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The Introduction of E-Assessment in the Implementation of School-Based Assessments in Mauritius

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***Abstract*— This paper explores the introduction of e-assessment for school-based assessment in Mauritius, signaling a pivotal shift in the nation's educational evaluation paradigm. Grounded in both international best practices and the unique educational context of Mauritius, the paper examines the potential advantages and challenges associated with the transition to digital assessment. Key benefits highlighted include increased assessment efficiency, versatility, and the potential for richer data analytics. Concurrently, the paper delves into anticipated challenges, such as infrastructure development, stakeholder readiness, and the need for capacity building.**

Keywords: School-Based Assessment, Evaluation, Digital Assessment.

I. INTRODUCTION

In the evolving education landscape of Mauritius, the introduction of school-based assessment (SBA) has marked a pivotal shift in the way student achievements are evaluated. Traditionally, Mauritian students have been subjected to high-stakes, end-of-year examinations that carry the weight of their entire academic progression (Bunwaree, 1994) [1]. While such exams provide a standardized measure of academic achievement, they often fail to capture the broader range of skills, competencies, and attributes students develop over time.

School-based assessment, as its name suggests, is conducted within schools and is often designed and administered by the teachers themselves. This localized approach allows for more authentic, relevant, and diverse methods of evaluation, tailored to the unique needs and contexts of individual students and institutions (Broadfoot, P., & Black, P. (2004) [2]. The introduction of SBA in Mauritius aligns with global educational trends that prioritize ongoing feedback, fostering a more comprehensive understanding of a student's learning journey (Black & Wiliam, 1998) [3].

However, while SBAs promise numerous advantages, their implementation in the Mauritian context is met with its share of challenges. Among them, the readiness of educators, alignment with the existing curriculum, and concerns over standardization and fairness have been at the forefront. The issue of the reliability of SBA, particularly when it contributes to summative assessment is real. To ensure the reliability, a quality assurance mechanism consisting of regular monitoring and moderation of the pieces of evidence produced by the learners is important.

This quality assurance mechanism often carries a heavy financial and human involvement and is often impractical. Given the weightage and criticality of the SBA, it becomes essential to explore innovative methods that can improve their efficiency, effectiveness, and fairness. E-assessment, with its potential benefits such as instant feedback, adaptability, and enhanced engagement, presents a promising avenue for exploration. However, the adoption of technology in education is not without challenges. Besides technical and infrastructural issues, there's a need for capacity building among educators and examiners, to ensure alignment with curriculum and assessment objectives.

Before the advent of Covid-19, only a few educational institutions across the world adopted online learning. In most cases where it was implemented, it was a blended mode, where part of the course was dispensed face-to-face and part online. Stakeholders in the education sector were aware of the importance and the potential of online learning well before the pandemic. With the younger generation being much more tech-savvy than the older generation, it seemed natural that there were some adaptations required on the way in which learning takes place. However, the growth of online learning was slow with only little investment going into the necessary research and tools.

In 2020, the Covid-19 pandemic resulted in the necessary closure of schools to protect people and to curtail the spread of the virus. According to UNESCO [4] this resulted in over 191 countries, and more than 98% of the global student population adopting the online learning during the pandemic. Over the past two years, educators and learners have had to adapt their teaching and learning in different ways; either remotely or in a school environment that is not the same as before. Some students have adopted a blended mode of face-to-face teaching and digital learning to avoid loss in teaching time and contact hours with their educators.

This exponential increase in the adoption of online learning provides the ideal background to explore e-assessment, particularly for SBA. This paper seeks to

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provide a comprehensive overview of the current state, opportunities, and challenges associated with the use of e-assessment for school-based assessment in Mauritius.

II. SCHOOL-BASED ASSESSMENT IN THE MAURITIAN LANDSCAPE

The Mauritian education system, like many others around the world, is characterized by formal examinations. However, in the quest to adopt a more holistic approach to student assessment, School-Based Assessment (SBA) has been integrated into the landscape. In Mauritius, the introduction of SBA is motivated by the recognition that the exclusive reliance on summative examinations is insufficient. The Mauritius Examinations Syndicate (MES) has incorporated SBA in various subjects at the secondary level (MES, 2023) [5]. SBA components vary across subjects but often include assignments, projects, and oral presentations.

1) At Primary Level

At Primary level, Communication Skills and Information & Communication Technology (ICT) Skills are assessed through the SBA. These subjects are part of the final certification – the Primary School Achievement Certificate (PSAC). The SBA is carried out over the two final years of primary schooling, that is at Grades 5 and 6.

2) At Lower Secondary level

At lower secondary level, three subjects namely, Physical Education, Performing Arts and Life Skills and Values Education, are assessed through the SBA. The SBA is conducted throughout Grade 9 and a final proficiency level is provided at the end of Grade 9. Just as at primary level, the end of lower secondary certificate – the National Certificate of Education (NCE) – includes the final results in these three subjects.

At the moment, the Ministry and the Mauritius Examinations Syndicate (MES) are exploring the introduction of a school-based component in the assessment of core subjects such as Mathematics and Sciences. It is believed that the introduction of SBA in these subjects will provide more authentic pieces of evidence of the acquisition of relevant skills and competencies by the learners.

3) At Upper Secondary Level

At the Upper secondary level, learners take the Cambridge O and A Levels qualification. Some of these syllabuses, such as Design and Communication, comprise a component of SBA which contributes to the final grade in the qualification.

4) SBA in New Qualifications

The Ministry, the Mauritius Institute of Education (MIE) and the MES are at the moment developing a new qualification for Grades 10 and 11 students, Technology Education. Within this qualification, given its competency-based nature, SBA will have a major importance in the assessment of learners.

III. QUALITY ASSURANCE MECHANISM FOR THE SBA

Ensuring the reliability of results from School-Based Assessments (SBAs) is crucial for their credibility and the overall effectiveness of the education system. Various quality assurance mechanisms are instituted to maintain the consistency, fairness, and transparency of SBAs. To standardize the approach across schools, detailed guidelines are provided to educators on how to conduct and evaluate SBAs. These guidelines highlight assessment criteria, rubrics, and best practices (MES, 2023) [6] Furthermore, teachers are trained on how to apply these guidelines to ensure a common understanding and consistent application.

One key quality assurance mechanism is the moderation of assessments. This involves an external body or team reviewing a sample of student work from different schools to ensure that the marking standards are consistent across the board (Taylor, 2018) [7]. A monitoring mechanism is also important where a subject and assessment expert can review the tasks set by the Educators to ensure consistency and standardization across schools.

The MES adopts such as mechanism for all the qualifications offered comprising a school-based component. Educators are provided guidelines and offered training on how to go about setting their tasks and evaluating the learning. Resource persons then carry out regular monitoring in the schools. They verify the tasks set by the Educators, the application of the assessment rubrics and the pieces of evidence produced by the learners. Relevant feedback is provided to the Educators.

Following the submission of the final results, an external moderation exercise is carried out by the MES. This exercise involves the verification of the pieces of evidence against the final results.

This quality assurance mechanism, while crucial in ensuring the reliability of results, is tedious and carries a heavy human and financial load. To maintain the reliability of results but decrease the tediousness of the quality assurance mechanism, e-assessment is being explored for the SBA.

IV. INTRODUCTION OF E-ASSESSMENT FOR SBA

With learning happening online, it is expected that the assessment can also happen online. E-assessment is the process of conducting a test online to gauge the learner's mastery over a particular subject. An e-assessment may be administered with a specific intent, such as ascertaining a candidate's skills, knowledge, or learning abilities.

E-assessment tests may include numerical reasoning, inductive logical thinking, verbal reasoning assessments, and much more. In simple terms, an online assessment is a structured, meticulous evaluation of an individual's skills, characteristics, knowledge or expertise. The test is hosted online via modern web-based technologies.

Digital tools are already being used in assessment. For

instance, the Cambridge A Level Computer Science syllabus contains one practical paper that must be carried out on a computer.

One definite advantage of online assessment is that it facilitates quick and clear reports on candidate results and progress. This makes it easier to give useful feedback to candidates on how they are doing, areas where they are strong, and what areas of learning require attention.

While security and confidentiality aspects are major considerations in having online assessment in high-stakes examinations, it is more doable and maybe more efficient in school-based assessment.

E-assessment also provides multiple advantages, particularly in ensuring the validity, reliability and transparency of the whole system. One of its key advantages is the facilitation of monitoring and moderation by external resource persons for school-based assessments. This offers a more uniform, transparent, and objective evaluation process. E-assessment tools offer a standardized platform where every student's work is presented in a uniform manner, making it easier for external moderators to review and assess them (Timmis et al., 2016) [8].

Moreover, digital tools often come with tracking capabilities. Every change, comment, or grading decision can be tracked, creating a transparent system and allowing for reviews at any stage (Whitelock, 2010) [9]. External resource persons can monitor assessments in real-time, offering immediate feedback, rather than waiting for the entire assessment process to conclude (Crisp, 2007) [10].

Given the public scrutiny of assessment in general, digital platforms can be programmed to anonymize student work, which ensures unbiased grading and moderating (Boud, 2000) [11]. Multiple moderators can simultaneously access and review a student's work. This facilitates discussions, debates, and consensus-building amongst external reviewers.

E-assessments also allow for a centralized repository of student work, which can be accessed remotely. This ensures that external reviewers don't need to be on-site, making the moderation process more efficient (Sclater, 2008) [12]. Digital tools offer robust feedback mechanisms, allowing moderators to provide detailed comments, annotations, or even multimedia feedback like audio or video explanations (Nicol, 2010) [13].

V. WAY FORWARD IN THE IMPLEMENTATION OF E-ASSESSMENT WITHIN SBA

While some believe that there will be a return to the traditional face-to-face way of learning and assessment, many others believe that we have already turned the page and have moved on with the advantages that technology can offer. Many indeed believe that there is no option in the modern world than to adopt new ways of learning and online learning is one of them. Besides the pandemic of the Covid-19, scientists have warned about the high possibility of other infectious diseases which can wreak havoc and put learners out of school. Moreover, we have seen in Mauritius and in other countries the uncertainties linked to climate change which can also significantly disrupt the routine of students and educators.

The implementation of e-assessment for School-Based Assessment (SBA) in Mauritius would require a multi-faceted approach, considering both the specific challenges of the educational system in the country and the broader global trends in e-assessment. A comprehensive needs analysis to determine the current status of e-assessment readiness in primary and secondary schools is required. The different statuses of schools – private and state – will have to be considered in ensuring the readiness. The readiness of the schools will include ensuring they are equipped with the infrastructure, equipment and reliable internet access. In the past few years, a lot has been done by the Ministry to provide internet access to all primary and secondary schools. This should help in the implementation of e-assessment for the SBA. Moreover, students of different levels have been provided with tablets to support the implementation of e-learning. These devices should further facilitate the implementation of e-assessment.

A centralized digital platform or Learning Management System (LMS) that can be utilized for e-assessment purposes. Training programs for Educators as well as continuous professional development opportunities, focusing on the pedagogical and technical aspects of e-assessment and the latest developments in e-assessment tools and methodologies will have to be implemented.

It is proposed that the implementation of e-assessment for the SBA begins as a pilot project in selected schools to test the feasibility. The feedback that will be gathered will provide valuable information for necessary adjustments to be made before a broader rollout. Collaboration with international organizations and other countries that have successfully implemented e-assessment systems should also be envisaged to gain insights and best practices.

Foster partnerships with tech companies and educational technology providers for technical support and resource sharing.

Implementing e-assessment in Mauritius, as in many countries, will require a combination of technological, pedagogical, and organizational efforts. With careful planning, consultation, and a phased approach, it is possible to make the transition smoothly and reap the benefits of digital assessment methods.

VI. CONCLUSION

The evolving landscape of education globally underscores the significance of embracing digital innovations, and Mauritius is no exception to this trend. The introduction of e-assessment for school-based assessment in the country signifies a pivotal step towards modernizing the Mauritian educational system, aligning it with global best practices. As discussed in this paper, the potential advantages of

e-assessment—ranging from increased standardization and efficiency to enhanced feedback mechanisms—are vast. However, its implementation is not without challenges. Addressing infrastructural disparities and ensuring teacher readiness will be critical. As Mauritius stands on the brink of this transformative shift, it is imperative for stakeholders to collaboratively work, ensuring that the integration of e-assessment benefits all learners. Mauritius seeks to align its educational system with 21st-century demands, the adoption of e-assessment offers not just a reflection of global trends, but a proactive approach to fostering an assessment culture that is both rigorous and responsive to the diverse needs of its student population. The next step is to conduct a study on the feasibility and to gather relevant information from stakeholders on the implementation of e-assessment for the SBA.

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