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Success Plan for the Remote Assessments: Lessons Learnt in COVID-19 Outbreak

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ABSTRACT: Although educators are using various ways in evaluating students' learning, traditional paper-pencil final exams are usually held at the end of the school year to conclude the course. During the school suspension due to the COVID-19 outbreak, this traditional approach is no longer applicable to some schools. In this article, alternative final assessments adopted by eight Shanghai international schools were summarized. In my school, students could choose to attend on-campus (proctored) exams or online (non-proctored) exams at home. We studied the exam results of two 8th-grade mathematics classes (n=79). An analysis of the potential difference between the students' results on the two exam arrangements was reported. There was no significant difference found between the two groups, which contradicts the previous researches by Prince, Fulton &Carsombke (2009), Hylton & Dringus (2016) and Daffin & Jones (2018). We concluded that this contradiction could due to the additional exam restrictions, middle school value education and the closer relations between teachers and students in middle school.

KEYWORDS: Remote Assessment, COVID-19, School Suspension, Cheating, Alternative Assessment

I. BACKGROUND

During the COVID-19 outbreak, schools around the world were suspended at different stages in 2020. In Shanghai, middle and high schools were closed from the Chinese new year holiday until May 18 and until June 2 for kindergartens and elementary schools. School administrators made policies to maintain students learning while urging teachers to start teaching online in February. Dingding and Tencent Conference are two kinds of software commonly used in domestic schools, while Zoom Meeting is mainly used in international schools. Since June 2, due to the return of all local students to schools, except for some hygiene policies, teaching activities have basically returned to normal. However, the situation in international schools was different. Due to the "rapid spread of COVID-19 around the world", foreigners with valid visas are prohibited from entering China from March 28 (The State Council of The People's Republic of China, 2020). This has prevented some international school students from returning to the campus. As a result, international school teachers continued to provide online guidance while teaching on-campus. Towards the middle of June, the designated time for final exams, school administrators and teachers faced another challenge. While some of the students were already back to campus who could attend the final exams at schools, some other students were still blocked out of China so they were not possible to attend the final exams in person. How to arrange the final exam that some students could be evaluated at home? How to ensure fairness? How to eliminate possible technical problems to the greatest extend? This article first summarized the approaches taken by 8 Shanghai international schools, followed by an analysis on two middle school mathematics classes on the potential difference between online (at home) and face-to-face (on-campus) exams.

II. LITERATURE REVIEWS

Remote learning and assessments are not something new. It is reported that over 500 courses are offered by the Chinese universities and nearly 3 million people have taken these courses (Bao, 2020). K12 remote learning is also available in some countries as the support of education in the rural area (Frazier & Reed, 1999). Since March, different associations have provided guidelines, instructions and recommendations on remote assessments (American Association of Teachers of German, 2020; Furby, 2020; UNESCO, 2020). Scholars also provided ideas on how to hold remote examinations (Crosby, Shantel, Penny & Thomas, 2020; Liberman, 2020; Zayapragassarazan, 2020). Their suggestions could be summarized as the four following approaches:

1. Postpone the exams so that the majority of students could attend the exam at school.
2. Convert the final exams to project based assessments, so students could spend a few days on their work.
3. Hold final exams online, whether invigilated or not.
4. Cancel the exam and determine the final grades through other summative assessments.

However, most Shanghai international school teachers and administrators have no previous experience in offering distance courses and assessments. Having the remote final exams could be challenging for schools especially on the academic integrity fairness (UNESCO, 2020), system stability and also securities. Prince, Fulton &Carsombke (2009) pointed out that "students scored significantly lower on proctored (online) exams versus non-proctored exams". Daffin& Jones (2018) reported that students on average score 10 to 20% better in online exams when they were not proctored as compared with their classmates who were proctored. Students taking non-proctored exams were also found spending nearly twice as long as their classmates who took proctored exams (Daffin& Jones, 2018; Hylton&Dringus, 2016). These scholars suggested that cheating could be one of the reasons. This paper reports the methods adopted in the final examinations of Shanghai international schools in June 2020. The scope of this paper is limited to 16 listed international primary and secondary schools in Shanghai (Ministry of Education of the People's Republic of China, 2017). Also, this article does not concern any technical accessibility different among students because all students in these schools have a similar socioeconomic background.

III. METHODS

Multiple convenient methods were adopted to gather data from the 16 international schools. Firstly, an email containing the survey questions were sent out to the academic affair director or the official general enquiry mailbox of each school in June. 3 schools responded within a month. After that, I contacted my previous students and colleagues who transferred to the other schools. I also requested them to introduce teachers or students who are currently teaching or studying in the listed schools. Information of 3 more schools was gathered. WeChat, a mainstream instant messaging tool in China, was used in this process. Subsequently, I sent out survey requests by Facebook and Instagram to people who claimed to be currently teaching or studying in the other listed schools, or they have pictures or posts which showed the identity of the schools. Until the end of July, information from 8 schools was gathered. Student's T-test was used to analyze the two middle school mathematics classes on the potential difference between online (at home) and face-to-face (on-campus) exams. Students could choose to take either online or on-campus exams on their own wills so they were not randomly arranged into any of these groups.

IV. FINDINGS

Finding 1: Approaches adopted by schools: Only 2 schools have postponed their final exam periods for 1 or 2 weeks. 5 other schools held their final exams as scheduled while 1 school canceled the exam. This may due to the fact that the rigid border control did not seem to loosen until the end of 2020. Postponing the exams may give students and teachers more time to prepare but it did not help on increasing the number of students who could attend the exam on campus.

2 schools converted the final exams into project based assessments. "Many of them were not exams. For example, I took Honors Algebra II this year and our final exam was a project that used trigonometry," introduced by Andy, "for English, it was a literary analysis and an argumentative essay." Jeff elaborated, "The majority of teachers, like myself, allowed for open book and open note during the exam. And because there was difficulty to enforce strict control and monitoring of all students during MS exams, they were not considered or called "final exams" but were more of an assessment." No technical issues were reported in these

2 schools, which could be expected because the approach was similar to regular homework submission that students and teachers had enough prior experience.

5 schools held their exams similar to normal, but students could choose to take the exams online at home. Three of these schools conducted non-proctored distance examinations. These schools tried to improve equity by limiting the time allowed and choosing the questions to be based on applications or understanding of the contents rather than based on memorizing of facts. "The time limit to complete the paper was the same as the students on campus. Also, some of the questions were changed for online students," introduced by Hera. Also, because the foreign students may be on the other side of the earth, "in our school the exams had a period of around two days to complete for the students in different time zones. To make everything fair, students were not encouraged to go on campus during these days as all final exams were taken through the same platforms online for fairness," further explained by Chelsey. A student, Hannah, pointed out that "to be honest, I could cheat if I want to. For example, I could make my elder sister work out the questions for me, or I may just Google the solutions. I wonder if there were any of my classmates chose not to attend the exam at school just because they wanted to take these advantages."

Hannah's concerns actually echoed the views of Hylton &Dringus (2016) that "those who were not proctored perceived to have experienced greater levels of opportunity to engage in misconduct than those who were monitored by a web-based proctor."

2 schools held online invigilated exams. Shannon introduced that students taking the remote exams were required to register a time-slot for taking the exam and they were given digital copies of the exams. The invigilator monitored the exam progress through zoom meeting that students had to make their web-cams show the entire desk and their hands. Students were also required to turn on their microphones for invigilating purpose. Referring to textbooks or other materials was not allowed but the exam questions were also modified to be based on application so that checking materials would not help a lot. Due to the lack of experience in conducting distance exams, some minor technical problems have been reported as follows: i. the systems did not record the students' responses fully, ii. Students were not able to access the exam questions at the designated time slots, and iii. Students accidentally submitted their work before they finished. However, these problems are predictable and in most cases teachers have alternative plans for these students. As mentioned previously, one school canceled the final exams and used other summative assessments throughout the school year to determine students' annual grades. In this approach, Zayapragassarazan's (2020) viewpoint was adopted.

"The validity and reliability of such unsupervised online exams can be improved by increasing the number of tests with varying difficulty levels of different possible questions on the same topic instead of conducting one single exam for evaluation." However, because this arrangement was not decided until June, it caused some small disputes among students. They thought that canceling the exams deprives them of the opportunity to bring up their yearly grade. No schools were reported to use commercial remote invigilating services like ProctorU and Software Secure, which has been adopted in online college-level courses for years (Lilley, Meere& Barker, 2016). This may due to the smaller scale of the Shanghai international schools as compared with larger comprehensive universities, which may induct an over-budget issue. In addition, no school was reported to use codes of conduct or honorary statements in exams, which hardly increases costs, but has proven to help reduce misconduct in exams (Daffin& Jones, 2018).

Finding 2: Students' exam results by online (at home) exams and proctored (on-campus) exam Researches found that students who attend non-proctored online exams earn better scores than their counterparts who attend proctored online exams. In the studies by Prince, Fulton &Carsombke (2009), Hylton&Dringus (2016) and Daffin& Jones (2018), college students were randomly arranged into groups that attended proctored or non-proctored exams. This makes me interested in studying how did my students work in the remote final exam in June. Obviously, the characters of the students were quite different from the previous researches. Firstly, the students were not randomly assigned to proctored or non-proctored groups because of the actual needs of some students due to the pandemic. At my school, all students could choose to attend the face-to-face proctored exams at school or to take the online non-proctored exams through the school testing system at home in their own wills. Assuming that some students may seek to take advantages of not being proctored, these students would choose to take the exams at home. This may result in the difference in the scores earned by the two groups.

Moreover, my students were in middle school (grade 8) as compared to the college students who were studied in the previous researches. Mallory (2001) studied the online testing process by three groups of students: high school students, college students and remote adult students who have at least one year of work experience. Mallory suggested that adult students are more mature and are "far less prone to cheat than the younger audience". Based on this theory, the testing arrangement of my school could be problematic when we proctored the students who voluntarily attend the exams at school while left the students at home took the exams non-proctored. I felt nervous when I came to these ideas because we may not have assessed our students fairly. I quickly made some calculations. I took out the score sheets for the final exams in June and highlighted the student names who took exams at home. I taught two classes, 25 students in "MS Math III" and 54 in "Algebra 1", both of these classes are in 8th-grade. The numbers of students who took online exams at home in both classes and their results are summarized. The highest possible for both exams were 35 points.

	MS Math III	Algebra 1
Online exams (non-proctored)	n=16; mean=24.4; sd=4.35	n=36; mean=27.5; sd=4.83
On-campus exams (proctored)	n=9; mean=25.9; sd=4.11	n=18; mean=27.4; sd=3.62

Table 1: Statistics on online and on-campus exams

The results look fine! This could be evidence that we fairly assessed our students. The means of the two classes do not have significant differences. By student's T-tests, the P-value of the "MS Math III" class is 0.398 and 0.981 for the "Algebra 1" class. We could conclude that the two groups of students performed similarly. Students taking non-proctored online exams were not taking advantages. Although this is a grateful result, it contradicts the findings in the previous researches.

V. DISCUSSIONS

One possible reason for this contradiction could be the other exam restrictions applied to the students during our exams. For example, students had limited time to complete their exams. The online testing system recorded the starting time and the time of submission. We required our students to mark their own time and they had to submit their work within the limited time same as the students at school. Although we allow open-book and materials, this limited exam time gave students some sense of urgency so many of them might think that they don't have enough time to complete the exams if they spend time on searching for materials. In this way, the benefit of the open-book arrangement is restricted to a certain extent. Also, although we gave a 24-hour time slot for students to complete an exam, we suggested them to work in the same period as the students at school. So for my case, the majority of students worked on the exams from 8:15 to 9:30. This reduced the possibility of communications among students. Moreover, the exam questions were readable only on the testing system. We did not send out the exam paper by email. This may also add a barrier for communication although we did not have any approach to ban screenshotting or taking pictures using a camera. Other than the exam arrangement, I believe another reason for the contradiction could due to the middle school value education. "Person of character", as one of our ESLRs, is always emphasized throughout the school year and is integrated into the subject curriculum. The concept of academic integrity has been built since the early years of middle school. I have not surveyed this, but I believe many teachers had talked to our students about what they should and should not do in the online exams. Integrity is something difficult to measure quantitatively, but I believe it played a role in this issue. Lastly, different from the previous researches, we have taught our students face-to-face on-campus in the first half of the school year. This could make our students feel more guilty if they choose to cheat on the exams given by a teacher who know them well. In the previous researches, students were in entirely online classes. Their relations between the instructors and students were not as strong as ours. Students may feel less guilty when they cheat on the exams given by an instructor that they have not seen.

VI. CONCLUSIONS

The first conclusion is about the possible approaches for alternative exams. Schools need to decide on which approach to adopt based on the available resources and individual situations. Mixed approaches may also be appropriate. Technology development is rapid that there may be better arrangement a few years later. Nevertheless, it is always beneficial to summarize the actions we have taken for future reference. The following table provides a summary of the pros and cons of the alternative approaches for assessments.

	pros	cons
Cancel the exams	Using other assessments could be fair if the system is not ready and the teachers and students are not trained to have an online exam.	The grade weighting would be different from the traditional approach that we have a final exam to conclude the course.
Project-based assessments	It is easy to implement. Teachers and students are experienced.	It is not suitable for high-skate exams. We can't make sure who did the assessment.
Online proctored exams	Less cheating possible. We could make sure it is the right person who takes the exam.	A lot of work for proctors. We need to make sure that all students have the devices required at home.

		Students may feel pressure for being monitored. There could be technical issues.
Online non-proctored exams	It is easy to implement.	We can't make sure who did the exam. There could be technical issues. Students may search for the answers online.
Postpone the exams	All students could attend. Same arrangement as normal.	It may not be possible due to different reasons.

The second conclusion is about the potential misconduct behaviors on the online assessments. If the schools decide to hold online exams, proctored exams by web-cams is preferred in my opinion. When it is unavoidable to hold non-proctored online exams, restrictions or special policies like limited time, choosing the type of questions, open book arrangements, codes of conduct or honorary statements should be adopted to eliminate the chance of misconduct in exams.

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