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High-Stakes Examinations and Large-scale Learning Assessments in Times of Emergencies and Crises

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ABSTRACT

The COVID-19 pandemic has disrupted education across the globe leading countries to adapt how they administer and manage high-stakes examinations and large-scale learning assessments. This thematic review describes the measures that countries have taken, in terms of policies and practices, when learning assessments are disrupted by emergencies and crises. The review explains the specific adjustments made in the conduct of large-scale assessments that includes scheduling arrangements, modality of the assessments, safety measures and precautions and content modifications.

KEY WORDS

Education in emergencies, COVID-19, education disruption, high-stakes examinations, large-scale learning assessments

INTRODUCTION

Unlike most crises, the COVID-19 pandemic has far more unprecedented impacts as it has impacted economic activities across the globe. Although some countries have reported significantly fewer cases than others, most countries have responded to the pandemic by closing schools, or significantly limiting learning opportunities. These restrictions have affected education in most countries. By April 2020, schools in 195 countries had been forced to close, affecting more than [91 per cent of the world's student population](#) (UNESCO, 2020a), which puts about 1 billion children at the risk of falling behind. UNICEF (2020) further notes that although 90 per cent of the countries adopted digital and/or broadcast remote learning policies, 31 per cent of school children worldwide (463 million) do not have access to these alternative modalities.

Due to the school closures and the loss of learning opportunities, many countries shifted to online and distance learning modalities. However, these modalities present challenges for educators and policymakers on how to manage assessments, particularly high-stakes exams. National exams and university entrance tests are a concern in many countries given the substantial weight they have in grading and certification of learners. These exams are critical to the future of many students around the world, especially those from disadvantaged groups (World Bank, 2020).

This review explores the different cases of the conduct of standardized tests such as high-stakes examinations and large-scale assessments in times of emergencies and crises. This includes looking at the related policy measures countries have adopted, as well as the specific adjustments made in the conduct of large-scale assessments, including scheduling, modality of administration, safety measures and content modification. While there is an array of emergencies, the scope of this report is limited to adjustments made to assessments as the result of selected prior natural disasters in Asia, as well as from the current COVID-19 pandemic. This limitation is due to the available information (MOE reports and publications, news reports, and empirical studies) which mainly focuses on high-stake examination and assessment policy changes during pandemics and natural disasters. Regarding the COVID-19 pandemic, the status of cancellation of national exams for a country is based on the reported status as of August 2020. Thus, the report does not take into consideration changes to the national exam dates, decisions and schedules that were made after August 2020. Regarding natural disasters, the information reported covers the adjustments done to large-scale assessments after the event occurred.

BACKGROUND

Disasters and emergencies

The Asia-Pacific region is known to be the most-disaster prone region in the world and the region is estimated to be 25 times more likely to be affected by disasters than Europe or North America (Ireland, 2016). Ireland (2016) further states that for 2014 alone, about half of the world's disasters occurred in the Asia-Pacific region and given this grim statistic, it is estimated that in the coming decades, about 200 million children in the Asia-Pacific region will see their lives severely disrupted by disasters. Natural disasters such as typhoons, flooding, heavy rains, snow storms, hurricanes, and cyclones make travel to the school setting difficult and natural disasters such as earthquakes, typhoons, floods, landslides, tidal waves, tsunamis, and volcanic eruptions disrupt classes as schools have to be shut down due to the destructions or damages caused to schools by the natural disasters. Due to disasters, schooling can be disrupted in the following ways: damage or destruction to schools, use of schools as evacuation sites

and failure of governments at different levels to prioritize disaster risk reduction policies that would make schooling and other activities possible (Ireland, 2016).

Just like disasters, (health) emergencies such as the coronavirus pandemic also create disruption in the lives of children. As governments around the world battle to contain the spread of the virus, most have taken actions that have led to school disruption and these include: closure of schools, reduction of schooling hours (reduction of class sizes and holding classes in shifts) and embracing remote learning for which over 31 per cent of school children worldwide lack the technological assets at home necessary for such learning (UNICEF, 2020).

School disruptions lead to significant learning loss

Disasters and emergencies have been well documented to lead to learning loss and thus negatively affecting learning outcomes. Onigbinde (2018) determined the influence of natural disasters on secondary school attainment across a sample of 85 countries from 1960 to 1990 and the results showed that the intensity of deaths from natural disasters has a greater effect on secondary school attainment than the intensity of damages from these disasters and that damages per capita had significant effects on the secondary school repetition rate. As school repetition rate is adversely affected, it is evident that it equally extends to high stakes examinations.

Sulistyaningrum (2017) investigated the effects of earthquake on children's test scores using the national exam for grade 6. The test scores of the year 6 students were compared after the earthquake and the data obtained in the previous year. The Difference in Difference model (DiD) was used to estimate the group exposed to the earthquake, and other groups in the previous year. The results confirm that child test scores are significantly affected by earthquakes. There was a reduction in the regression weight of about 1.09 of the variance on test score after the earthquake.

Thamtanjit (2020) used a difference-in-differences strategy to measure the effect of severe flooding in Thailand in 2011 on the Ordinary National Educational Test (O-NET), which is administered annually to grade 6, grade 9 and grade 12 students. The estimate from the study showed that the floods had a negative and significant effect on all test scores of grade 6 students (except for social studies) and all test scores for grade 9 students. Overall, the change (decrease) in test scores associated with the floods was estimated to range between 0.03 and 0.11 standard deviations, depending on the subject and level.

Gibbs et al (2019) examined the change in academic scores for students who were exposed to the Black Saturday Bushfires which occurred from in January and February 2019, completely destroying two townships, 2,000 homes, 3 schools, and at least 3 preschools, with over 70 schools and childcare settings affected. About 2 to 4 years after the bushfire disasters, they collected data on and compared the academic (National Assessment Program—Literacy and Numeracy) scores of children of grades 3 and 5 attending high, medium, and low disaster-affected primary schools and concluded that for the reading and numeracy components of the assessment, the expected gains in academic scores from Year 3 to Year 5 were reduced with higher levels of bushfire impact. Although there were no significant changes in academic scores for the writing and language components and no gender differences for any of the scores, their results nonetheless demonstrate the potential impact of disasters on learning outcomes.

Azevedo et al. (2020), used data from 157 countries to simulate the effect that different lengths of school closures (3, 5 and 7 months) due to the pandemic would have on learning and concluded that the pandemic could result to a loss of 0.3 to 0.9 year of schooling thereby bringing down the effective years of basic schooling that students achieve during their lifetime from 7.9 years to between 7.0 and 7.6 years. Similarly, Maldonado and De Witte (2020) examined the effects of school closures due to COVID-19 on the standardized test scores on students in Belgium. They did so by looking at the standardized test scores for students in the last year of primary school in Flemish schools over a period of 6 years (2015 to 2020)

and found that students of the 2020 cohort experienced significant learning losses in all tested subjects, with a decrease in school averages of mathematics scores of 0.19 standard deviations and Dutch scores of 0.29 standard deviations as compared to the previous cohort.

Liu et al. (2020) also conducted a study where they looked at the effects of school absences on student performance (state test scores, course grades, and educational attainment) and found that on average, missing 10 math classes reduces math test scores by 7 per cent of a standard deviation, math course grades by 19 per cent of a standard deviation, the probability of on-time graduation by 8 per cent, and the probability of immediate college enrollment by 7 per cent. Although they looked at absences in general, it is possible that student's performance in high stake examinations would be affected in the same way and even worse as schools have suffered significant and prolonged disruptions during this pandemic era.

The above-mentioned examples do show that disasters and pandemics which disrupt schools end up affecting learners' performance. These instances show how large-scale assessments help us to understand and address learning loss *following* emergencies and disasters. Therefore, countries need to be prepared to continue these large-scale assessments to determine how to best help learning during and following such crises

POLICY RESPONSES TO THE COVID-19 PANDEMIC

In response to the COVID-19 pandemic, several MOEs in Asia were able to come up with detailed guidelines to continue education. The set of guidelines includes instructions for curriculum implementation and acknowledges the importance of assessment. The guidelines stipulate different conditions as to the schedule, and alternative sources of information used for school decision-making. Several examples of guidelines that were introduced during the COVID-19 pandemic include: the curriculum implementation plan for Education in Emergency (EiE) in Bhutan (MOE Bhutan, 2020), the COVID-19 Control and Prevention Guidance for Schools in China (MOE China, 2020), the Standard Operation Procedure to Schools in Response to COVID-19 in Maldives (MOE Maldives, 2020), and the Basic Education Learning Continuity Plan in the Philippines (DepEd, 2020a; 2020b).

These guidelines (see Table 1) detailed adjustments made to the curriculum and alternatives to in-person teaching and learning, such as home-based schooling, online learning, use of television and radio broadcasts, printed modules, and blended learning. These implementing guidelines also provide ways on how the learning content and pedagogies are going to be delivered to the learner through a remote learning environment. However, the detailed part on the administration of the national and high stakes exams is pending in most of these guidelines. Majority of these guidelines are limited to acknowledging the importance of the national exams.

Country	Guideline	Curriculum	Teaching and Learning Delivery	Assessment
Bhutan	Guidelines on the Curriculum Implementation Plan for Education in Emergency	Implement the adapted curriculum	Broadcast media, YouTube, Google classroom, print media,	No national examinations
China	Guidance on the Organization and Management of Online Teaching in the Higher Education Institutions During Epidemic Prevention and Control Period	Selected provinces implement the regular curriculum	Implementation of online education	Online assessment for the universities
Maldives	Standard Operation Procedures on COVID -19	Regular curriculum is implemented	No indication when classes are suspended	Cancelled for level 3 and 4 alerts
Philippines	Basic Education Learning Continuity Plan	Most essential learning competencies	Face-to-face, online, print modules, blended learning, radio and TV broadcast	Pending implementing guidelines
Singapore	FAQs on the website ¹	Implement regular curriculum	Home-based learning	Conduct exams with strict measures

Many countries in the region are not yet final on their guidelines on the policies and procedure in the conduct of the national assessment amidst COVID-19, and many measures are still being developed.

ADJUSTMENTS TO HIGH-STAKES EXAMS AND ASSESSMENTS

The disruption of schools in times of crises equally impacts the conduct of high-stakes examinations and learning assessments. The disruption of schools due to natural disasters and pandemics often call for adjustments to high stakes examinations and large-scale learning assessments. These adjustments are often reflected in assessment processes, practices, and policies and are dependent on the conditions of crises and emergencies such as pandemics, weather conditions, and natural disasters. In a pandemic situation (case of COVID-19), the learners are unable to attend face-to-face instruction in school settings because of mandatory quarantine and lock down rules. The most common adjustments in times of natural disasters and pandemics are: 1) the scheduling of assessment; 2) the modality of administering the tests (i.e. offline, online and any adjustments); 3) safety measures; and 4) content modification.

1 See: FAQs in COVID-19 Infection in Singapore, <https://www.moe.gov.sg/faqs-covid-19-infection>

Scheduling accommodations

As large-scale assessments and standardized exams are time-consuming and costly, the most immediate action that countries take is to assess whether to continue as scheduled. The main options countries are faced with are whether to **postpone and reschedule**, or to **cancel or suspend the exams**. This section shows some prior examples from past natural disasters as well as responses to the COVID-19 pandemic.

In November 2017, the Republic of Korea was hit by an earthquake with magnitudes ranging from 2.4 to 4.6. The MOE in South Korea postponed the state-administered college entrance exam (College Scholastic Aptitude Test). The test was moved to a later date (BBC News, 2017). When Indonesia experienced 6.4 magnitude earthquake in July 2018, the national exam was rescheduled. In December 2004, Thailand was struck by a tsunami affecting its 400 km coastlines. The national exams were conducted when the schools eventually opened in the affected areas (UNICEF, 2009).

UNESCO's rapid assessment of countries responses to high-stakes exams during COVID-19 reported that in April 2020 that majority of the MOE in Asia decided to postpone and reschedule the national exams (UNESCO, 2020b). For example, India postponed and rescheduled their national exams and university level exams (the National Eligibility Cum Entrance Test (NEET) and Joint Entrance Examination (JEE)) due to national lockdown. In the Republic of Korea, the College Scholastic Ability Test, that is used to decide on the students' university, is postponed and rescheduled by November due to some cases of COVID-19 (CGTN, 2020).

In contrast to countries that have postponed, or rescheduled high stakes exams are those that have canceled or simply suspended the exams. In times of natural disasters such as typhoons flooding, landslides, and tornadoes in the Philippines, classes and the conduct of national exams are cancelled as per the directives of the Department of Education (DepEd) (DO 83 s. 2011). Similarly, when the Tohoku region in Japan was hit by a tsunami and earthquake in April 2016, the national exam for 6th graders and junior high school students were cancelled across the nation (Ji, 2020).

Similarly, for the COVID-19 pandemic, there were also countries that decided on the total cancellation or suspension of the national exam. In Indonesia, the House of Representatives provided the directive to cancel the national exam for elementary, junior high and high school level. In Singapore, the Education Minister has cancelled the mid-year examination last April 2020 due to the COVID-19. In the Philippines the scheduled National Achievement Test, which serves as the national end of cycle assessment for year 10 and year 12, were cancelled when the lock down was implemented in March 2020. In Myanmar the MOE has mandated suspension of national exams in the universities due to the pandemic. The MOE will provide notifications with instructions from the office of the president (Myanmar Examinations Department, 2020) regarding the conduct of the national exam.

Modality

The modality of assessment for and of students' learning is one of the aspects in education that is adjusted in times of crises. The situations that lead to adjustments to educational assessment processes including quarantine due to pandemic, natural disasters like weather and geographical conditions that pose threats to traveling to school. In times of crises and emergencies, the test can be delivered using either online or an offline platform. This scenario is applicable when the learner is unable to attend school or testing site or when mass gathering is restricted (i.e. pandemic, remote learning due to weather and natural disasters).

Through an **online platform**, the test is delivered to the examinee using a device connected to the internet. The test appears in applications that allow the examinee to answer items by clicking or typing their answers. Examples of platforms used include Google forms, MS forms, Respondus, Exam.net, and others. Online tests with right and wrong answers are efficient in producing results given automated scoring, interpretations, and generating collective results when making summaries for the group performance.

During the COVID-19 disruptions, online administration of national assessments was conducted to avoid contact of students among each other and this was consistent on policies on home quarantine. Some provinces in China included administration of the online assessment in the university level (Ministry of Education, 2020). In Pakistan, the National Testing Service (NTS) provided an online facility for the national testing. In Thailand, the O-NET (Ordinary National Educational Test) and A-NET (Advanced National Educational Test) will be conducted both online and offline. The capability of the countries in terms of their internet infrastructure allowed the continuation of the national exams.

In countries where high stakes examinations and large-scale learning assessments were completely canceled, **alternative measures** to ensure accountability and certification were used. In India, the Central Board on Secondary Education (CBSE) has made a press release last April 2020 to promote students from grades 1 to 11. Students who have not taken the assessment with the CBSE were also promoted to the next level and school-based assessment took the place for the results in national assessment (Central Board of Secondary Education, 2020). And in Indonesia, the alternative options provided were using assessments based on the cumulative grades on report cards from three years of study for high school and junior high students and six years of study for elementary students and including the curricular and extracurricular activities in the computation of grades (Ghaliya, 2020).

There are some learners in places where access to the internet is difficult and facilities are scarce. These learners take the test using paper and pencil mode where the printed test is delivered to them. In the case that examinations were to continue offline and in person, both scheduling and safety measures needed to be coordinated to ensure the integrity of the examinations.

Safety measures

In times of pandemics, high-stakes exams must be administered in such a way as to safeguard the safety of the students. There are several cases where testing continued with strict health controls (i.e. Singapore, Hong Kong SAR China, and Viet Nam). Detailed guidelines on sanitation were provided by ministries of education to ensure that learners will be safe during the administration process. These policies on the conduct of national assessment contains guidelines on (1) health, hygiene, and preventive measures, (2) strict social distancing measures, (3) remote administration of assessments, and (4) wearing of mask. In Hong Kong (SAR China), written tests for university entrance exams continued in March 2020 with very strict measures on hygiene (exam area was sanitized using cleaning robots, seats are protected with plastic films and students' temperatures were taken,) and the entrance exams took place with wider spaces between examinees and masks were required for all (Hong Kong Examinations and Assessment Authority, 2020).

In Singapore, part of the plan is decentralizing the seating with adequate distancing among examinees. Special arrangements are made for students who are in a stay at home status. Detailed guidelines on precautionary measures are provided on the MOE website.² The guidelines in the conduct of the national exam includes (1) arrangements to ensure the well-being of candidates, (2) special arrangement for candidates for the mid-year and year-end exam, (3) arrangements for the students who are in Stay Home Notice (SHN), (4) rationale for not cancelling the national exam, (5) safety and precautionary measures taken during the exam, (6) procedure when a student feels unwell during the exam, (7) application for special considerations and arrangements.

In Viet Nam, although the Ministry of Education and Training (MoET) pushed through with national examinations in August 2020, the examinees were required to wear masks, requested to report their health status, travel and contact history, and their body temperatures were checked at the test site (Kiet, 2020). In some of the countries cited above, testing facilities including chairs, tables, pens, wrappers, and packaging of the test materials were disinfected and the use of materials that are less likely to prolong the

2 See: FAQs in COVID-19 Infection in Singapore, <https://www.moe.gov.sg/faqs-covid-19-infection>

life cycle of the virus (to about 12 hours) such as paper and wood encouraged over plastic materials that are more likely to prolong the life cycle of the virus (to about 32 hours). Additionally, guidelines were put in place detailing how examinees who feel unwell during the examinations should be handled.

Content modification

School disruptions in times of disaster and pandemics imply that school curricula are not effectively completed or covered. However, as students are expected to make progress, some countries opted to modify the contents and scoring of high stakes examinations and large-scale learning assessments. The adjustments made may include the reduction of learning outcomes, objectives, and competencies for the school year. This is influenced by the home-based learning environment where the learners would take time to independently study.

In Indonesia, the Ministry of Education and Culture prepared a different set of questions for the national exam for students in affected areas and a special policy was made to ensure examination items were made to cover problems that are easier (Asia One, 2019).

Issues of reliability and validity

While moving high stakes examinations online in times of disaster and pandemics may seem to be like quick solution to avoid cancellation of exams when disasters and pandemics eventually lead to school disruptions, Luna-Bazaldua et al (2020) warn that stakeholders to reflect on five crucial factors and how they could be addressed prior to moving high-stakes exams to an online at-home format. These factors are: access to adequate device and internet connection at home; possibility of software malfunctions to occur; legal challenges involved in using remote proctoring (data sharing, confidentiality of personal information and the use of technologies for surveillance of students' behavior); the need to pilot, evaluate and adjust items of exams previously administered in paper format to meet the content and psychometric standards of online exams; and the need for high stakes exams to adhere to the principles of universal design so that all students should have an equal opportunity to accurately demonstrate what they know and can do.

LESSONS LEARNED

Based on the above listed adjustments of high stakes examinations and large-scale learning assessments, three key observations stand out. First, most of the countries mentioned above are yet to finalize guidelines on the policies and procedures in the conduct of the national assessment amidst COVID-19. For instance, on the Central Board of Secondary Education in India prepared a detailed guideline on the actions taken for students who are unable to take the national exams. There are also MOEs that pushed through with the national exam given that the spread of the virus is controlled in their country. The MOEs in Asian countries are presently in the status of devoting their attention to prepare for the opening of classes. Policies and detailed guidelines on national exams are still being modified and developed.

Secondly, the adjustment of national assessment schedules in times of natural disaster is different as compared to the experience of the pandemic crisis. For natural disasters like earthquake, tsunamis, and the assessments are often put on hold and later rescheduled. On the other hand, the duration the pandemic is still uncertain because the evolution of the virus cannot be accurately predicted. This makes the schedule and conduct of the national assessments uncertain as well.

Finally, when natural disasters occur, the testing facilities like schools and centers, including the test materials are physically damaged. This condition puts the test administration to a complete stop until the facilities are recovered. On the other hand, during the time of pandemic, there are alternative ways to conduct national assessments. It can involve online testing like in the case of Pakistan, Thailand, and

Indonesia. Other Asian countries continued with traditional pen and paper testing while practicing strict hygiene, sanitation of the testing facilities, wearing of masks, and physical distancing, such as the cases of Singapore and Viet Nam.

Given the above-mentioned observations, it is clear that in the future, most countries will be forced to rethink or re-invent their education and examination policies to the extent that they make provisions for learning in times of pandemic while ensuring that exams can be easily administered in times of pandemics. Countries will thus be forced to come up with online and offline means continuing learning and testing while ensuring that no learner is left behind. This will call for an increased investment in education (training), infrastructure (ICT devices and internet).

CONCLUSION

This review has explored the fate of high stakes exams and large-scale learning outcomes in times of natural disasters and pandemic. As discussed throughout this review, when natural disasters and pandemics that lead to school disruptions occur, they invariably impact high stakes exams and large-scale learning assessments in one way or the other. As ministries of education contemplate on policy changes to address the impacts of school disruptions on high stake exams, they must reflect on such policy changes would impact the modality of exams, the mode of administering the exam (administered to a group or individually), the administering of exams and the communication of results. As countries are called upon to pursue policy changes in times of pandemics that are context-specific, it is important policy changes that are proffered to address the impacts of school disruptions on high stakes exams should ensure that the principles of high quality assessments (validity, reliability, fairness, positive consequences, practicality and efficiency and ethics) are incorporated into such policies.

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