in IT, begin with CompTIA IT Fundamentals to see if a career in IT is a good fit.

# What type of system are we piloting?

## ■ Core Features

- Internet based delivery
- Remote initiation and lockdown of exam
- Proctoring via webcam
- Recording of testing session
- Live real-time proctoring
- 24/7

## ■ Future Features

- Forensic capabilities
- Machine proctors with human element (many-to-one)
- Take cost out of the model
- Global privacy laws
- Integrated delivery system with remote proctoring

# What has CompTIA done?

- Options CompTIA has piloted:
  - Testing centers
  - Kiosks
  - Proctored IBT-Anywhere proctored
  - No proctor IBT
  - Remotely proctored IBT via Proctor U

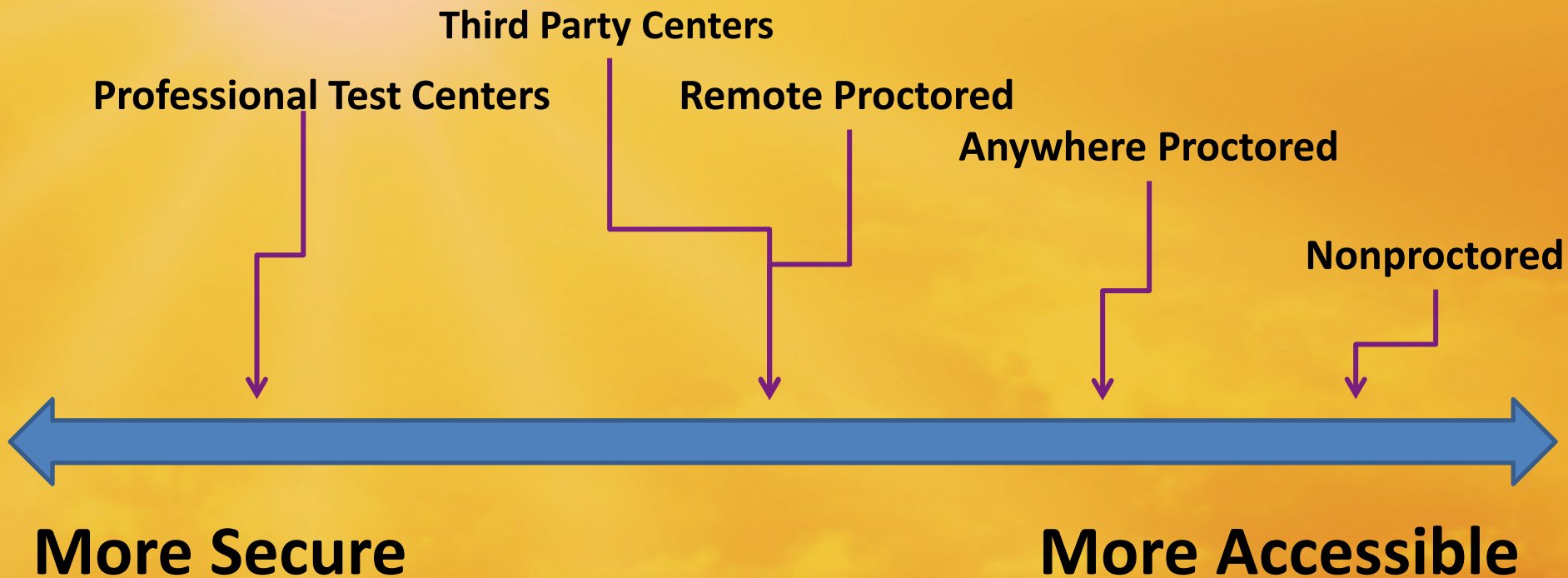


# Why is CompTIA piloting online proctoring?

- Global reach/more ubiquitous
- Eliminate conflict in current model (I will talk on this later)
- Impact red zone issues
- Provide the channel with more options

# Sara's Security Conclusions

Does this conclusion hold true in all regions or is it possible that the conclusions will change based on region?



# Overview of CompTIA 's Research on OP

## Why OP?

- Convenience
- Flexibility
- More cost effective?
- More secure?

## Why not OP?

- Internet connection/system requirements
- Potential for unwanted installs/viruses
- Accreditation impact
- Fear of big brother
- Less secure?

# Online Proctoring Numbers

## ■ What is happening?

- 833 created an OP account
  - 354 candidates took the exam
  - 479 did not take the exam
- Of the 354 exams 72% of those candidates were satisfied with the OP experience
- Confounds- the exams were significantly discounted if taken via OP to build awareness and gather data
- Non-integrated process created challenges



# Candidate Comments

- “Convenient and relaxing. Ease of taking test and conditions were great!”
- “Although I do not have a better solution, and there is no way around it, the idea of my computer being remotely controlled, and a person constantly monitoring my webcam seems a bit intrusive. Very “Big Brother.”
- “I like that I can test in my underwear and no one judges me”
- “It takes forever to set up the exam on my machine.”
- “The camera made me nervous”
- “I love that I can save gas and time with this model”



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# Remote Proctoring: Alpine's Perspective

*What We've Learned So Far...*



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# Remote Proctoring vs. Brick and Mortar

## ■ Alpine:

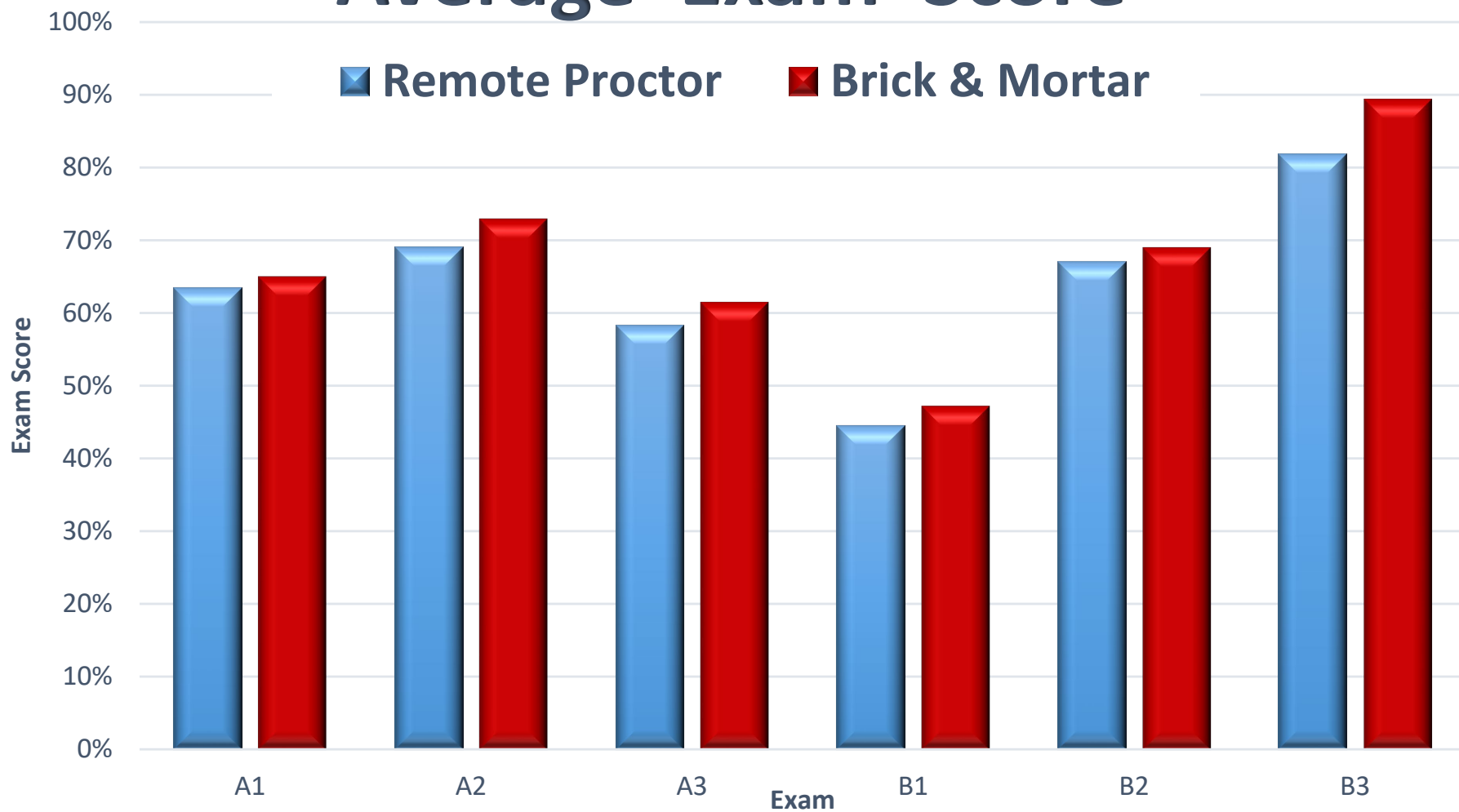
- no skin in the game
- copious amount of data
- support Microsoft and CompTIA

## ■ Comparable performance?

## ■ Security?

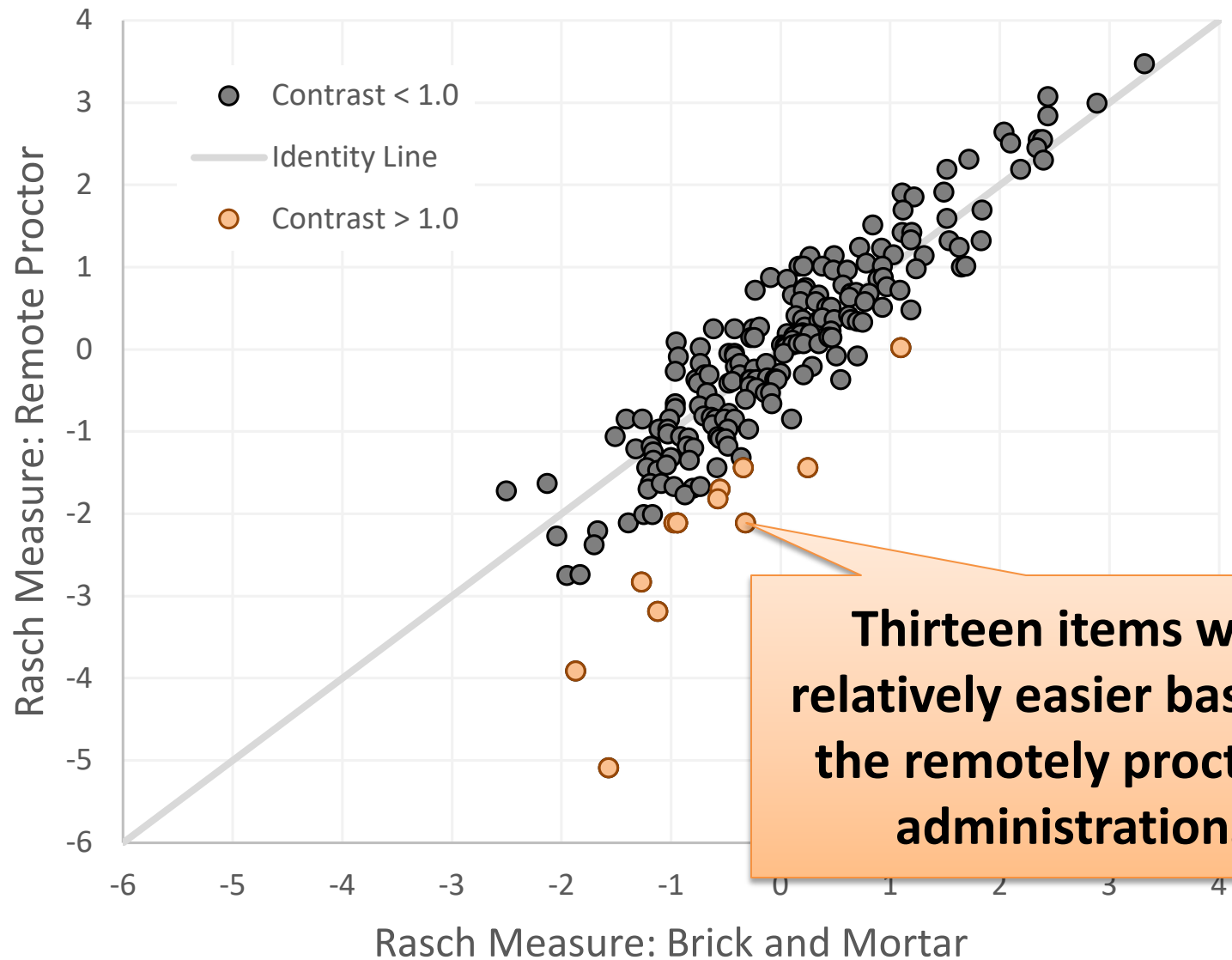
**Brick and mortar scored higher, on average, than remotely proctored for these 6 exams.**

## Average Exam Score

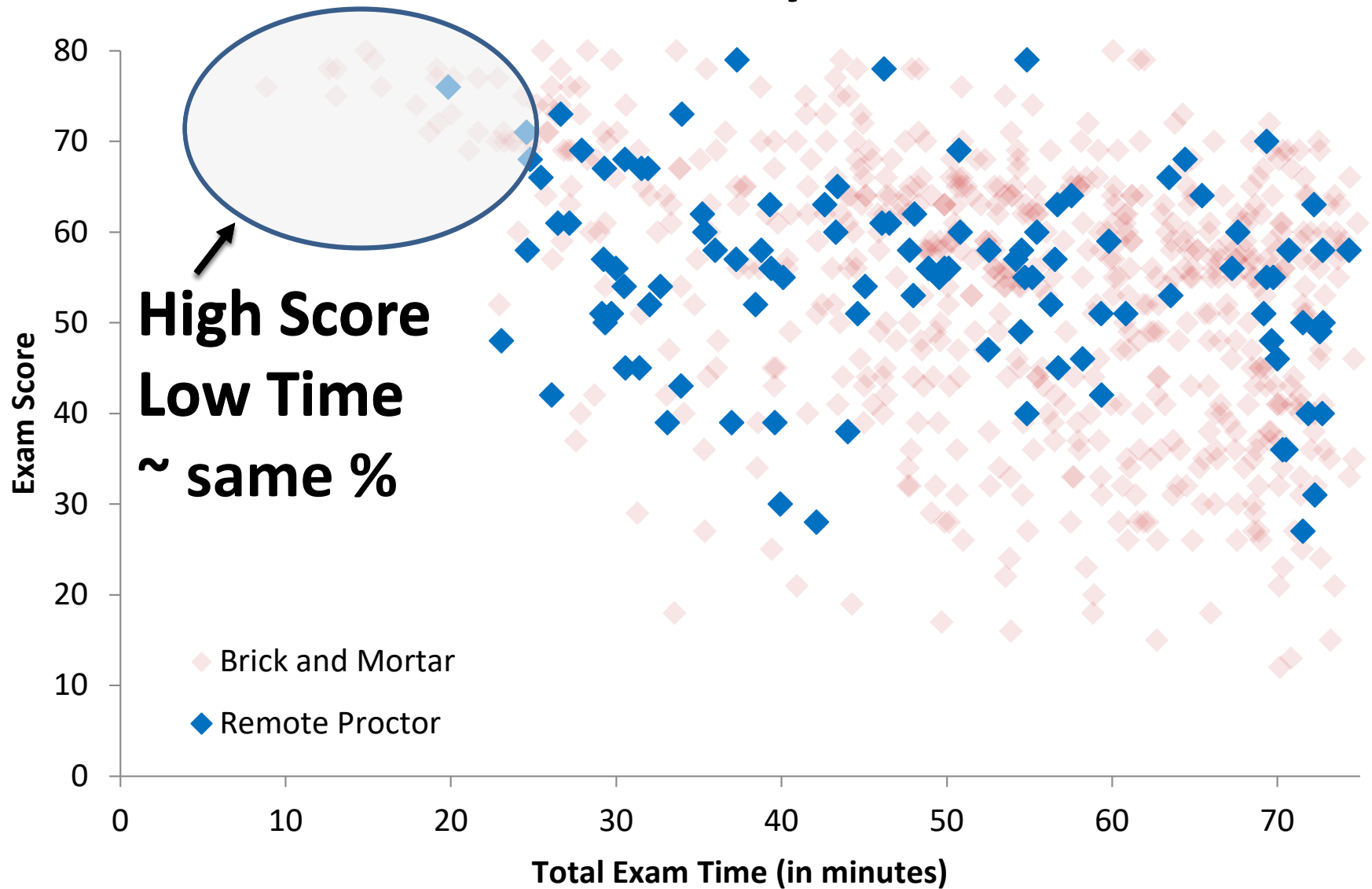




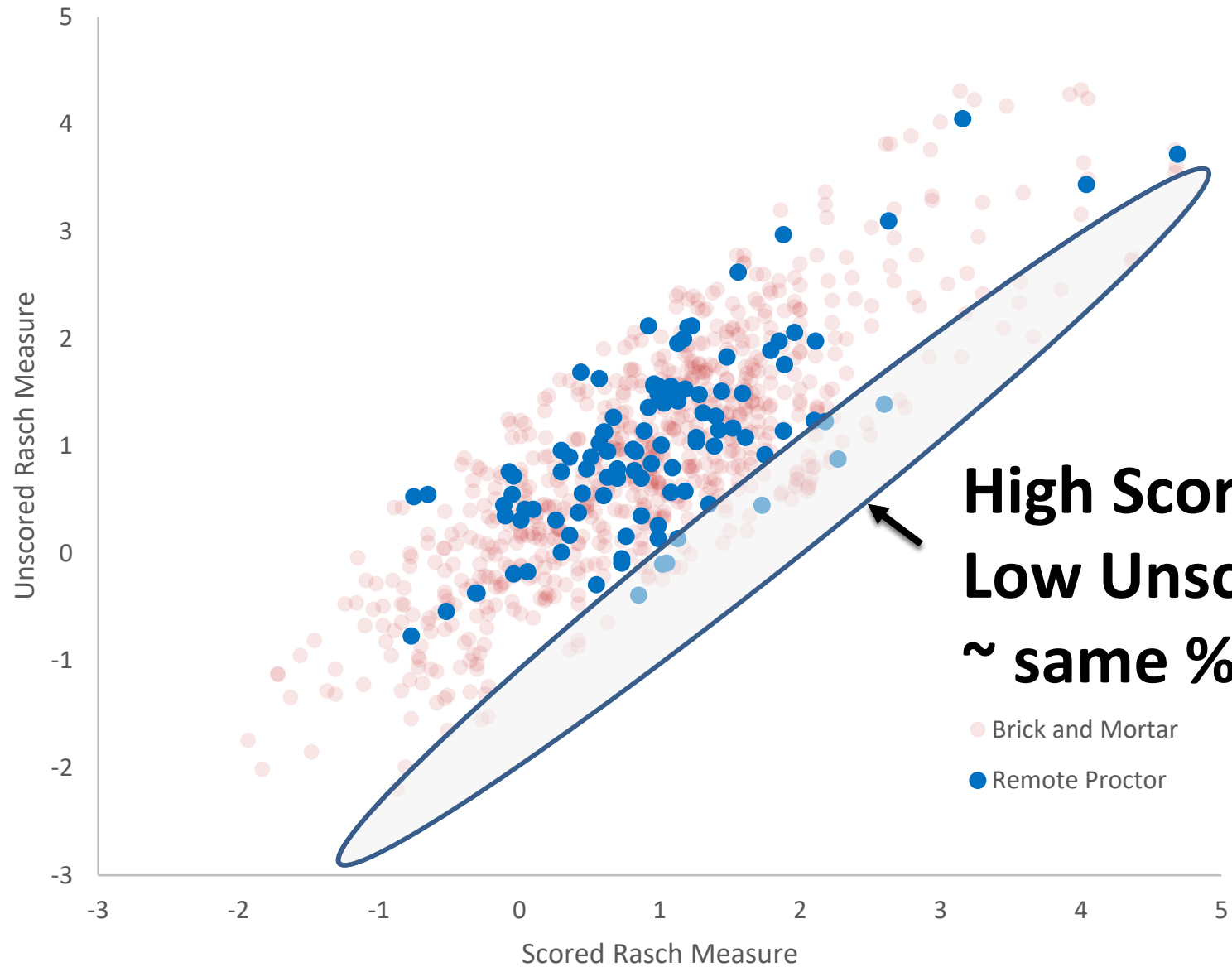
# Differential Item Functioning



# Total Exam Time by Exam Score



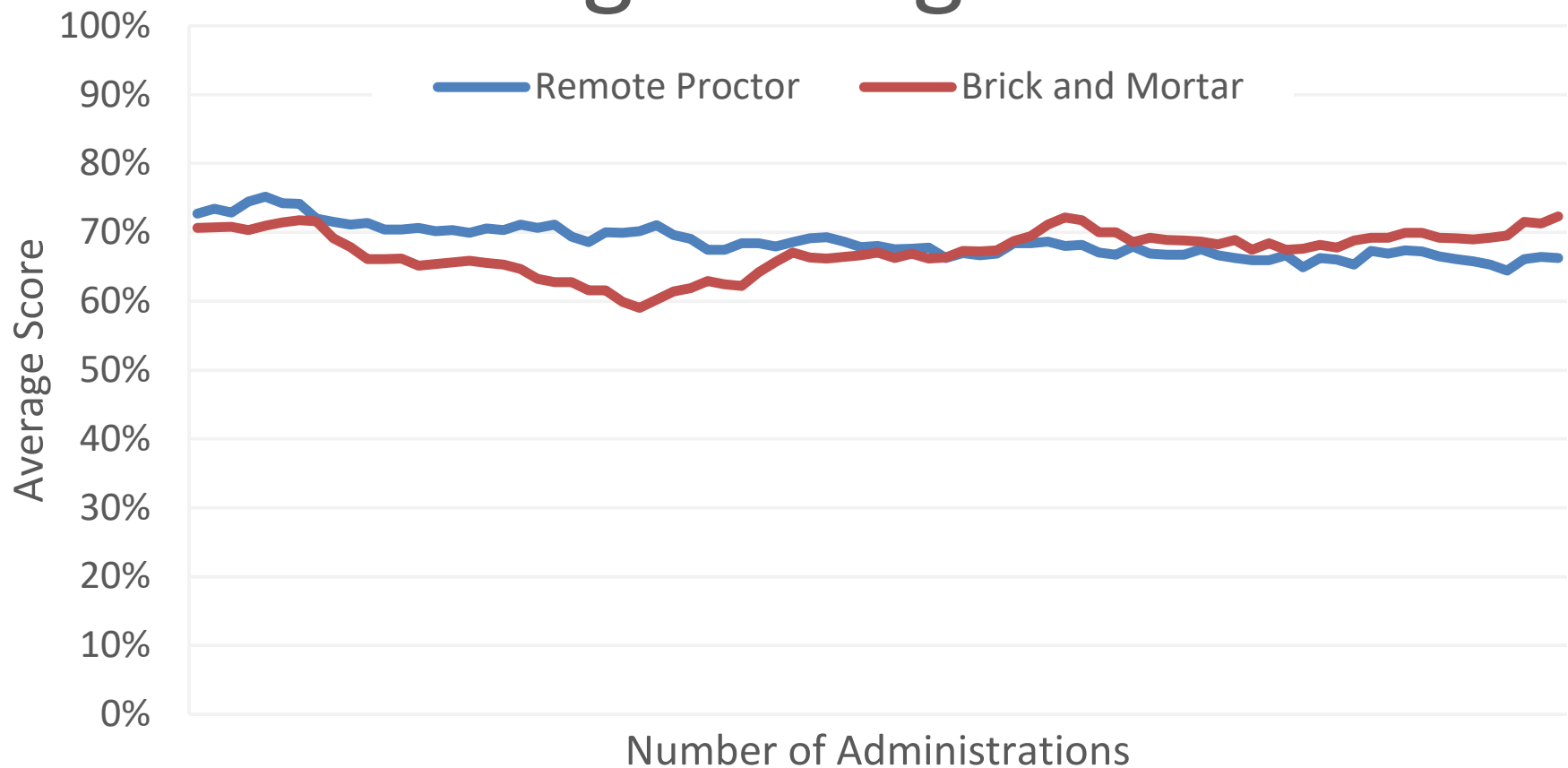
# Differential Person Functioning



## Percent of Administrations with DPF Contrasts > 1.0

	Exam B1	Exam B2	Exam B3
Brick and Mortar	9.6%	9.36%	8.80%
Remote Proctor	12.3%	7.04%	5.70%

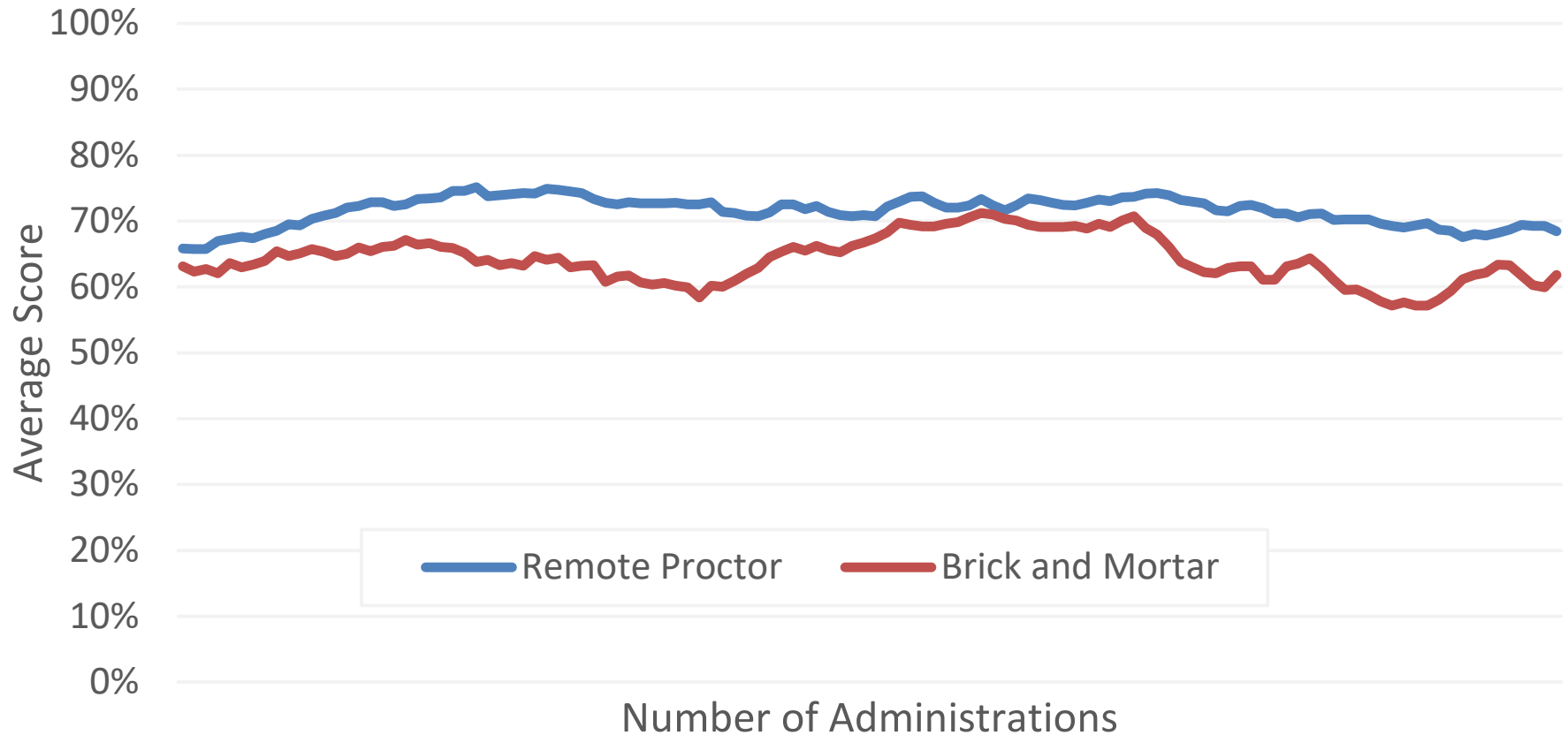
# Moving Average Scores



Exam B1: Remote is somewhat more stable



# Moving Average Scores



Exam B2: Remote is somewhat more stable

# Summary and Conclusions

- Multiple exams & analyses
- Many confounds
- Results were mixed
- Many similarities...

**...but we need to better understand the differences!**

