Comparability or equivalency: The parallels between remote proctoring and test centre exam delivery through data and lessons learned.

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Exam Delivery
Remote Proctoring – PRONTO
Test Center
Comparison of test center and remote proctoring delivery
Candidate performance
Candidate satisfaction
Lessons Learned
Who is ICC?
- A member-focused association with over 64,000 members;
- Develop model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures.
- Certification exams started being offered through CBT in 2006
- Over 440 exam titles currently available and delivered on computers in test centres
- 82 exam titles are available online through remote proctoring (with more to be made available in the next 6 months).
- Remote proctoring was launched in August 2017.

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PRONTO stands for ‘Proctored Remote Online Testing Option’
- Secure exam delivery service with live remote proctoring
- Available 24/7; candidates can plan and take their exam at the day and time most convenient to them (on-demand)
- Provides immediate exam results upon completion
- 97 exam titles available through PRONTO
- Approximately 36% of exams available in both test centres and PRONTO are taken via PRONTO

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Process
- Candidate connects to proctor (after tutorial and system requirements check)
- Proctor verifies candidate ID
- Proctor asks candidates to show the entire room and the desk (taking webcam and do a 360 degree scan) and confirms allowed material
- Candidate connects to exam through URL provided by the proctor
- Proctor monitors exam taking through the entire session
- Candidate behaviour
- Candidate computer
- Breaks are allowed during the testing session but only for a maximum of 5 minutes
- Room needs to be rescanned when candidate returns to the exam

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Test Centre Delivery

- Over 300 secure test centres across the US within the Pearson VUE network
- Candidates schedule an appointment with Pearson VUE through a single sign-on portal - myICC
- Results available upon exam completion
- Process
  - Candidate check-in and ID verification
  - Candidates put personal belongings in locker
  - Security check: Metal detector (randomly) and pocket turning/emptying
  - Proctor verifies candidate material
  - Proctor assigns a seat to candidate
  - Proctor monitors candidates in test centre through the entire session

Test Delivery Requirements

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>TEST CENTRE</th>
<th>PRONTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-book?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Government-issued photo ID</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Restroom or other breaks allowed?</td>
<td>Yes, for a maximum of 5 minutes</td>
<td>Yes</td>
</tr>
<tr>
<td>Writing utensils allowed?</td>
<td>Yes, whiteboard provided</td>
<td>No</td>
</tr>
<tr>
<td>ADA accommodations</td>
<td>Yes, multiple</td>
<td>Limited</td>
</tr>
<tr>
<td>Candidate-owned hardware</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Test Centre vs Virtual Proctoring

- Candidate performance: How do test centre delivery and virtual proctoring delivery compare?
- Item performance
- Pass and fail results
- Time spent on items
- Candidate satisfaction: What do candidates have to say and how do they compare between test centre delivery or virtual proctoring delivery?
- Incidents: What type of incidents are more prevalent during test delivery, are they similar or different?
A Residential Building Inspector will be responsible for performing inspections of structures to determine compliance with the various Building Codes and Standards adopted by his / her jurisdiction. At this level of certification, the Inspector shall be able to inspect one-and-two family dwellings, townhomes not more than three stories in height, and accessory structures.

Exam format:
- 60 MCQs
- 2 hours
- Open book
- Exam delivery:
  - Pearson VUE test centres
  - PRONTO (Remote Proctoring)

### Our Case Study

**Comparison of performance on overall exam showed no significant difference between performance test center and PRONTO**

<table>
<thead>
<tr>
<th>Period</th>
<th>Test Center</th>
<th>PRONTO</th>
<th>Overall Exam</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2017 - December 2018</td>
<td>70.7%</td>
<td>70.2%</td>
<td>t = 0.252; p &gt; 0.05</td>
<td>No significant difference at 0.05</td>
</tr>
</tbody>
</table>

### Candidate Performance - Items

Most candidates take the exam on PRONTO between 8am – 8pm (over 80%).

Most candidates take their exam at 8am in test centers, with a slight increase around noon time.

### Candidate Performance - Pass/Fail

Note: All candidates that took the exam between 2am and 5 am failed the exam.
Average pass rate for PRONTO: 40%
Average pass rate in test centres: 42%

No significant difference observed between test centre and PRONTO delivery on time spent per items on the exam.
### Candidate Satisfaction

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Test Center</th>
<th>PRONTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Satisfaction</td>
<td>82.8%</td>
<td>82.5%</td>
</tr>
<tr>
<td>Test Center Location/Connection was easy</td>
<td>82.5%</td>
<td>75.04%</td>
</tr>
<tr>
<td>Reservation Procedure was easy</td>
<td>77.44%</td>
<td>75.98%</td>
</tr>
<tr>
<td>Test Center/Proctor was knowledgeable</td>
<td>85.68%</td>
<td>82.66%</td>
</tr>
<tr>
<td>Security of the registration process</td>
<td>85.98%</td>
<td>85.94%</td>
</tr>
<tr>
<td>User Friendly</td>
<td>83.08%</td>
<td>81.82%</td>
</tr>
<tr>
<td>Examination functioned as explained</td>
<td>82.46%</td>
<td>84.14%</td>
</tr>
</tbody>
</table>

### Candidate Satisfaction – PRONTO comments

#### Positive Comments

- Great to sit at home instead of driving a long time to a testing center
- Great system
- Great process, felt more comfortable using own office as opposed to going to a test center
- A lot more comfortable than an exam room; easier to think
- Great interface; proctor was thorough and professional
- No work missed due to ability to schedule the exam at any time

#### Negative Comments

- Took a long time to get logged and start the exam
- Tutorial on how to use the features should be before the exam starts
- Spent too much time trying to figure out how to go through the test and how to mark things
- Drawings difficult to navigate
- Connection issues during the testing event

"I like the format very much. Love that I can take the exam when any at my best."

"This was an overall good experience and I will use PRONTO for all of my future ICC exams."

"This was my first test ever and I was good with how it worked, just wished I had passed."

"Thank you for creating a secure and easy environment."

"Taking exams at anytime worked with my schedule and it was driving time and cost effective which was about an hour away from the house."

"This was my first test ever and it worked out well. I am glad I had no problems and I passed."
Risks to Manage: Exam Delivery

### Remote Proctoring
- Security
- Cheating
- Item harvesting
- Unauthorized items
- Environment
- Disruptions
- Technical issues
- Equipment and bandwidth
- Waiting time to connect with proctor

### Test Centers
- Security
- Cheating
- Item harvesting
- Unauthorized items
- Environment
- Disruptions
- Technical issues
- Proctor to candidate ratio

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Lessons Learned

- Phased approach: Implementing PRONTO for a subset of exam titles
- Dual approach at the onset: Delivery through test centers AND through virtual proctoring (not one or the other)
- Clear communications with candidates: Ensure they understand the requirements for remote proctoring (e.g., wired internet connection vs wi-fi)
- Strong marketing and education campaign to promote PRONTO: more of this is always required
- Tutorials and videos: the more hands on examples the better