*Article*

# Online Invigilation of English Language Examinations: A Survey of China Candidates' Attitudes and Perceptions

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**Abstract**
Drawing on a previous large-scale study examining the reactions of past candidates to the use of online invigilation – or online 'proctoring' (OLP) – in the delivery of high-stakes English language examinations (Coniam et al., 2021), this paper reports the responses of the subset of China candidates in the sample. The paper first sets the scene in terms of the gradual and then accelerated move from face to face to online modes of delivery. It explores the challenges and benefits that both modes offer, in terms of accessibility, fairness, security and cheating. Detail is then presented from the survey exploring the reactions to and perceptions of OLP by the China respondents (N=64), comparing this sample with the larger world-wide sample, all of whom had taken an English language examination via OLP. A strong endorsement by the China cohort of OLP was generally recorded. Feedback revealed that respondents perceived OLP to be a more personal as well as a more efficient way of taking a test. The results are indicative of a broad acceptance of OLP, pointing to strong future uptake of the OLP mode of test delivery.

**Keywords**
English language examination, online invigilation, online proctoring, Chinese candidates, attitudes and perceptions

## 1 Background

### 1.1 Online delivery of learning and teaching

The generally accepted mode for 'delivery' of both teaching and assessment has long been that of a teacher providing input to a class of students from the front (see Wiesenberg & Stacey, 2008). Views of how education is delivered are changing, however, along with the uptake and acceptance of technology across all facets of society (Lim & Wang, 2016), augmented and accentuated by the COVID-19 pandemic (TPD@Scale for the Global South, 2020). The traditional mode of delivery IS consequently being rethought along with the use of more innovative and interactional methods. Todd (2020), for example, describes how COVID-19 was a strong mover in the adoption of online teaching.

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Over the past decade, developments in technology have permitted greater uptake of 'blended' learning and teaching (Lim & Wang, 2016), There has been a global move towards experimenting with, if not embracing, various types of synchronous and asynchronous modes of teaching (Lim & Graham, 2021).

While the expanded use of technology has brought about a change in mindset in terms of the delivery of teaching content using online instruction and facilitation, it is nonetheless the general expectation that examinations will still broadly occur in a face-to-face situation (Ahlawat et al., 2014). While there has been some take-up of technology in the area of assessment, this has been less than it has been with teaching. It is still generally accepted that assessment - high-stakes assessment in particular - should be conducted in a pen-and-paper medium, in front of an examiner/invigilator in a centre such as a school hall. Upon completion, candidates' test papers are collected, then passed on to markers, with a considerable time lapse before results are available. Table 1 outlines different test administration possibilities.

Table 1

*Test Administration Permutations*

| Test taker location | Invigilator location | Invigilation conducted |
| --- | --- | --- |
| at a centre | in person at a centre | by examiner |
| at home | remotely (via video link) | by invigilator |
| at home | – | by self |

Non-traditional forms of test administration might involve, for example, candidates taking oral examinations remotely by an examiner, as well as candidates completing pen-and-paper (or computer-based) tests at their own home under the invigilation of an examiner in another location (via video link). A final permutation is candidates sitting examinations in an unsupervised mode, as in take-home exams (Bengtsson, 2019), or unsupervised computer adaptive tests (Thompson, 2017).

As mentioned, while online learning technologies have more recently come to be accepted for the competent delivery of learning and teaching, the delivery of assessment via online mode has been beset with problems and challenges (Hussein et al., 2020). A key issue revolves around academic integrity: as, for example, when examinations are taken remotely, and even more so when the location is a candidate's home.

## 1.2 Online delivery of assessment

A number of issues - both positive and negative - need to be examined in the context of the online delivery of assessment. As mentioned, the COVID-19 pandemic has forced a major rethink of how education is delivered, with many educational institutions moving quite rapidly to partial or even total online delivery of classes (Gardner, 2020). In a discussion of technology-enhanced assessment (TEA) during the COVID-19 pandemic in Pakistan, Khan and Jawaid (2020) note how the three areas of teaching, learning, and assessment need to be equally embraced in terms of access and delivery, with an emphasis on changes in attitudes to the online delivery of assessment being key.

Clark et al. (2020) comment on the 'fit' of instructional practices within a course in terms of online vs face to face teaching and assessment. They comment on the issue of 'continuity'; that where a course is intended at the outset to be a distance learning one, then online assessment should naturally fall into place. While many teachers managed to adapt their teaching practices reasonably well in online modes during the COVID-19 pandemic (see Chaturvedi et al., 2021), assessment was problematic, with traditional practices prevailing. Mismatches between intended course outcomes and assessment

conducted online tended to be greater than was the case with traditional paper-based assessments which were more aligned with intended course outcomes (see Gil-Jaurena & Softic, 2016). A suggestion by Clark et al. (2020) is for classes to begin in a blended/distance format. Such a format, they argue, permits intended course outcome/assessment gaps to be narrowed, with students becoming acclimatised to an online environment, more able to see a fit between online assessment and course content, and hence more prepared for taking online exams.

## 1.3 Comparability of results from exams taken in online / 'standard' model

In a study of groups of students given online non-proctored exams, Ardid et al. (2015) reported such participants scoring higher than those sitting online-proctored exams. This disparity, they suggest, raises concerns about security and honesty in terms of how non-proctored assessments can be conducted satisfactorily.

Differences between online proctored exams and proctored paper and pencil exams have been investigated by, for example, Alexander et al. (2001). In the context of a computer technology course, they found no significant differences in student performance on proctored online exams and proctored paper and pencil exams.

## 1.4 Benefits and drawbacks

On the positive side, candidates may take an online-proctored exam in the comfort (and safety) of their own home – an important factor in times of a pandemic where movements are restricted or for with disabiliies. Convenience and speed are another factor to be considered; an exam may be delivered via computer, and results may therefore be obtained more rapidly.

It should also be borne in mind that many typical exams – especially high-stakes school and university exams – involve candidates sitting in halls and writing by hand for two to three hours. Since most assignments written over the course of an academic year will have involved multiple drafts on a word processor, it may well be argued that the traditional mode of administering exams compromises validity because traditional examination conditions do not reflect real life (Mogey et al. 2012). Writing an exam using a word processor on a locked-down computer may be viewed as a more valid mode in which to complete an examination.

As mentioned, one major concern revolves around expectations of teaching outcomes vs. expectations of assessment outcomes. Online teaching strongly stresses collaborative principles, such as discussion, peer support, learning tailored to individuals, self-regulated learning, getting students to set their own goals, and plan, monitor and control their cognition (Boekaerts & Corno, 2005). In contrast, expectations of assessment (and in particular high-stakes assessment) are that this will be the work of one student, or one candidate, working on their own, with no external support. In line with traditional views of comparability (and hence reliability), this therefore means that the same assessment should be delivered to all candidates at the same time. Such a requirement involves issues of security, honesty and fairness, all of which leads to considerations of some candidates gaining an 'advantage' over others or of different aspects of malpractice.

## 1.5 Security

A major issue of discussion in the context of the online delivery of examinations has centred on security for different types of online examinations. Foster and Layman (2013) states that online (i.e.,

human) invigilation should emphasise the "critical use of the Internet and automated processes to produce a secure solution in monitoring test takers" and provides a thorough analysis of security in online invigilation.

Foster presents an extensive list of key security features – a useful overview by which high-stakes assessment may be viewed. Features that he lists (see Table 2) range from the management and training of the invigilator (the "proctor"), to interaction with the candidate, to the stability of the Internet, to data transfer encryption.

Table 2

*Key Security Features in OLP Examinations (after Foster & Layman, 2013)*

| Features | |
| --- | --- |
| 1. | Online proctor during exam |
| 2. | Continuous Internet |
| 3. | Encryption for data transfer |
| 4. | Schedule availability |
| 5. | Proctor management |
| 6. | Interaction with test takers |
| 7. | Prevent proctor view of screen |
| 8. | Later video review proctoring |
| 9. | Later video review capable |
| 10. | Control during test session |
| 11. | Automated proctoring |
| 12. | Lockdown |
| 13. | Authentication |
| 14. | Webcam |
| 15. | Logs/records |
| 16. | Program customization |
| 17. | Effectiveness research |

Foster and Layman (2013) describes how systems can provide levels of security which make online proctoring of examinations viable. They comment on the disadvantages that may be associated with traditional proctoring, where the proctors may be corrupt or may want to influence candidates scores in some way. Indeed, a number of studies report how exam security may be stronger as a result of the technologies associated with monitoring of online examinations than in traditional face-to-face settings (Rose, 2009; Watson & Sottile, 2008).

## 1.6 Cheating and academic dishonesty

Cheating in exams is not a new phenomenon. Before the advent of the digital age and much easier access to the internet and plagiarism, comments about candidates cheating in examinations were not new (Wright & Kelly, 1974; Bushway & Nash, 1977; Sierles & Hendrickx, 1980). Over forty years ago, the Carnegie Council Report (1979) made reference to a growing "ethical deterioration" in academic life with respect to the number of college students cheating to get their desired grades.

It is, however, with the Internet, and with access to digital documents and to networks of people willing to facilitate paid cheating, that issues of cheating have been highlighted over the past decade (Berkey & Halfond, 2015; Harper et al., 2021). Cheating in online examinations is becoming more prevalent, and has been explored in numerous studies, (Harmon & Lambrinos, 2008; Grijalva et al., 2006; Watson & Sottile, 2008).

There has been considerable research focusing on the "vulnerability" of online tests, how online tests may be made more secure and cheating might be prevented – see Corrigan-Gibbs et al. (2015) for an extensive discussion regarding cheating and academic dishonesty. Nonetheless, cheating should not be seen purely as an issue related to online tests. As mentioned, cheating has always taken place with traditional examinations. Indeed, in order to counteract cheating, it has been argued (see, e.g., Rose, 2009; Watson & Sottile, 2008) that with adequate protocols in place, online tests may be as secure, if not more so, than traditional face-to-face tests.

## 2  Data

The data in the worldwide study (WS) into online proctoring involves a survey administered to past candidates of LanguageCert's International ESOL suite of English language tests aligned to the CEFR levels, A1 – C2. While there are six tests in the IESOL suite, due to language constraints, examinations in OLP mode are only available for candidates at B1 level and above.

### 2.1 The survey

Following extensive development and trialling, the survey was administered via the Internet in early 2021. The questionnaire (see the Appendix) consisted of 22 items in two sections. Section 1 (items 1-10) comprised respondents' personal details; Section 2 (items 12-21) comprised 10 items, probing respondents' views of their experiences, reflections on the OLP process, and their preference for taking tests by traditional means or via OLP. All items were presented on a 6-point scale, to avoid choosing a mid-point, with '1' indicating a negative response or disagreement, and '6' a positive response or agreement.

In line with data protection legislation, only candidates who had previously agreed to being contacted were approached regarding participation in the survey. The survey was responded to by 920 of the 2,917 who opened the link. The response rate of 31.5% quite closely approximates the average reported by Nulty (2008) and may therefore be considered acceptable.

The analysis of the ten attitudinal items on the survey via Cronbach's alpha returned a figure of 0.89. Since 0.8 is generally recommended as desirable in a questionnaire (e.g., Tavakol & Dennick, 2011) the construction of the survey may be seen to be acceptable.

The number of respondents indicating Chinese to be their mother tongue was 64, 7% of the total cohort. Such a sample size is adequate for inferential analysis, with a sample size of 30 being taken as the threshold for conducting statistical analysis (Ramsey, 1980).

Two hypotheses were being pursued in the current study.

Hypothesis 1: Attitudes and opinions to OLP on the survey will indicate a positive uptake and acceptance of OLP. This will be measured by item means being above 4.5 out of 6.

Hypothesis 2: Responses to items will show no effect related to background demographics. This will be measured by no significance emerging on chi-square tests against the demographic variables.

### 2.2 Data analysis

In the analyses discussed below – unless specified otherwise as being related to the whole group (WG) – results and discussion directly relate to the analysis of the China cohort data. Where possible, responses for the Chinese mother tongue cohort are matched against respondents in the whole group and against the general demographic trends of LanguageCert IESOL tests.

## 2.3 Demographics

This section presents a comparative picture of survey respondents versus the bigger picture of the entire cohort of LanguageCert IESOL B1-C2 test candidates. The IESOL test registration form asks candidates for details of gender, age, and mother tongue. Since not all candidates supply these details, there is consequently a degree of missing data in the IESOL whole test figures. In the survey, however all respondents provided this demographic data. Table 3 presents a comparison of candidate demographics of both cohorts: the China survey cohort, and all 15,000+ IESOL test B1-C2 candidates for the period 2017-2021.

Table 3

*Demographics (as Percentages)*

|  | Survey: China cohort [N=64] | Whole IESOL cohort |
|---|---|---|
| Test level |  |  |
| B1 | 4.0% | 20.7% |
| B2 | 50.0% | 38.3% |
| C1 | 38.0% | 26.6% |
| C2 | 8.0% | 14.3% |
| Gender |  |  |
| Female | 68.0% | 53.5% |
| Male | 32.0% | 38.5% |
| Age |  |  |
| <21 | 16.0% | 35.1% |
| 21-30 | 66.0% | 36.0% |
| 31-40 | 14.0% | 16.6% |
| 41-50 | 4.0% | 7.9% |
| >50 | - | 4.4% |

As can be seen from Table 3, in terms of the distribution of China candidates by test level, the picture was broadly comparable with the typical IESOL profile. There were fewer candidates at B1, although this is not surprising since the medium of engagement with the online proctors for all tests is English.

Comparatively more females have taken IESOL tests than males. Concerning age, the whole test cohort showed a skew towards the younger age bracket. This skew was even more accentuated in the China cohort, especially in the 21–30-year range.

## 3  Findings: Attitudinal Items

To highlight key differences, in the current study, where a '6' indicated a positive and '1' a negative response, "strong positive responses" (see Coniam, 2013) are defined as those above '4.5'. Table 4 elaborates.

The general pattern of responses of the China group generally mirrors those of the whole group (WG) – see Coniam *et al*. (2021) for a discussion and analysis. To avoid confusion, the discussion below only reports the results produced from the responses of the China cohort.

Item 12, *test anxiety*, had the lowest mean score, just below the mid-point of 3.5. This is perhaps unsurprising, given that for many candidates, this was the first time they had taken an examination via OLP.

Item 06 – an assessment of personal computer literacy – shows that candidates felt that they did not have problems working with computers or in interacting online. This suggests that the anxiety they felt may be attributed more to the looming examination than to how to respond via a computer.

Table 4

*Survey Item and Means: China Cohort*

| Survey item | Means (out of 6) |
| --- | --- |
| 12. How anxious were you before the OLP test? | 3.3 |
| | |
| 06. Assessment of personal computer literacy | 4.9 |
| | |
| 'institutional' items | |
| 13. How clear were OLP setup instructions? | 4.8 |
| 14. How straightforward was the OLP setup process? | 4.7 |
| 15. How was the online connection with the interlocutor? | 4.2 |
| 16. How was the interaction with the interlocutor? | 5.0 |
| | |
| 'personal' items | |
| 17. How was the overall OLP experience? | 4.8 |
| 18. Preference for tests by traditional means (1) or tests by OLP (6)? | 4.5 |
| 19. "Taking tests by OLP is a more personal experience" | 4.5 |
| 20. "Taking tests by OLP is more efficient" | 4.7 |
| 21. Your score: better on traditional (1) or OLP (6) tests? | 4.5 |

Despite the anxiety experienced by many of the China cohort, responses to the attitudinal items were all very positive – 4.5 being the benchmark for strong endorsement. The positive nature of the responses may be seen by the fact that the majority of the 'institutional' items have means in the high 4's or above 5. For the majority of the China respondents, the setup process was felt to be unproblematic; online connections were good; OLP setup instructions were clear; and interaction with the interlocutor was rated very highly indeed. Online connection was the only item (apart from anxiety) where the China cohort mean did not reach 4.5.

Reponses to the 'personal' items were also, on the whole, very positive, with all items being rated above 4.5. Respondents showed a clear preference for taking tests by OLP as opposed to traditional means. To what extent, preference for OLP is a sign of the times, or was solely the result of the COVID-19 pandemic, will only be revealed by future research after the pandemic is classed as being over. Looking ahead, on the issue of preference for tests via OLP (6/6) or by traditional means (1/6), a mean of 4.5/6 emerged, indicative of very positive acceptance of OLP and strong future uptake of OLP as a means of test delivery. One noteworthy finding was that the China cohort respondents also felt that OLP was a more personal and more efficient way of taking a test.

In addition to the responses of the China cohort being quite consistent with those of the whole group, no incidences of significance emerged in chi square analyses.

## 4 Conclusion

This paper has explored reactions to and perceptions of OLP by China candidates who had taken an English language examination via online proctoring. Of 920 respondents to a survey sent out to all past candidates of LanguageCert IESOL examinations, 64 (7%) were from China, and it is their responses which have been analysed in the current paper.

Demographically, the China cohort was broadly comparable to the cohorts who have taken LanguageCert examinations over the two-year period of data collection. There were more females than

males. There were more candidates at levels B2 and C1 in China and in terms of age there was a skew towards the younger end of the spectrum in China, especially in the 21-30-year age range.

The first hypothesis stated that the attitudes and opinions towards OLP would indicate a positive uptake and acceptance of OLP. Virtually all item means were above 4.5 / 6, and hence the hypothesis was accepted.

The second hypothesis stated that no significance would emerge in inferential analysis of the items against background demographic variables. The lack of significance against the background variables indicates that respondents were in agreement with items irrespective of gender, age, grade obtained, the level of exam taken, or test skill – Speaking or Listening, Reading, Writing, test – had been taken. This hypothesis was also accepted.

Pre-exam anxiety was the only item which had a mean score below the mid-point of 3.5, although this effect was identical with the response of the whole group.

China respondents assessed their own personal computer literacy quite highly, in line with the whole group. High computer literacy was possibly a reason why China respondents were positive about setting up and interacting with the interlocutor. Online connection was the item with the lowest mean, although at 4.2/6, this was still positive.

Regarding preference for exams by traditional means or via OLP, a strong endorsement of OLP was recorded by the China cohort. Respondents felt that OLP was a more personal and efficient way of taking an exam – possibly an effect of exam delivery via OLP having continued throughout the COVID pandemic. All these positive signals are clearly indicative of the broad acceptance of OLP, pointing to strong future uptake of the OLP mode of examination delivery.

# Appendix

## Online-proctored tests: experiences and reflections

We would be very grateful if you could take a few minutes to reflect on the online-proctored English language test that you took with LanguageCert. Please click on the circle, or select the number of stars as appropriate. **You do not need to identify yourself. All information collected is for research purposes only, and will be kept in the strictest confidence.**

OLP = online proctored; A 'Traditional Test' = a test by pen and paper; in a regular school or Test Centre setting; LRW = Listening, Reading and Writing

Section 1

*Personal Details*

| | |
|---|---|
| 01. I am …… | □ Male □ Female |
| 02. I am …… years old | <21    21-30  31-40  41-50  >50 |
| 03. I live in …… (country) | |
| 04. My mother tongue is … | |
| 05. My education level is … | □ Primary    □ Secondary   □ Bachelor Degree<br>□ Higher Degree |
| 06. How computer literate do you consider yourself? | □ not at all    □ very |
| 07. The last OLP test I took was at level … | □ B1   □ B2   □ C1   □ C2 |
| 08. How many LRW tests have you taken by OLP? | 1    2    3    4    >4 |
| 09. How many Speaking Tests have you taken by OLP? | 1    2    3    4    >4 |
| 10. What grade did you get on your last OLP test? | □ Fail  □ Pass □ High Pass    □ Prefer not to say |

Section 2

*Experiences and Reflections*

| 11. Respond to the questions below EITHER<br>(1) about Speaking; OR<br>(2) about Listening, Reading and Writing (LRW) | I am responding about<br>□ Speaking      □ LRW |
|---|---|
| 12. How anxious did you feel before your OLP test? | very anxious      not anxious at all |
| 13. How clear were the OLP setup instructions for the test? | not clear at all      very clear |
| 14. How straightforward was the OLP setup process? | very troublesome      very straightforward |
| 15. How was the online connection between you and the interlocutor during the test? | very poor      very good |
| 16. How clear were the interlocutor's instructions and directions during the test? | not clear at all      very clear |
| 17. How was the overall OLP experience? | very poor      very good |
| 18. Do you prefer to take tests by traditional means or by OLP? | prefer traditional      prefer tests by OLP |
| 19. "It is a more personal experience to take tests by OLP than to take tests by traditional means" | strongly disagree      strongly agree |
| 20. "It is more efficient to take tests by OLP than to take tests by traditional means" | strongly agree      strongly disagree |
| 21. Do you think that you score better in tests taken by traditional means or in tests by OLP? | better on traditional   better on OLP tests |
| 22. Would you be available for a short follow-up (online) interview? | YES / NO. If yes, please leave your email or phone number. |
| Do you have any comments that you would like to add? | |

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