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Report on the NCCA Assessment of Live Remote Proctoring

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Table of Contents

Executive Summary	4
Introduction	5
History of LRP and Global Pandemic	7
Methodology.....	8
Description	8
Quantitative Data	9
Qualitative Data	9
Findings.....	9
Section 1: Adherence to <i>NCCA Standards</i> in the LRP Environment.....	9
Section 2: Review of the Technical Reports	12
Privacy	14
Security	14
Limitations	17
Conclusions.....	18
Appendix A – Selected NCCA Standards with Essential Elements: Rationale for Inclusion in the Study	19
Appendix B – Application Forms and Legal Documents.....	24
Appendix C – Questions Used to Assess Compliance with the LRP Relevant Essential Elements	27
Appendix D – Sample Candidate Comments	31
Appendix E – Program Considerations When Selecting Live Remote Proctoring (LRP).....	35



Executive Summary

Remote proctoring provides the opportunity for a candidate to test in an environment of that candidate's choosing, assuming that all program and security requirements can be met. In the past few years, certification programs have expressed interest in using remote proctoring as an option for delivering their examination programs. However, programs accredited by the National Commission for Certifying Agencies (NCCA) have been reticent to use remote proctoring over concern that an examination program could not meet the NCCA Standards. To examine whether an examination program could meet NCCA Standards while using remote proctoring, the NCCA undertook an assessment to address this question.

Live remote proctoring (LRP) was defined by the Commission as remote proctoring that occurs with a person actively watching and monitoring a candidate during the time of the test administration and that provides safeguards for exam integrity and validity similar to in-person proctoring.

Beginning in fall 2019, the NCCA conducted several informational sessions to explain the purpose of the LRP study and to recruit study participants. Only programs that had already received NCCA accreditation were eligible. This requirement provided a way to benchmark programs against a common set of standards before LRP was employed. Ten programs volunteered, and nine went forward to participate.

Study plans were to collect data between January and May 2020, with each program delivering examinations by at least two delivery methods: LRP and the delivery methods (computer-based testing and paper-based testing) with which the program received accreditation. Unfortunately, during the data collection period, a global pandemic occurred, affecting the ability of programs to deliver exams in computer-based testing or paper-based locations and preventing LRP providers from meeting the demand for services. This interruption in scheduled testing activities hurt programs' ability to keep two delivery methods fully operational from March through May. As a result, data collection ended in June with programs submitting final self-study reports, including a technical report, that compared outcomes based on selected delivery methods.

A subset of the NCCA Standards was used to evaluate each program's self-study report. Overall, findings across programs demonstrated a comparability of item and person performance for LRP when compared to other delivery methods. Based on the limited data collected, the NCCA has determined that it is possible for programs to meet the Standards using LRP as a delivery method. Several limitations of this study were noted. Importantly, as LRP is a relatively new delivery method for certification, continued research, including longitudinal studies, is needed.

The COVID-19 pandemic, with mandated closures and other restrictions, has made LRP a necessity rather than a choice for many credentialing programs. The NCCA fully understands this reality, but the requirement to meet the Standards does not change because of temporary operational necessity. The NCCA believes that LRP can be a viable solution with the appropriate application of diligent processes without abandoning the standards that serve the needs of both stakeholders and program sponsors.



Introduction

The *NCCA Standards for the Accreditation of Certification Programs* have defined quality practices for certification organizations for over three decades. The *NCCA Standards* represent best practices in fairness and rigor for awarding certification and, as such, serve as a representation of quality to a wide range of stakeholders such as professionals, employers, regulatory bodies, and, most importantly, the public.

The 2014 edition of the *NCCA Standards* became effective as of January 1, 2016. In keeping with past practices, the *Standards* were intentionally nonprescriptive in addressing the methods that a program might choose to use in developing, administering, and maintaining its examination(s), although the *Standards* specify that the program's "procedures must ensure that all candidates take the examination under comparable conditions, safeguard the confidentiality of examinations, and address security at every stage of the process."

The Committee that revised the *Standards* was aware of the increasing interest in using remote proctoring as an adjunct method to test delivery outside of traditional brick-and-mortar facilities, and their choice of language was intended to make it possible for a program to apply for accreditation when using such methodology. However, the lack of independent research to establish the comparability between options for remote proctoring and more traditional proctoring methods (paper-based testing and computer-based testing) discouraged potential applicants.

As the *NCCA Standards* represent excellence in certification, it was only logical that the NCCA might consider how LRP might intersect with the current *Standards*, and more specifically, that the NCCA might collect data to inform a program's ability to satisfy the intent of the selected *Standards*.

In mid-2019, the NCCA decided to conduct an assessment to determine whether the *Standards* could be met using remote proctoring. The first step was for the NCCA to identify the *Standards* that could be affected by the use of remote proctoring. Nine *Standards* comprising 16 Essential Elements were identified as requiring additional scrutiny when remote proctoring was used during test delivery. (See Appendix A).

To establish operational parameters for the assessment, the Commission determined that the only type of remote proctoring that would be evaluated in meeting the *Standards* at the present time would be proctoring approaches that had a live human proctor who could continuously monitor in real-time a test-taker and who could immediately investigate and terminate, if warranted, the examination session for any potential security issues. (This approach is referred to as "live remote proctoring," or LRP.)

The Commission then conducted a virtual information-gathering forum to understand whether programs were interested in using LRP and what experiences they have had with the technology (with other, nonaccredited programs, for example). Seventeen programs participated in this forum via conference call on September 30, 2019.

On October 18, 2019, an invitation was issued to all 135 organizations with NCCA-accredited programs to consider participating in the NCCA's LRP assessment. Qualifications for participation included the following:



- The organization's NCCA-accredited programs were in good standing.
- Only one certification program per organization was eligible to participate.
- Programs had to offer exam delivery with a proctoring method other than LRP and had to agree to continue to use that method while offering LRP so data could be collected to compare the different methodologies.
- Participants were required to commit to using LRP during the data-gathering period, and participating programs had to agree to suspend LRP during the NCCA's review of the assessment data, if requested.
- Programs agreed to provide a self-study report based on a subset of *NCCA Standards*.
- Following its review of the time-limited assessment, the NCCA agreed to communicate whether, and under what conditions, certification programs may include LRP as a delivery method for an accredited certification program.
- If the NCCA decided to disallow LRP or if the participating program's use of LRP did not meet the NCCA's stated criteria for permissible LRP, then the participating program had to agree to cease LRP to maintain the program's current accreditation status.

Participating programs were assured that if they participated in the assessment, their NCCA accreditation would not be jeopardized, regardless of the Commission's ultimate determination about the use of LRP. In addition to completing an application form, participants were also required to sign a release form agreeing to hold the NCCA harmless for any incidents that arose due to the participant's decision to use LRP for purposes of their assessment needs. See Appendix B for copies of these documents.

At the Institute for Credentialing Excellence (I.C.E.) Exchange in November 2019, the Commission also conducted a Town Hall session to answer questions from the community at-large about the planned LRP assessment.

Ten accredited programs originally agreed to participate by the deadline of November 13, 2019, and nine proceeded to implementation. Although the NCCA had anticipated having to select participants, the number of programs submitting applications and their diversity (e.g., small or large numbers of candidates, healthcare or non-healthcare industries, remote proctoring vendors chosen) made this unnecessary. The programs were expected to begin using LRP by January 31, 2020 and to conclude using it by June 1, 2020. Data would be collected and submitted to the Commission through its online system used for accreditation applications by June 30, 2020.

The nine volunteer programs included three programs from the fitness industry, five programs from the healthcare industry, and one from the hospitality industry. The programs have been NCCA accredited for an average of nine years, with the number of annual certificants ranging from fewer than 100 to over 23,000.

The NCCA expresses its sincere appreciation to the programs that volunteered to participate in this effort to support the credentialing community.



History of LRP and Global Pandemic

Remote proctoring is an online method for administering examinations when the test-taker and the proctor are not physically located in the same space. Remotely proctored exams use live human proctors, in some cases aided by sophisticated technology, including machine learning and artificial intelligence, to monitor a test-taker's progress through a test session to ensure the integrity of the exam process and to identify behaviors and actions that may require further investigation.

Known by many names including LRP, online proctoring, and real-time proctoring, for the purposes of the NCCA, the term “live remote proctoring” has been chosen to define a testing session where the test-taker in one location is observed using technology at all times by a human proctor in real-time from another location.

Delivering exams via remote proctoring is not new to the testing industry. Platforms for delivering exams through online systems have been in use for many years. Widely used in the education community, these technologies generally focused on situations where test-takers were taking formative rather than summative assessments and where the “stakes” associated with the exam results were relatively low. More recently, the use of remotely proctored exams for high-stakes examinations has been considered, given the advent of more powerful computer equipment, technology such as webcams, and high-speed internet service that allows test-takers and test proctors to connect digitally.

In the licensure and certification testing industry, the consideration of remote proctoring occurred slowly at first. Testing programs that moved to computer-based test centers 20+ years ago valued the consistency that a fixed environment provided, where test-takers could take high-stakes examinations under the watchful eyes of human proctors within a standardized, secure environment. Security policies were purposefully designed to be rigorous, including check-in procedures and restrictions on what could be brought into a testing room. Test-takers were continuously monitored, and audio and video were recorded to allow additional scrutiny of test-takers' actions, as needed.

Test sponsors' interest in using remote proctoring was piqued, especially as more remote proctoring vendors came into existence and as technology became more sophisticated. However, test sponsors' demand for remote proctoring services skyrocketed in the spring of 2020 when the world was hit with the coronavirus pandemic. The pandemic's impacts were widespread, essentially shutting down the testing industry for many weeks. Major brick-and-mortar testing providers shuttered fixed test centers for safety concerns and in adherence with local, state, and federal regulations. Paper-based testing was no longer an option, as conference centers and hotel ballrooms also had to close.

Many test sponsors, some of whom already had been considering LRP, turned to remote proctoring as a viable option of business continuity allowing for continued testing, especially for test-takers who were considered “essential workers” and needed to be credentialed to assist in the pandemic response. Within a relatively short period of weeks, test sponsors searched quickly for remote proctor testing vendors who could convert a fixed-center testing program to a remotely proctored environment, allowing candidates to resume testing and test sponsors to continue providing business services.



However, this rapid need for remote proctoring services to replace in-center testing created a huge demand on a limited supply chain of providers. Remote proctoring vendors who were staffed to deliver hundreds of tests per month pre-pandemic were now being asked to provide many thousands of exams. In some instances, remote proctoring vendors could not immediately ramp up to increase services as quickly as those services were being requested, which resulted in those testing organizations buying services that were readily available. Test delivery via remote proctoring very quickly became the primary way, for the short-term, to offer testing services. After a several week shutdown of traditional delivery services, fixed test centers reopened in compliance with governmental required safety protocols and state and local municipality regulations.

For most participating programs in the NCCA assessment, LRP was a new delivery format that required additional responsibilities and/or contracted statements of work. In all cases, the same program staffing was used for LRP that was in place for computer-based testing formats. In most cases, the programs used the same vendor for LRP as they used for other delivery services, though some programs selected a different vendor.

Programs had to quickly review policies and procedures for modifications needed to use LRP and, in some cases, create new documentation, such as LRP-focused candidate handbooks and publicly available website communications explaining LRP.

The COVID-19 pandemic might have created extraordinary or unique conditions, making it difficult to assess the impact on staff workloads and confounding whether additional staffing was required for a new or second delivery or proctoring format. Candidate volumes for most programs were significantly reduced and, in some cases, multiple delivery formats were not available.

Programs were required to demonstrate monitoring and oversight during the LRP assessment. Due to the new delivery model, most programs reported frequent update calls with their vendors, consultants, psychometricians, and staff to discuss and determine actions needed to support testing via LRP.

Methodology

The internal validity of a study is intrinsically reliant on the extent to which its design and data support the interpretation of outcomes and generalization of conclusions, in this case, as they apply to accreditation based on the *2016 NCCA Standards*. A hybrid methodology using a mixed-method design with both quantitative and qualitative data was appropriate for this purpose, as it provided a well-rounded platform on which to assess compliance to the *Standards* as well as insight into end-user perceptions and experiences.

Description

Quantitative and qualitative data were collected from the nine participating organizations. Participation in this study was strictly voluntary.

The Commission provided a subset of *NCCA Standards* applicable to LRP to all participating organizations. Programs were required to provide evidence of compliance to this subset of *Standards*, at minimum. Key words and components from this list of *Standards* were used to create data collection fields for the study; these fields were then used to create a template by



which commissioners reviewed evidence and assessed compliance. Only organizations with an accredited program were eligible to participate in this study; therefore, the term “compliance” means that the organization submitted documentation to specific *Standards* within the context of LRP and not as part of a compliance plan to maintain accreditation.

As a component of eligibility to participate in this study, organizations agreed to provide technical information on the performance of test items, test forms, and candidates to support the comparison between different test delivery and proctoring models. In addition, organizations also provided information regarding candidates’ testing experiences and perceptions as reported by candidates (See Appendix D for sample candidate comments).

Quantitative Data

Quantitative data sources were twofold. One was the result of dichotomizing the submission of required documentation and rating its adequacy as it pertained to the *Standards* highlighted for the LRP assessment, and the other was technical information about exam and person performance. Each organization was required to submit a self-study compliance report to the Commission by July 8, 2020. Required elements of the compliance report addressed three areas of performance: candidates, exam items, and exam forms. Accompanying technical reports included sample sizes under at least two proctoring models, including LRP and at least one additional delivery model. Metrics per proctoring model included the number of candidates, number of items, mean scores with corresponding standard deviations, standard error of measurement of scores, form-level reliability, pass rates, an index of decision consistency, and basic item statistics. In some cases, mean response time was also provided.

Qualitative Data

Each participating organization was asked to solicit and collect structured feedback from their candidates. The resulting qualitative data consisted of candidates’ responses and comments regarding their experiences and perceptions of LRP.

Findings

The findings from the LRP assessment are presented in two parts: adherence to *NCCA Standards* in the LRP environment and comparability metrics from the technical reports. In each part, findings are presented in terms of the extent, if any, to which LRP prevented or inhibited any of the nine participating programs from meeting a specified *NCCA Standard*.

Section 1: Adherence to *NCCA Standards* in the LRP Environment

Background

The *NCCA Standards* outline 24 overarching *Standards* for the accreditation of certification programs. Each *Standard* has a number of Essential Elements, that is, statements that are directly related to the *Standard* and specify what the certification program must do to fulfill the requirement of that *Standard*. In total, there are 87 such Essential Elements.

In the design of the LRP assessment, the NCCA expended significant time and effort to review the *Standards* and select those *Standards* that would be most applicable to evaluate the use of



LRP. While arguments could be made for other *Standards* to be considered, the NCCA agreed that the use of LRP by a certifying agency would most directly impact potential compliance with certain *Standards*. The selected *Standards* include a mix of administrative and psychometric Essential Elements.

As part of the NCCA LRP study, nine *Standards* and 16 Essential Elements were identified as requiring investigation in the LRP context. NCCA commissioners reviewed documentation from the nine programs to ascertain the extent to which each of these *Standards* was met in the LRP context, based on the NCCA commissioners' judgments. Specifically, the reviewers sought to identify areas in which the use of LRP may have prevented certification programs from meeting the required *Standards* or inhibited their ability to do so.

Data Available for Analysis

NCCA commissioners investigated each Essential Element by means of a question or series of questions. For example, eight questions were required to address Essential Element 5A. Lists of questions pertaining to each of the remaining Essential Elements are provided in Appendix C. Commissioners obtained information from both a psychometric and an administrative review of each of the nine programs; accordingly, each question was answered 18 times. Thus, in total, there were 144 (i.e., 18 x 8) responses pertaining to Essential Element 5A.

Analysis

In the case of Essential Element 5A, a positive response (i.e., “yes”) to any of the questions in Table 1 was interpreted as evidence that this element was being met, while a negative response (i.e., “no”) was interpreted as evidence that it was *not* being met. Occasionally, commissioners were unable to assess a program’s response (e.g., “needs clarification”), which was interpreted as insufficient evidence. Had this been an application for accreditation, additional follow-up questions would have been sent to the program.

This process of calculating the proportion of responses providing each type of evidence was repeated for all Essential Elements. The Essential Elements are listed in Table 1 according to the proportion of responses indicating compliance, in descending order. Those near the bottom may be considered to pose the most potential challenges in the LRP context, according to these data.

To aid in interpretation of the data, color coding is used in Table 1. *Standards* blocked within the green cells can be considered unproblematic in the context of LRP and the nine pilot programs, as the majority of commissioner responses during the evaluation of the self-studies (80%+) indicated that they were fully met. Some of the responses suggest that the *Standards* highlighted in yellow were questionable in terms of being met or that there was not enough evidence provided to make an affirmative decision. The extent to which the *Standards* highlighted in red were being met can be considered somewhat problematic based on the fact that some portion of the responses were either negative or the data required to make a decision were unclear or unavailable. The fact that more than half of the responses indicated concern about Standard 12A regarding the secure maintenance of personal information should be considered.



In the review of an application for accreditation decisions, commissioners have the option of sending an inquiry or questions to a program asking for further information. This option was not available for this assessment.

Table 1

List of Elements, along with Corresponding Proportions of Responses Providing Evidence of Compliance, Noncompliance, or Insufficient Evidence

Essential Element		Responses indicative of element being met	Responses indicative of element being questionable or lacking complete information	Unclear whether element was met or unmet
		%	%	%
6B	Description of examination used to make certification decisions must be publicly available	94	0	6
6C	Descriptions of exam process, including all modes of delivery and the circumstances in which they are offered, must be publicly available	94	6	0
6F	Policy for retesting of failing candidates must be publicly available	94	0	6
7C	Access to certification must not be unreasonably limited	83	17	0
20 A	Estimates of score reliability, decision consistency, and standard errors of measurement must be calculated	81	11	8
18 B	Exams must be administered using standardized procedures to ensure comparable conditions for all and promote validity of scores	80	15	5
18 C	Proctors must be trained in proper administration of exams	78	21	1
5A	Primary personnel responsible for conducting certification activities must be identified	73	24	3
18 D	Processes to monitor ongoing compliance with exam administration and security procedures must be in place	72	28	0
18 A	Exams must be administered under secure and confidential protocols; program policies must be in place to hold examinees accountable for improper behavior	69	26	5
5B	Appropriate oversight and monitoring of personnel performing certification activities must be demonstrated	64	35	1
7E	Processes for reviewing request for accommodation must follow all applicable laws and regulations	61	17	22
23 B	Processes to deal with errors found in program activities must be in place	61	22	17



<i>Essential Element</i>		<i>Responses indicative of element being met</i>	<i>Responses indicative of element being questionable or lacking complete information</i>	<i>Unclear whether element was met or unmet</i>
10 A	Signed confidentiality agreements from all personnel involved in the certification program must be maintained on record	60	37	3
11 A	Signed conflict of interest agreements from all personnel involved in the certification program must be maintained on record	60	30	0
12 A	Policies and procedures addressing secure maintenance of applicant, candidate, and certificant personal information must be in place	45	51	4

Section 2: Review of the Technical Reports

The findings from the analysis of the technical documents are summarized below and are organized around five themes (and related questions) reflecting the priorities identified by the NCCA: psychometric equivalence, candidate experience, privacy and security, communication and administration, and vendor characteristics.

Psychometric Equivalence

Was adequate evidence presented that using LRP neither advantaged nor disadvantaged a candidate compared to other delivery methods?

Were exam performance metrics similar when exams were delivered by LRP compared to other delivery methods? What differences, if any, were observed or noted?

Of the nine technical reports, eight provided information that could be used to contribute answers to the above questions. One program was unable to collect data and therefore could not provide information regarding psychometric equivalence or exam performance metrics across LRP and other test delivery methods. As such, the following findings are based on technical reports from eight of the participating programs.

In general, the technical reports suggested that candidates were not unfairly advantaged or disadvantaged by taking an exam via LRP compared to other delivery methods. The psychometric properties of the participating programs were maintained across testing and proctoring methods. LRP-based scores were similar to scores yielded from other delivery methods, primarily computer administration in a fixed-center location. This evidence was based on the results of psychometric statistical tests reported for each program, including item performance, such as difficulty and discrimination indices (p -values and point-biserial measures); person performance, such as candidate scores and standard errors of measurement; and form-level metrics, such as form-level reliability indices, pass rates, and measures of decision consistency. Referenced results were not individual program data.



Participating programs agreed to submit data under the conditions that only aggregated data would be published.

The statistical tests conducted by each program varied slightly. For example, two programs conducted additional analyses of test speededness, where time limits prevent candidates from considering and responding to all test items, while other programs did not. The presence of test speededness can undermine test validity due to a proportion of the candidates' scores not being solely a result of their knowledge or ability. The two programs that did analyze response time verified that speededness was not a significant source of construct-irrelevant variance on the LRP tests.

However, there were some differences between LRP and non-LRP outcomes. For example, the standard deviation (SD) across LRP and other delivery methods was slightly different. Four programs reported that the SD of the LRP group was higher than that of the group taking the exams through more traditional testing methods. This suggests that there was more variability for the LRP group, though this result was not universal across all participating programs, with two programs reporting a lower SD for the LRP group.

In conclusion, there were some minor differences in item and form-level performance by testing and proctoring method, but exam performance was similar across methodologies. Based on information submitted in technical reports from the participating programs, aggregate candidate performance appeared comparable between LRP and other testing and proctoring methods.

Candidate Experience

1. *How did sponsoring organizations and candidates evaluate the experience of taking an exam via LRP?*
2. *Were any types of consistent complaints noted?*

Seven of the nine programs used a survey to collect candidates' feedback regarding their subjective experience of taking an exam via LRP; two programs did not collect this type of information. In general, survey responses were consistent across the LRP and other test delivery groups. Some notable differences and consistent complaints are provided below.

The most consistent category of complaint reported by LRP candidates was labeled "technical difficulties." This complaint included being unable to log on, access, or connect to the exam and/or challenges communicating with proctors. It was observed through candidate comments that technical difficulties led to increased anxiety among some LRP candidates. However, many candidates did not report experiencing technical difficulties, and the results of the survey from LRP candidates were often comparable with candidates who took the test via other delivery and proctoring methods.

Many candidates reported that they were satisfied with their LRP experience. The comfort of home environment, the lack of travel time and costs, the flexible scheduling, and the option to choose their own testing location were frequently mentioned as benefits of the LRP experience. One participating program speculated that it is likely that as LRP methodologies continue to



develop, administrators will be able to anticipate potential problems and proactively take action to prepare and control for the potential for technical difficulties.

Privacy and Security

1. *Did candidates note any concerns about privacy related to LRP check-in procedures?*
2. *Did the vendor and/or program supply disclosure or release forms to candidates?*
3. *Were any security violations or incidents reported that may have affected the interpretability and/or validity of resulting scores?*

Of the nine programs, four did not provide details relating to privacy or security. Accordingly, the information below is based on the content provided by the other five programs.

Privacy

Some candidates expressed privacy concerns with the LRP model. Candidates noted feeling uncomfortable being watched remotely and feeling as though their privacy was being compromised. Some candidates indicated concern about the proctor's full access to their computer. The most frequently reported complaint under LRP was the requirement to provide a 360-degree view of the testing environment. Many candidates reported being uncomfortable sharing views of their personal space. It is likely that this was the first time many of the candidates had taken a LRP exam, so the experience may have felt unexpectedly intrusive in terms of personal privacy, and they may not have been cognizant that this environmental scanning would be a condition of testing via LRP.

Programs using LRP should provide guidance to candidates to clearly outline the roles, expectations, and requirements of using LRP, thus ensuring that candidates taking LRP exams are fully informed about what to expect during the experience and how their data and other information will be used and stored. In addition, programs should provide disclosure and release forms to candidates well in advance of their test session to create a bridge between program, proctoring provider, and candidates.

Security

Exam security is a broad term that encompasses actions that should be taken before, during, and after an exam, as well as on an ongoing basis, to protect the integrity and interpretability of exam scores. Threats to exam security typically can be described as certain behaviors or actions, such as item harvesting, applying pre-knowledge, proxy testing, and colluding. Certification programs are responsible for providing evidence that threats, both real and perceived, are addressed and contained, regardless of delivery model and/or proctor model.

Administering exams via LRP has led to questions regarding whether this proctoring model can provide the same level of security that is provided by an in-person exam session. This remains an open question. However, in both LRP and in-person proctoring models, security issues are directly affected by the proctoring service provider, the organization's privacy and security



protocols, and its adherence to those protocols. One participating organization conjectured that under LRP, a proctor may oversee fewer candidates than what would be expected of an in-person proctor, which may result in closer monitoring of individual candidates without being intrusive or distracting. Additionally, it was offered that under LRP, a proctor may be in a good position to identify unusual eye and/or mouth movements, time utilization patterns, and/or fidgeting, any of which could indicate candidate misconduct. However, nothing precludes in-person proctors from using the same technology as live remote proctors and the contracted level of supervision. Vendor options, such as certain proctor-to-candidate ratios, lockdown browsers, identification verification protocols, and artificial intelligence and machine learning, are a function of contracted services and program requirements.

Exam security is a central component of any high-stakes exam program. If content or processes are compromised, then resulting scores cannot be trusted. The design of this study yielded only a snapshot of item, form, and person performance for each of the participating programs. While the collected aggregate data support a summary of short-term information, they do not permit any specific statements or conclusions to be drawn about long-term consequences to score integrity. None of the nine programs reported any significant or egregious security incidents, though some minor incidents were documented, such as candidates reading questions aloud and/or not following proctor requests. Given the design and intended use of this study, the absence of any obvious breach in security should not be interpreted to mean that no content or processes were compromised or that no candidate misconduct occurred.

Communication and Administration

1. *Did the sponsoring organization provide communications to candidates so that they were fully informed about what to expect with LRP?*
2. *Did candidates have mechanisms to ask questions about LRP to the sponsoring organization?*
3. *Did candidates have mechanisms to share comments about their experience post-administration?*
4. *Were candidates provided an opportunity to select LRP as a delivery option or was LRP the only delivery option available?*

Of the nine participating programs, seven provided candidates the opportunity to share comments about their experience post-administration. Beginning the exam within an acceptable amount of time was frequently reported as a difficulty experienced by candidates taking LRP exams. LRP exams can begin once the candidate's identity has been verified, the physical and/or virtual environment has been secured, and the exam rules have been stated. Many candidates reported that they required clearer instructions about what to expect; some candidates reported that they were given conflicting advice. Some candidates also mentioned that they had difficulty contacting anyone before the exam. As a result of these problems, many candidates started the exam late and pointed out that they needed better information regarding what is required to log on to the exam, such as ID and passwords. This lack of information led some candidates to become frustrated and anxious before beginning the exam. Based on this



feedback, the information and instructions given to candidates before they take a LRP exam could be improved so that candidates have access to LRP information and know what to expect at test time so they can be better prepared.

In terms of communication, many candidates reported that the proctors were helpful. In the individual program surveys, candidates reported benefiting from the proctor's instructions and support, stating that their proctors were calm, supportive, patient, and knowledgeable. However, some candidates reported that there were communication problems with proctors. During the exam administration, one program reported that there was a temporary outage of a server, though this was an isolated event.

Programs should review their test administration policies and procedures and make sure that they are reasonable and appropriate and are applied equally, regardless of the delivery and/or proctoring model. When taking the LRP exam, some candidates recommended allowing bathroom breaks and water.

When this study was originally conceived, participating programs were in a position to allow candidates to select a delivery and proctor model. However, in the spring of 2020, test centers and other in-person facilities had to close due to the global pandemic. As a result, for some weeks during the assessment period, most candidates were limited to LRP delivery and proctoring.

Vendor Characteristics

1. *Did the organization present evidence of the features and functionalities of the vendor's LRP delivery platform?*
2. *Was information provided regarding proctor training and/or work conditions?*

Each participating organization was required to document the features and functionality of their vendor's LRP delivery program. Such features and functionality included lockdown browsers (software that disables the candidate's computer from browsing the internet or printing or communicating with any other device). Other functionality may include the use of artificial intelligence to detect certain response patterns or candidate behaviors.

Additional insight was derived from candidate comments. Many candidates stated that they would choose to take an exam via LRP in the future and reported being satisfied or very satisfied with the LRP service, including the registration and scheduling process. For two programs, candidates mentioned that their experience taking a LRP exam was easier than their previous experiences of taking a non-LRP exam. There also were candidates who were uncomfortable with LRP, felt that it was intrusive, or experienced technical issues that could have affected their performance on the exam. Collectively, these comments provide insight into the candidate experience and their comfort with the features and functionalities of the various vendors' delivery platforms.

Though requested as part of Standard 18C, information relating to LRP proctor training was only explicitly mentioned in one of the nine reports. One program stated that its proctors were highly trained in protecting exam content and in stopping aberrant behavior before any compromise occurs. However, some useful information was included in the comments provided by



candidates. On two occasions, for two different programs, candidates mentioned that their assigned proctors were unable to sign into the exam or follow exam launch instructions. They reported glitches that led to the exam starting late and the candidates becoming anxious.

For LRP to serve as a comparable delivery model, it must not introduce any bias or construct-irrelevant influence. It goes without stating that all proctors should be adequately trained and prepared to ensure that exams launch and run smoothly. In addition to documenting proctor training, organizations should also document their proctors' work conditions. For example, what is the maximum number of candidates that proctors can be assigned? How are transitions between proctors handled (at change of shifts)? How are proctors' breaks handled? What safeguards are in place to protect from possible collusion between proctors and candidates? Do proctors work in a central location or remotely? What is the maximum shift length for proctors? Though these questions are usually nonissues for in-person testing, they should be addressed in LRP.

Limitations

The NCCA acknowledges that the design and conduct of this assessment study included the following limitations:

- The study was a convenience sample of programs that volunteered to participate; therefore, the demographic characteristics of the volunteered programs does not represent the entire breadth of programs that have achieved NCCA accreditation.
- This was a volunteer, self-selected sample. It was not possible or practical to adhere to rigorous research methodology where programs and/or candidates would have been randomly assigned to different delivery methods and/or control groups.
- As only programs that are currently accredited were invited to participate, a new program seeking accreditation with only LRP or using LRP as one delivery method may be more challenged in understanding the evidence needed for the accreditation application in support of LRP.
- The selection of a vendor to provide LRP services was the participating program's decision, and only a few vendors who provide LRP services were included in this study.
- The unexpected global pandemic significantly altered for several weeks the ability of a program to offer fixed-center testing or in-person, paper-based testing.
- All outcomes reported to the NCCA were self-reported by participating organizations. As these organizations demonstrated an interest in LRP being recognized by the NCCA as a viable delivery option, there is a risk of a potential conflict of interest.
- Outcomes of this study provide a snapshot in time and do not have the benefit of tracking item, person, or form-level performance across time to assess any impact to exam security or validity.

The NCCA readily acknowledges that the outcomes of this study are limited and may not generalize to other programs that deliver credentialing examinations through LRP. It is also critical that the testing industry engage in continuing research related to remote proctoring,



including studies to examine the comparability to other delivery methods, the experience for candidates, testing accommodations, technical aspects, and security.

As programs consider whether to adopt LRP as a delivery option, the corresponding risks and benefits of LRP as a delivery method, as well as the program's ability to meet *NCCA Standards*, need to be carefully assessed. What are the expected risks and benefits that LRP brings? Does LRP increase the risk to the credential within an accredited program, and if so, how? Can existing exam security plans be updated or supplemented to address the unique aspects of delivering an exam via LRP, and if so, will they serve to protect the integrity of resulting scores as well as their non-LRP delivery counterparts? Can this equivalence of proctoring methods be demonstrated?

Conclusions

Based on the findings from this small study reflecting a short snapshot in time and noting the study limitations described above, the NCCA concludes that, at this time, there is no reason to prohibit LRP outright as a test delivery and proctoring method. Programs will be required to provide evidence of compliance with all *Standards*, regardless of test delivery and proctoring method. *NCCA Standards* are intentionally nonprescriptive, which allows programs to establish customized policies and procedures to meet their respective needs. As more data about LRP becomes available and more certification programs using LRP are reviewed for accreditation, the Commission's position regarding LRP as a delivery method may evolve. The Commission recognizes the uniqueness of credentialing programs and respects the autonomy of the certifying bodies. This said, all programs are assessed to the same *Standards* and are required to submit adequate evidence and in some cases, rationales, to support their assessment methods and models.

Programs participating in the study described in this report successfully provided evidence that compared item, test, and candidate performance on LRP-administered exams against exams administered by other delivery methods. The NCCA appreciates their participation in this study and thanks each for their efforts and contributions.



Appendix A – Selected NCCA Standards with Essential Elements: Rationale for Inclusion in the Study

Standard 5: Essential Element A

The certification program must identify primary personnel responsible for conducting certification activities (e.g., staff, consultants, psychometricians, and vendors) along with their roles and qualifications for those certification activities.

Rationale

The purpose was to gather information regarding who was responsible, from both program staff and vendors, for implementing LRP assessment and to discern the impact on staffing or workflow that can be uniquely attributed to LRP, if any.

Standard 5: Essential Element B

The certification program must demonstrate appropriate oversight and monitoring of those personnel performing certification activities.

Rationale

Critical to meeting this standard is evidence that the certifying agency provides monitoring and oversight of the vendor. This standard applies to all vendors who provide certification related services. While a selected vendor, in this case the examination administrator delivering LRP services, has the unique expertise to deliver assigned services, it remains the responsibility of the certifying agency to develop methods to monitor the performance of that vendor.

The Task Force was interested in who monitored status calls, meetings, or reports as well as information regarding the frequency of interactions between sponsoring organization and vendors.

Standard 6: Essential Element B

The certification program must make the following information publicly available: a description of the examination used to make certification decisions.

Rationale

The intent of this Essential Element is that the program must provide communications sent or shared publicly with candidates about LRP and the assessment opportunity at each stage of the assessment, including pre-assessment, during the assessment, and post-assessment. The Task Force was interested in the sources of communications to candidates for the LRP pilot and whether the organization offered candidates an explanation of what the testing experience would be like with LRP.

Standard 6: Essential Element C

Descriptions of examination processes, including all modes of examination delivery used and the circumstances in which they are offered to potential candidates.



Rationale

Programs must identify all delivery modalities offered to candidates during the assessment. For the LRP pilot, information was sought as to whether other delivery methods were available to candidates during the period of the LRP pilot, or given the pandemic, whether LRP was the only option available.

Standard 6: Essential Element F

The certification program must publish certification information that concerns existing and prospective certificants . . . [including] a policy for retesting of failing candidates.

Rationale

Because a certification program must publish information for candidates, it was important to see whether there are policies for candidates selecting the various testing modalities and whether there are any variations based on whether they are first-time or repeat testers. It is also important to discern whether candidates were informed about ways LRP would be similar to and dissimilar from other delivery modalities. This is broadly applied, whether to candidates undergoing initial certification, recertification, or retesting.

Standard 7: Essential Element C

The certification program must not unreasonably limit access to certification.

Rationale

Access to certification and the ability to earn the credential are important parts of Standard 7. Information was sought during the LRP pilot to see whether there were any candidate exclusion criteria and, if so, why. The Essential Element focuses on access to certification, and this should not be interpreted to mean that a program could not limit access to the delivery method with an appropriate rationale.

Standard 7: Essential Element E

The process for reviewing requests for accommodation must follow all applicable jurisdictional laws and regulations.

Rationale

Because certification access is important, information sought in support of this element would explore what reasonable accommodation requests were received, permitted, or denied; it looked to further explore whether these accommodations differ for LRP vs. other modalities. It was a matter of interest to see whether any accommodations requested could not be delivered with LRP, as this might inform future Standards.

Standard 10: Essential Element A

Signed confidentiality or nondisclosure agreements from all personnel (including staff, certification board members, proctors, examiners, consultants and vendors, subject-matter experts (SMEs), and applicants or certificants) involved in the certification program must be



maintained on record and enforced for protection of privileged information for current and prospective certificants.

Rationale

As is required for any program seeking accreditation, evidence of compliance with this standard includes copies of the confidentiality agreements or nondisclosure agreements used and whether any differences were required for LRP.

Standard 11: Essential Element A

The certification program must have a record of and enforce signed conflict of interest agreements with all personnel involved in certification decisions or examination development, implementation, maintenance, delivery, and updating.

Rationale

Evidence of compliance includes samples or examples of the agreements that were required to be signed specifically for LRP and should include all persons involved in certification exam delivery (e.g., certification program staff, certificants, test vendors, and test vendors' proctors). Programs do not need to submit a copy of every signed agreement; rather, one sample or example used for each category of individuals suffices. Further, conflict of interest agreements are sometimes combined with confidentiality agreements.

Standard 12: Essential Element A

The certification program must have policies and procedures that address the secure maintenance of all applicant, candidate, and certificant personal information, applications, and scores.

Rationale

This Essential Element speaks to the integrity and the protection of intellectual property and personal information. It specifically sought examples of how organizations mitigate risk for LRP, such as whether there were any unique policies or procedures related to the secure maintenance of all applicant, candidate, and certificant personal information, applications, and scores created for the administration of the exam via LRP.

Standard 18: Essential Element A

Examinations must be administered under secure and confidential protocols that restrict access to examination content to authorized individuals throughout examination storage, conveyance, administration, and disposal. Program policies must be in place to hold examinees accountable for improper behavior before, during, and after examination administration. The program must make a summary of security policies, incident review processes, and disciplinary procedures available to examinees.

Rationale

Because LRP may be more "customized" than test center delivery and monitoring, the programs were asked to provide detailed policies for this Essential Element. Information sought included



details around processes such as what check-in procedures were used, how candidates are monitored for cheating behaviors, how breaks both scheduled and unscheduled are handled, and what proctoring requirements are in place to ensure that candidates are actively observed by a live proctor at all times. Detailed information about the entire LRP administration process was sought, including a description of any technological tools (e.g., lockdown browsers or artificial intelligence) that were used to assist proctors.

Standard 18: Essential Element B

Examinations must be administered using standardized procedures that have been specified by the certification program to ensure comparable conditions for all candidates and promote the validity of scores. The program must document and follow standardized examination administration procedures, including verification of candidate identity, regardless of the examination delivery or proctoring method. The program must establish and document procedures stating what it expects of examination administration personnel and the procedures to follow to ensure adherence to these requirements.

Rationale

Technical reports were sought to show comparability of delivery methods, similar those required to support an accreditation application, and include item-level performance and exam-form performance.

Additional data requested looked to compare LRP with other delivery methods the sponsoring organization has used (e.g., paper-based testing and computer-based testing), as it is important to ensure comparable conditions for all candidates and promote the validity of scores.

Also, of interest was whether candidates were provided the same testing tools (e.g., calculator or scratch paper) that they are offered in other delivery modes.

Standard 18: Essential Element C

Trained proctors must be used in the proper administration of examinations to minimize the influence of variations in examination administration on scores, regardless of the examination delivery method or examination format. Proctor training must include the management and reporting of irregularities. Proctors must have no conflict of interest or any ability to influence examination results. Proctors must ensure that approved accommodations have been provided. Proctors must confirm they have read and agreed to abide by the procedures outlined in the examination administration manual. For performance examinations, proctors must be provided with specifications for site layout and required tools and equipment to ensure standardized administration.

Rationale

To meet the intent of this standard, the program should provide specific guidelines for how proctors are trained for LRP, including information on how they conduct their monitoring, how issues are escalated, how they should act when they detect an issue, how they monitor for cheating behaviors, and the like. The program should also include information such as the proctor-to-examinee ratio, the assignment of proctors, and the process for proctor coverage.



Standard 18: Essential Element D

The certification program must have processes to monitor ongoing compliance with examination administration and security procedures.

Rationale

While programs will need to rely on third-party delivery in most cases, the program still has an obligation to monitor compliance. Evidence can include the organizational commitments or contractual obligations between the program and the LRP vendor regarding exam administration and security. In addition, policies and procedures were sought as to how issues are escalated or handled and how data forensics could be used. These may not differ from other forms of proctoring, but the policies should reflect that the programs have contemplated differences.

Standard 20: Essential Element A

Certification programs must calculate and report estimates of score reliability, decision consistency, and standard errors of measurement using methods that are appropriate for the characteristics of the examination.

Rationale

Data for score reliability, decision, consistency, and standard errors of measurement by modality were required, and this may be provided in the technical report under Essential Element 18B.

Standard 23: Essential Element B

Processes must be in place to deal with errors found in program activities.

Rationale

The program must provide incident reports and resolutions for LRP administrations, ideally compared to the types and number of incidents when alternate delivery modalities are used.



Appendix B – Application Forms and Legal Documents

Application to Participate in Assessment of Live Remote Proctoring

The NCCA is seeking participants for a short-term assessment of live remote proctoring as a delivery method for accredited programs. Participants will be limited to current NCCA-accredited programs and only one certification program per sponsoring organization will be eligible. Participation in the assessment is completely voluntary and there is no risk to the program's current accreditation status for participation.

Implementation of live remote proctoring must begin by January 31, 2020. A completed self-assessment based on 12-15 NCCA Standards must be completed by June 30, 2020 with at least 50 examinations delivered using live remote proctoring and at least 50 using an alternative method of proctoring for the same version(s) of the exam.

If you have any extenuating circumstances that affect the timeline of this project but would still like to participate, feel free to submit your application and include an explanation.

Name of organization:

Name of NCCA-accredited program that will be used for assessment:

Number of annual examination candidates:

Number of candidates that can be expected to test during the assessment period:

Number of those candidates expected to test by live remote proctoring during the assessment period:

Expected date by which live remote proctoring can be implemented:

Will live remote proctoring be used for domestic only or international delivery:

Live Remote Proctoring Delivery Vendor (anticipated vendor):

Consent to Participate In Assessment of Live Remote Proctoring

_____ (name of organization) ("Participant") agrees to participate in the NCCA time-limited assessment of the use of live remote proctoring for the following



certification program: _____ (the “Accredited Program”). Participant agrees to implement live remote proctoring by January 31, 2020, using a remote proctoring vendor identified to the NCCA in advance. Participant agrees to comply with NCCA guidelines for assessment participation. Participant understands that participation in the assessment program in accordance with those guidelines will not jeopardize the accreditation status of the Accredited Program. Participant also agrees to provide NCCA a completed self-assessment for the Accredited Program by June 30, 2020, based on 12-15 NCCA Standards identified by the NCCA, including data and information from at least 50 examinations delivered using live remote proctoring and at least 50 of the same version(s) of the examination using an alternative method of proctoring that meets NCCA Standards. Participant understands that the assessment period is limited and that testing via live remote proctoring is confined to the dates of the assessment period. Participant agrees to suspend live remote proctoring for the Accredited Program at the end of the assessment period. Participant understands that Participant may use live remote proctoring after that date for NCCA-accredited programs only if NCCA publishes criteria approving live remote proctoring under its Standards, and to the extent Participant’s certification programs using remote proctoring conform to those criteria.

In compliance with its Policy on Confidentiality, all information submitted in connection with this time-limited assessment is deemed to be confidential, except for that which is already in the public domain. I understand that the NCCA may disclose de-identified, aggregated data for research purposes.

Assessment of the Use of Live Proctoring For NCCA Release Form

This release (the “Release”) is entered into by _____ (the “Participant”). The Participant agreed to participate in the NCCA time-limited assessment of the use of live remote proctoring (the “Assessment”) for _____ (the “Accredited Program”) offered by the National Commission for Certifying Agencies (“NCCA”), a division of the Institute for Credentialing Excellence (“ICE”), in accordance with the terms of the “Consent to Participate In Assessment of Live Remote Proctoring” form submitted online by the Participant.

Participant agrees to indemnify, defend and hold harmless NCCA, its officers, directors, employees, or agents, from and against any and all suits, claims, damages or losses, including reasonable attorneys’ fees and costs, arising from any gross negligence or intentional misconduct by the Participant or its officers, directors, employees, or agents in connection with Participant’s participation in the Assessment. Participant agrees NCCA shall have no liability for any outcomes or causes of action arising from Participant’s participation in the Assessment, and Participant hereby holds harmless, releases, and forever discharges NCCA from any such liability. Participant is solely responsible for supervising the remote live proctoring and for any consequences of Participant’s choice to engage in remote live proctoring, including security breaches, injuries to test-takers, or any other loss or liability.

Participant further acknowledges that NCCA is under no obligation to permit accredited certification programs to use live remote proctoring after the end of the time-limited Assessment period, and will suspend live remote proctoring for the Accredited Program at the end of the assessment period until otherwise notified by the NCCA.



In return, the NCCA agrees that participation in the assessment program in accordance with specified guidelines will not jeopardize the accreditation status of the Accredited Program.

The signatures of the authorized representatives of Participant and the NCCA below demonstrates their acceptance of the terms and conditions of this Release.

Participant

Sign: _____

Name/Title: _____

Date: _____

☐ Please check here to permit the NCCA to credit your organization as a participant when issuing any determination or aggregated research data at the conclusion of the assessment.

On Behalf of NCCA

Sign: _____

Name/Title: _____

Date: _____

This form must be signed and returned to info@credentialingexcellence.org on or before January 10, 2020, or one week prior to the commencement of remote proctoring, whichever is earlier. A countersigned copy will be returned to you.



Appendix C – Questions Used to Assess Compliance with the LRP Relevant Essential Elements

<i>Essential Element</i>	<i>Questions</i>
5A. The certification program must identify primary personnel responsible for conducting certification activities (e.g., staff, consultants, psychometricians, and vendors), along with their roles and qualifications for those performing certification activities	Q1. Did the certifying organization identify primary staff conducting certification activities?
	Q2. Did the certifying organization identify all consultants conducting certification activities?
	Q3. Did the certifying organization identify psychometricians conducting certification activities?
	Q4. Did the certifying organization identify all vendors conducting certification activities?
	Q5. Were the roles and qualifications of staff provided?
	Q6. Were the roles and qualifications of consultants provided?
	Q7. Were the roles and qualifications of psychometricians provided?
	Q8. Were the roles and qualifications of vendors provided?
5B. The certification program must demonstrate appropriate oversight and monitoring of those personnel performing certification activities	Q1. Was evidence of oversight and/or monitoring of personnel performing certification activities submitted?
	Q2. Was evidence on status calls submitted?
	Q3. Was evidence on meetings submitted?
	Q4. Was evidence on key reports submitted?
6B. Description of examination used to make certification decisions must be publicly available	Q1. Did the certifying organization make information regarding LRP publicly available, such as websites or a candidate handbook?
6C. Descriptions of the exam process, including all modes of delivery and the circumstances in which they are offered, must be publicly available	Q1. Did the certifying organization identify all delivery modalities offered to the candidate?
	Q2. During the LRP period, was LRP the only option available to candidates? If not, then what other deliveries were available?
6F. Policy for retesting of failing candidates must be publicly available	Q1. Was a policy about retesting options submitted? If yes, then what options were offered to candidates?
7C. Access to certification must not be unreasonably limited	Q1. Were all eligible candidates allowed to use LRP? If not, then what selection criteria were used to place candidates into LRP vs. non-LRP groups?
7E. Process for reviewing request for accommodation must follow all applicable laws and regulations	Q1. Did any candidates request an accommodation under LRP delivery? If yes, how many candidates requested an accommodation? How many large font accommodations were approved for the LRP pilot? How many reader accommodations were approved for the LRP pilot? How many extended time



Essential Element	Questions
	<p>accommodations were approved for the LRP pilot? How many distraction-controlled setting accommodations were approved for the LRP pilot? How many other types of accommodation were approved for the LRP pilot?</p> <p>Q2. Were any issues or challenges with testing accommodations reported? If yes, what were the reported issues or challenges?</p>
10A. Signed confidentiality agreements from all personnel involved in the certification program must be maintained on record	Q1. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from staff?
	Q2. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from certification board members?
	Q3. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from vendors?
	Q4. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from consultants?
	Q5. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from SMEs?
	Q6. Did the certifying organization submit evidence of signed confidentiality or NDA agreements from applicants or certificants?
11A. Signed conflict of interest agreements from all personnel involved in the certification program must be maintained on record	Q1. Did the certifying organization submit a conflict of interest form from staff?
	Q2. Did the certifying organization submit a conflict of interest form from certification board members?
	Q3. Did the certifying organization submit a conflict of interest form from vendors?
	Q4. Did the certifying organization submit a conflict of interest form from consultants?
	Q5. Did the certifying organization submit a conflict of interest form from subject-matter experts?
12A. Policies and procedures addressing secure maintenance of applicant, candidate, and certificant personal info must be in place	Q1. Did the certifying organization submit policies and procedures for secure maintenance of the exam or exam process?
	Q2. Was evidence submitted that indicates the ways in which risk to exam or score integrity and/or intellectual property was mitigated for LRP?
	Q3. Was information submitted to assess for possible proxy testing?
	Q4. Was information submitted to assess for possible item harvesting?
	Q5. Was information submitted to assess for pre-knowledge?



Essential Element	Questions
	<p>Q6. Was information submitted to assess for possible collusion?</p> <p>Did the certifying organization submit or identify any unique security policies specific to LRP?</p>
18A. Exams must be administered under secure and confidential protocols; program policies must be in place to hold examinees accountable for improper behavior	<p>Q1. Did the certifying organization submit a security protocol that restricts access to exams, including but not limited to exam storage, conveyance, administration, and disposal, to authorized individuals only?</p>
	<p>Q2. In the event of a security incident, do the security policies and procedures include language that holds examinees accountable before, during, and/or after the test is administered?</p>
	<p>Q3. Did the certifying organization make security policies and/or procedures available to candidates?</p>
	<p>Q4. Did the certifying organization make their incident review process available to candidates?</p>
	<p>Q5. Did the certifying organization make disciplinary procedures available to candidates?</p>
	<p>Q6. Did the certifying organization provide written check-in procedures?</p>
	<p>Q7. Did the certifying organization provide a list of ways candidates are monitored for common cheating behaviors?</p>
	<p>Q8. Did the certifying organization provide information to proctors on how candidates' breaks were to be handled?</p>
	<p>Q9. Did the certifying organization provide written documentation specifying that candidates under LRP delivery had to be actively observed by a live proctor at all times?</p>
	<p>Q10. Did the certifying organization provide written documentation specifying that LRP delivery included a lockdown browser?</p>
18B. Exams must be administered using standardized procedures to ensure comparable conditions for all and promote validity of scores	<p>Q1. Did the certifying organization provide policies and/or procedures regarding confirmation of candidate identity?</p>
	<p>Q2. Did the certifying organization provide policies and/or procedures regarding proctor requirements?</p>
	<p>Q3. Did the certifying organization provide information on whether examinees were asked to perform a technical check of equipment before using LRP?</p>
	<p>Q4. Did the certifying organization provide a technical report from data collected under LRP?</p>
	<p>Q5. Did the tech report include information about item-level performance?</p>



Essential Element	Questions
	<p>Q6. Did the tech report include information about exam-level performance?</p> <p>Q7. Did the tech report include information about time to complete the exam?</p> <p>Q8. Did the tech report include information about pass rates?</p> <p>Q9. Did the tech report include measures of form-level reliability?</p> <p>Q10. Did the tech report include measures of decision consistency?</p>
18C. Proctors must be trained in proper administration of exams	<p>Q1. Did the certifying organization submit documentation regarding proctor training?</p> <p>Q2. Did proctor training info include management and reporting of irregularities?</p> <p>Q3. Did proctor training include an assurance of no conflict of interest?</p> <p>Q4. Did proctor training include that a proctor could not influence test results?</p> <p>Q5. Did proctor training include a protocol on how to escalate an incident?</p> <p>Q6. Did proctor training include common signs of cheating?</p> <p>Q7. Did the certifying organization submit documentation regarding the maximum allowed proctor-to-examinee ratio? What was the maximum allowed ratio?</p> <p>Q8. Does the proctor documentation specify how proctors are assigned to examinees?</p> <p>Q9. Does the proctor documentation specify a process for proctor coverage?</p>
18D. Processes to monitor ongoing compliance with exam administration and security procedures must be in place	<p>Q1. Did the certifying organization submit documentation on how they monitor ongoing compliance with exam administration and security procedures? How many incidents were reported? How were the incidents handled (if any)?</p>
20A. Estimates of score reliability, decision consistency, and standard errors of measurement must be calculated	<p>Q1. Were measures of score reliability submitted per modality?</p> <p>Q2. Were measures of decision consistency submitted per modality?</p>
23B. Processes to deal with errors found in program activities must be in place	<p>Q1. Did the certifying organization provide policies and procedures to deal with errors? Were any errors reported? Were errors reported about eligibility to test? Were errors reported about scheduling? Were errors reported about administration of the exam using LRP? Were errors reported about score processing?</p>



Appendix D – Sample Candidate Comments

The following are candidate responses to open-ended prompts regarding (1) the effectiveness of LRP and its potential for administering future exams and (2) advantages and/or disadvantages of this proctoring option.

Overall Experience

- Remote testing made the exam test-taking more relaxed. Disadvantage: Technical problems.
- I was able to test from the comfort and safety of my own home. I appreciate there not being any travel requirements.
- If it wasn't for the proctored exam option, I would have had to make arrangements for travel along with saving lots of money to cover my travel expenses, which means I would have had to postpone my exam again. Thank you for giving me this opportunity.
- This was my first time taking a remote exam. It was stressful at first, but I think it is a good option.
- Comfort of own space with no distractions of other test-takers. Appreciate no travel requirements.
- It seemed to work well for me. The proctor was clear and helpful. And there were no technical glitches.
- I found the remote proctoring to be convenient.
- The option of being able to complete the exam during the pandemic is the biggest advantage to a live remote proctored exam.
- I feel it is user-friendly and especially in this pandemic situation, it was very helpful.
- Remote proctoring is a very good way to take an exam, however, we will have a bit of a learning curve.
- The proctor was fine, but I will never take another exam online in this format.
- I feel that taking this test at a testing facility would have been more beneficial to me. I had to take the test at my place of employment during the workday as that is the only place that has reliable internet service. There were a lot of distractions outside my office and I found it hard to concentrate at times.
- Live remote proctoring allowed me to take the exam safely in my home during a global pandemic.
- The ability to give an exam using live proctor is commendable while the proctor can monitor you, they also provide constant support both technically and verbally.
- Taking the test from home was convenient for me, especially during the COVID-19 crisis with external childcare unavailable.



- An advantage (to live remote proctoring) is I did not have to go anywhere, but there was an added level of stress regarding whether or not my computer would work or that everything would go smoothly. I actually thought that I somehow hit the wrong button and lost my exam. Instead of being able to focus on factual information on the exam, I was also focused and worried about the technical elements of it.
- Remote proctoring was easy to use and made it easier for me to take the test, especially during stay at home orders. Even if it were not for COVID-19, this would be a good option for many people.

Technical Issues

- I do not think my time should have been limited to two hours given I lost the entire exams mid-way and had to complete it in one hour.
- The size of the screen required me to scroll down with every question, which became distracting.
- I lost connection, lost my entire exam and had to complete the exam in 68 minutes.
- The only issue I had was with some sound reverberation while receiving initial test instruction.
- I was unable to speak with my proctor after the initial set up. Not sure if it was a connection issue, but we used chat to communicate.
- Remote proctoring poses some limitations to those attempting to certify that may not have access to a webcam with a microphone and a separate study and desk to take the test on. This makes it so that people who cannot afford to purchase the necessary equipment to take the test remotely, would not be able to take the test at all. This, in my opinion, limits accessibility.
- The remote proctoring was so difficult to start. It took me over an hour to get things going (new software or expansion had to be downloaded).
- I was kicked out of the test part of the way through and had to restart.
- I had computer issues minutes before my exam started, so I was really anxious and had a hard time focusing through the entirety of the exam. I definitely would have enjoyed the in-person testing environment much better.
- I used the chat box and then the live chat. Still nothing. So I called and had a call back. Then it still took more than an hour.
- Complications with it all.
- Candidates should be given more specific details regarding the calculator details. Having to use the computer calculator significantly slowed me down.
- I was kicked out part of the way through and had to restart.
- The use of this testing platform was glitchy. The proctor struggled to sign into the exam (multiple attempts); and the exam itself froze several times during the testing, requiring logging back in. This made the experience more stressful than it needed to be.



- I had some trouble logging in and was able to start the test about 20-30 minutes after the appointment time. That made me a little nervous but was not a big deal after starting the exam.
- Technology hang-ups. I had to open another browser in order to continue, at one point. And it feels uncomfortable having someone watch me remotely.
- I accidentally put my computer into sleep mode! Proctor was able to “get me back” online and to my test.
- It was horrible after waiting over an hour for my exam to be released.
- Started late, camera problems, wondering if I wasn’t going to be able to take the test
- Got anxious when I had to start over.
- I was kicked out (of my exam) part of the way through and had to restart.
- I lost connection, lost my entire exam and had to complete the exam in 68 minutes.
- It took a very long time to get a proctor.
- I had to open another browser in order to continue, at one point.
- My computer camera kept disconnecting from the proctor and my exam disconnected before I could submit it.
- When I was finished with my exam, I wanted to review some questions. I texted in the chat box how much time, but the proctor did not respond fast enough. I didn’t want to run out of time and the test was just shut down so I submitted it in a panic. Then the proctor texted me that I had 4 minutes remaining. I could have reviewed a few questions.
- I tried to get online 2 hours before the exam and had some trouble. Directions were not clear. I signed on at 5pm to take the test and my test did not begin for at least an hour. It was distracting and upsetting. It was a terrible way to start a 3-hour exam.
- Took 2 days, a number of tries and many hours before finally being able to log into the exam. Very frustrating.

Proctor-Related Topics

- It took a very long time to get a proctor.
- It took more than 1 hour to get set up with a proctor and was very stressful.
- The proctor did everything to help and was very kind.
- The proctor did not seem to know how to start the exam. It took a long time.
- My proctor was very responsive and quick when I had questions.
- My proctor was rude and interrupted.
- At first I had some technical issues trying to figure out how to operate the Zoom system, but my proctor was so helpful and patient. She walked me through it all and got it all up and running for me.



- My proctor was a jerk.
- I signed in at my assigned time of 5:10 PM. My exam was not released until nearly 6:30 PM. This put me at a huge disadvantage because I was frustrated and upset by the time my test was released.
- The proctor didn't know how to start the test. I expected the test to just pop up; it did not. I texted in the chat window and asked where the test was. The proctor wasn't watching the test window and didn't respond right away. On a timed test, this was very upsetting.
- It really threw off my concentration when the proctor switched and my test was closed and then reopened. I felt like I never got my rhythm back.
- I took more than 1 hour to get up with a proctor.
- Proctor was very confused with the instructions.
- Too many technical problems.
- The proctor did not seem to know how to start the exam. It took a long time.
- The proctor did not know how to start the test. I expected the test to just pop up; it did not. I texted in the chat window and asked where the test was. The proctor was not watching the text window and did not respond right away. On a timed test, this was very upsetting.
- It was easy to register and work with the proctor.
- Initial set-up with proctor took 40 minutes before I could start the exam. This made me feel unnecessarily stressed and anxious.

Privacy-Related Topics

- It is not comfortable to be watched on a camera. It is stressful, especially since you cannot see the other person. Very different than in-person testing in this sense.
- Because my house is in an urban environment and because of COVID stay-at-home requirements, the dogs barking, kids yelling and cars driving by were distracting.
- It feels uncomfortable having someone watch me remotely.

Appendix E – Program Considerations When Selecting Live Remote Proctoring (LRP)

Introduction

Operational Definition for the LRP Assessment:

Live Remote Proctoring is defined by the Commission as remote proctoring that occurs with a person actively watching and monitoring a candidate during the time of the test administration and that provides safeguards for examination integrity and validity similar to in-person proctoring.

Note:

The following questions and comments draw upon existing NCCA Standards and are designed to stimulate discussion and decision-making by Certification Boards and Program Staff as they may be considering the benefits and risks to implementing LRP. They are not exhaustive and are not intended to be used to the exclusion of other information. As NCCA continues to evaluate LRP and receives information from programs and providers, these considerations may be modified.

In an attempt to provide useful focused information, guidance is provided based on program status (N, A, or E), where each is defined as follows:

New program (N) refers to those programs that have not previously applied for accreditation and, in general, plan to use only LRP as their delivery method. Programs planning to use LRP and other delivery methods may find both the (N) and (A) information useful.

Accredited program not using the Exception opportunity (A) refers to accredited programs that chose not to apply for the LRP Exception, but are considering using the LRP delivery method in addition to their current delivery method(s). An accredited program that is considering changing to an LRP method exclusively may find both the (N) and (A) information useful.

Exception program (E) refers to those programs that sought the LRP Exception that became available in March 2020. Many of the suggestions for the Exception programs may ask for more information than is required in the compliance report. Depending on how the programs decide on continued use of LRP, they may find the comments helpful in the application process for renewal when it is time to do so. Other comments may assist in providing response to compliance report questions.

Lastly, it should be noted that this document is organized in terms of general topics, not by order of the NCCA Standards.

Program Preparatory Activities (Standard 2, Standard 23)

Have all of the program policies and procedures been created or reviewed and updated before the implementation of LRP?



(N) If LRP is the only mode of delivery, the program policies and procedures should reflect the security, confidentiality, examination requirements, and quality assurance practices related to LRP.

(A) If LRP is going to be added to the current delivery methods, policies and procedures should reflect the multiple delivery methods and guidance to candidates for which method to choose.

(E) Most programs in the exception applications indicated that their current retention policies were used. As accredited programs move forward when the exception program ends, a decision should be made about whether the audio and video files should be transferred to the organization for a longer retention time or whether the vendor's policy is sufficient. This policy should consider the various ramifications including legal concerns and costs. They should also be communicated to candidates and align with the appeals policies.

Have staff and/or Certification Board members and/or other volunteers taken the examination using the platform and experienced the full process before the launch of LRP to candidates?

(N) (A) This preview of how the examination presents in an LRP environment may provide information for candidate communication to enhance the testing experience, and it might provide multiple examples of how the software and the testing process works.

(E) Use candidate feedback and any lessons learned from the LRP exception to improve the candidate experience. Once implemented, pilot test LRP with staff or volunteers before relaunching the program.

Staffing (Standard 5)

Will the implementation of LRP increase the workload for staff members?

(N) The most frequently identified impact of increased workload was from a customer service agent who addressed both certification and technical questions. In general, prepare to receive and respond to questions about LRP and to interact with your LRP service provider, as needed. In addition, administrative workload may increase due to planning, implementing and monitoring LRP including but not limited to developing policies, procedures and communications.

(A) (E) If LRP replaces other delivery modes, then additional staff may not be required. If multiple delivery and/or proctor modalities are to be used, then additional staff to provide oversight to LRP might be necessary, at least temporarily. In addition, staff may need to consider whether additional operational policies and procedures may be needed for LRP-related issues.

What are the important requirements for LRP proctors?

(N) Proctors must be trained to use the software and knowledgeable on issues related to assessing if inappropriate candidate behavior is observed.



(A) Current policies covering the training of proctors may need to be expanded to address LRP proctors. For example, proctors may need to be prepared to recognize potentially suspicious examinee behaviors during the testing session, such as eye movements away from the screen.

(E) Oversight of the proctors will need to continue. Examine any incidents that occurred during the exception program and make adjustments, as needed.

Confidentiality (Standard 10)

What is the program policy related to candidates maintaining examination confidentiality?

(N) Candidates are required to affirm that they will follow the rules disseminated by the program. These rules might include providing appropriate identification, keeping test content confidential, and not attempting to obtain test content before the examination. This affirmation must be described in candidate materials and candidate affirmation provided prior to administration of the examination.

(A) The current requirements for the administration should be reviewed and adjusted for all delivery modalities. Is it simply a notice to candidates in publicly available materials? Do the consequences for misbehavior need to be strengthened or clarified?

(E) Based on the experience with the Exception program, discipline and appeals policies might require review and revision to ensure their effectiveness.

What actions have been taken to ensure candidate privacy?

(N) Some candidates in the LRP pilot commented that the need to conduct an environmental scan by panning the room was invasive. The program must alert the candidates to all required activities that precede the start of the examination. It may be helpful to provide an explanation of why such activities are necessary. An FAQ document is another vehicle that could be considered to communicate key messages.

(A) Current practices should be examined if LRP is being added or replacing the current delivery mode.

(E) If candidates commented on privacy concerns, then plans should be made to address those issues through FAQs and/or candidate handbooks.

Conflict of Interest (Standard 11)

Does the implementation of LRP introduce additional or new issues regarding possible conflicts of interest?

(N) (A) (E) An example of a possible conflict of interest with LRP implementation is the location for where the test will be taken (e.g., in an office at an institution). Policies related to where a test might be



taken should be developed. For example, a testing program that chooses not to allow candidates to test at home may specify the type of alternative location that must be excluded. If an academic institution offers the test preparation courses, prohibition of its participation in LRP would be appropriate.

Security (Standard 12)

Does the program have a written test security plan?

(N) (A) (E) A test security plan is a comprehensive collection of policies, procedures, and documents that outline a guide of actions related to exam security.

Have the security risks inherent in LRP been considered in reference to the stakes of the program and the potential negative effects of a breach?

(N) (A) (E) Every test administration method comes with strengths and weaknesses with respect to how well examination content is protected and the degree of confidence a program can have in the scores obtained by all candidates. Programs considering using LRP should evaluate whether additional and/or different risks posed by LRP are acceptable in light of the intended use of test scores, such as making candidate decisions, needs of the public for certified persons, general program policy, or financial and sustainability considerations.

What are the examination security policies and procedures to protect the examination content from being compromised?

- Candidates obtaining advanced knowledge of examination content and/or detection of pre-knowledge of examination content:

(N) The development of a test security plan that includes monitoring item, person and form-level performance, such as changes in item statistics, response times, score distributions, form-level statistics, repeater analyses, and/or pass rates. A test security plan should also address the capability to quickly replace/republish items and/or examination forms and all associated messaging to stakeholders.

(A) (E) A review of current security policies and procedures as they may be affected by LRP is needed. This should include a mechanism to identify which policies/procedures were revised. It might be necessary to include an “effective” date if the revisions are substantive. Routine statistical and psychometric analyses (data forensics) and regular web searches for compromised content should be conducted.

- Collusion:

(N) (A) (E) A policy that requires proctors to attest that the candidate and/or the test content is unknown to them is recommended. Routine statistical and psychometric analyses (data forensics) can be used to identify differential performance of examinees testing at certain test centers and/or with proctors. A review of discipline procedures related to behavior during the testing process such as review of incident reports related to other people in the room may be helpful.

- Assistance during testing:



(N) (A) (E) A mechanism should be in place to prevent candidates from being able to leave the testing area (i.e., for a scheduled or unscheduled break) and then upon return, go back to previously viewed test items. This reduces potential benefits that could be derived from consulting materials or external sources of information.

- Proxy testing:

(N) Develop policies related to check-in procedures that specify the number and type of allowable forms of candidate identification required. State whether candidate photographs will be taken and compared to prior/existing photos at the time of the examination.

(A) Review policies and procedures related to check-in steps at the current test centers. Are the comparisons of identification photographs dependent on human comparisons? Does the LRP provider use artificial intelligence, particularly facial recognition, as a screening mechanism? Consider the impact of the technique on the affected candidates. Is the candidate repeating the exam? If so, then large score differences between attempts may be examined for plausibility.

(E) Review incident reports and candidate comments related to problems encountered during the check-in process. Do these incidents indicate a need to change the current process? How many incidents were reported? The type of issues that occurred, whether candidate actions or technical problems, and how they were resolved should be examined. The number of candidates that were required to reschedule should be considered as well.

- Item harvesting:

(N) (A) For security reasons, LRP policies prohibit candidates from reading aloud. This policy will require advance communication to candidates to prevent this behavior. Mechanisms should be in place to prevent screen captures or any recording that may be captured, relayed, or otherwise shared.

(E) Candidate response data, such as raw responses coupled with known item statistics and candidate response times, can be assessed for patterns that are consistent with item harvesting behaviors. In addition, exceptionally low scores should be looked at closely, as they may be indicative of less than sincere test taking behavior. All suspicious activity should be investigated and outcomes documented.

Is the examination delivered in a lockdown browser that prevents navigation to other computer sites and/or restricts certain functionality of the computer?

(N) (A) If the answer is no, provide details on how the test is secured, how access to other applications is prevented, and how the ability to record content is prevented.

(E) Review candidate comments and any recorded incident reports to determine how well the lock-down browser worked. Communicate any planned changes to ensure a smooth transition or implementation of a replacement lock-down tool.

What processes are in place that allow for immediate termination of a testing session if misconduct be observed?



(N) Ensure that candidates are aware of what actions/behaviors constitute reason for immediate termination of a test session. Document what the termination process will be and the consequences for the candidate. Ensure that this information is consistent with the language used in the program's test security plan.

(A) Review current policies and procedures that relate to inappropriate or unacceptable candidate behavior. Document how and under what conditions a proctor may terminate an examination session.

(E) Review incident reports to assess how well the established process worked. How many incidents were reported? What behaviors, if any, prompted a termination of the test session? Document how reported issues were resolved and how future incidents will be addressed.

Examination Design (Standards 6, 15, 16)

Does the test design for LRP-administered examinations need to be altered from other delivery methods to allow LRP to be used?

(N) The length of the test and the way items are rendered on screen may impact test time. A policy regarding breaks, whether scheduled or unscheduled, should be established. Collusion or unauthorized access to information while a candidate is out of sight from a proctor can pose great risk to several facets of the examination process including validity of the resulting scores.

(A) A test's design should be appropriate for exams that are administered in multiple sections. For example, if content is delivered by content area, then procedures for handling the time between sections need to be addressed.

(E) Review the candidate comments about the need for breaks and develop a policy that works well for the candidate population.

Is the program planning to use LRP exclusively or are other delivery modalities going to be used as well? How does the program plan to monitor comparability of scores if more than one modality is used?

(N) Tests must be designed in a way to minimize how multiple delivery modalities may adversely impact fairness to candidates and possibly bias examination outcomes.

(A) (E) Summary statistical information of examinee performance, such as average examinee scores, response time, and pass/fail rates, along with item and form performance including average item difficulty and discrimination, form-level reliability, decision consistency, and standard error of measurement (SEM) should be used to inform future decisions.

Is there any impact to test time under LRP? Does test time vary across delivery methods?



(N) (A) Candidates need to be aware of the amount of time they are allowed for a given examination. Content time should be specific to time spent on the examination and not on log-in activities or optional tutorials. Time spent in a test session may exceed the time spent on a test due to technology issues. It is important to provide clear communication to candidates regarding technical requirements for personal computer equipment including recommended internet speeds. Because internet connectivity can be impacted by multiple factors, a statement to that regard should be considered.

(E) A review of average test time is requested as part of compliance reporting. Document (and review) candidate comments that are related to test time as well as how those comments were addressed.

Candidate Experience (Standards 6, 18)

How are requirements associated with LRP communicated to the candidates?

(N) Consider specific communication approaches before, during, and after the testing experience. Details about the login process, the check-in procedures, and the technology requirements should be communicated early. In addition, provide direction on how candidates can quickly obtain information during a test session (e.g., how to chat with a proctor). Following the administration, document how things went and what improvements may be considered.

(A) Consider how candidates currently receive information. A suggestion submitted by some pilot participants was to offer prerecorded instructional webinars.

(E) Review the information communicated to the candidates. Involve the customer service staff at your organization and/or your vendor to provide insight into what candidates need to know. It may be useful to compare outcomes and comments between candidates from test centers vs. LRP.

Does your vendor offer a preliminary test of the equipment and internet link that the candidate expects to use for the examination?

(N) Candidates seem to have the greatest difficulty with the technical setup with LRP implementation. Clear communication, including instructional flowcharts, graphics, or videos may be appropriate.

(A) Consider how technically savvy your candidates are. Some groups understand the technical requirements with little help. Others tend to need coaching to use the system.

(E) If you had a preliminary test as part of your implementation, review the experience with your customer service staff and a subset of your candidates. If the vendor captured any issues associated with an unsuccessful examination launch, consider how you might use that information in the future. Review candidate comments for insight regarding candidates' technical skills.

How are accommodations handled?

(N) (A) The pilot assessment offered little information about accommodations because of the small number of requests received. Some accommodations are more easily handled if the candidate is at



home, such as physical access or a low-stress environment. Depending on the LRP provider and the test time allowed, requests for additional time may present a problem, such as the possible need for a break, so be sure to work closely with your LRP provider to proactively address this need. Other requests, such as providing a personal reader or signer, were not made. Information provided to candidates must make it very clear what is allowed and what is not allowed in an LRP test session. Programs should be aware of vendor policies and limitations related to offering accommodations in the LRP environment.

(E) A review of the requests for accommodations and the subsequent decisions should inform future requirements. The workflows for how ADA requests will be evaluated should be detailed in work instructions, policies or procedures.

What are the privacy concerns associated with LRP and how will they be managed?

(N) If a candidate population includes international examinees, be sure to consider privacy implications in that market. For example, can candidates be required to pan their testing space? A possible work-around may be to procure a location that is candidate-neutral, such as a community college or human resources department, as the administration location. If a training school is considered, the establishment of proctor-neutral policies will be needed. Programs should consult with their legal counsel on the best approach to these issues.

(A) Evaluate the LRP capability of your current vendor. Include an evaluation of the data retention policies offered, especially for the video and audio portions of the examination.

(E) Review candidate comments related to candidate privacy and confidentiality based on your experience. Revise any policies and procedures accordingly.

What issues related to access to technology and/or a suitable environment might your candidates have?

(N) (A) Non-discrimination and fairness policies may need to be addressed.

(E) Review incident reports and candidate comments related to access to technology and a suitable environment. You may consider documenting issues and how they were resolved as part of quality assurance activities.

Vendor Information (Standard 18, 23)

What types of artificial intelligence or additional security services are included in the LRP contracted services?

(N) (A) A minimum requirement is that LRP providers must include a process to secure the computer the candidates use; a common method is the use of a lockdown browser that prevents access to external sites. Alternative and/or additional security features should be disclosed by the vendor. Optional features may include an augmented check-in process and/or proctoring assistance using AI. Ensure that your



program knows what is included in your service contract and ensure that it matches your examination's requirements and candidate's needs. If the vendor offers AI as part of their product, identify the role(s) that it plays in the LRP process and its impact on candidate experience and examination outcomes.

(E) Evaluate whether the AI features offered provided the desired level of added value.

What is the proctor-to-candidate ratio?

(N) Vendors usually provide both a maximum ratio and an average ratio as part of their product information. Determine whether you can specify a customized proctor-to-candidate ratio if desired.

(A) Compare the current policies about proctor-to-candidate ratios and determine if they are appropriate with your application of LRP.

(E) Review the incidents that occurred during the exception program, if any, and determine whether a different proctor-to-candidate ratio may be needed. Use this information to avoid future incidents.

How easily will the vendor software interact with the program's security and examination delivery needs?

(N) Work in conjunction with your test design and psychometric team to ensure that the selected LRP provider aligns with your program's design and needs.

(A) Review special features, such as inclusion of special graphics, availability of certain item types, or use of special characters that may pose different technical requirements.

(E) Review the incident reports and candidate comments to determine if the delivery platform met the needs of the various stakeholders.

Has the vendor had any unsuccessful testing sessions that were so problematic that they were noticed by entities external to the program or organization? What caused the unsuccessful session and what changes were implemented so that issues will not be repeated?

(N) (A) (E) With the onset of the COVID-19 pandemic, there were news articles describing serious issues associated with LRP. You may wish to do your research or include in RFP's an inquiry about any such incidents. Ongoing review of any examination delivery incidents and follow-up action plans are a best practice.