

Assessment in Malaysian School Mathematics: Issues and Concerns

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Abstract:

As in many Asian countries, assessment and examinations are viewed as highly important in Malaysia. Often, public examination results are taken as important national measures of school accountability. Yet, too much emphasis on assessment and examination may constraint or distort the implemented curriculum and produce unintended consequences. This paper discusses the issues and concern regarding mathematics assessment in Malaysia. To set the context, the paper will begin with a brief introduction of the school system and public examinations in Malaysia. The first issue includes the overemphasizing of public examination results that lead to three unintended consequences: “Teach to the test” syndrome; rushing to finish syllabus and learned paralysis. The second issue refers to drill and practice as the main mathematics teaching approach which resulted in two unintended consequences that cause concern: lessons that are boring and meaningless, as well as the failure to promote mathematical thinking or communication among pupils as espoused in the mathematics syllabus.

Introduction

Angelo (1995) defined the term ‘assessment’ appropriately as “an ongoing process” which “aimed at understanding and improving student learning.” (p.7). White (2007) echoed that assessment “is seen as a process for gathering evidence and making judgement about students’ needs, strengths, abilities and achievements.” (p.44). Hence, the primary aim of assessment should be “to monitor improvement of student learning; to provide feedback about students; to inform future action of both learners and teachers; and to report students’ progress.” (White, p.44). Seemingly, however, the above meaning and aims of assessment have not been properly implemented in the Malaysian context, particularly assessment in school mathematics.

In Malaysia, the school system is divided into three levels: primary (6 years), lower secondary level (3-4 years), upper secondary (2 years) and Form Six or matriculation (2 years). There are four major public examinations conducted at each level. At the primary level, there is the Primary School Assessment Test (UPSR); at the lower secondary level, the Lower Secondary Assessment (PMR); at the upper secondary level, the Malaysian Certificate of Education Examination (SPM) and at the Sixth Form, the Malaysian Higher Education Certificate Examination (STPM).

Mathematics is taught as a compulsory subject from pre-school to upper secondary level. It is also a compulsory passing subject in all Malaysian major public examinations as mentioned above, namely UPSR PMR and SPM. For each public examination, the standardized

mathematics paper and pencil test is always composed of two papers: Paper I consists of multiple choice questions while Paper II is made up of short-answer questions.

Besides public examinations, school assessment also constitutes a major part of mathematics teaching and learning in most Malaysian schools at all levels. At the school level, mathematics assessment is usually in the form of formative tests such as short tests or monthly tests, as well as summative tests given at the end of every semester or yearly. The above assessment practice may sound familiar to many other countries as national testing through national public examinations has been a major instrument for measuring school success and for guiding schools towards attaining government objectives (Stacey & Flynn, 2007). So what are the issues of concern?

Issues and concerns

There are at least two major issues of concerns of various stakeholders such as the government, policy makers, educators, and parents.

Issue 1: Overemphasis on public examination performance

Public examinations performances are viewed as extremely important in Malaysia. Schools are ranked and classified according to their students' performance in major public examinations. It is a very common practice of the mass media (such as Television and local newspapers) to highlight the examination results league table and the names of schools and individual student's outstanding performances. This phenomenon is especially obvious when the major public examination results such as UPSR, SPM or STPM are announced every year. This shows that all examination results are taken seriously by both schools and society (especially parents) as a measure of school accountability and individual pride. This is understandable as all schools aim for high performance and all students should be proud of their achievement.

However, this attitude of overly obsession with public standardised examinations has resulted in several unintended consequences:

(a) "Teach to the test" syndrome

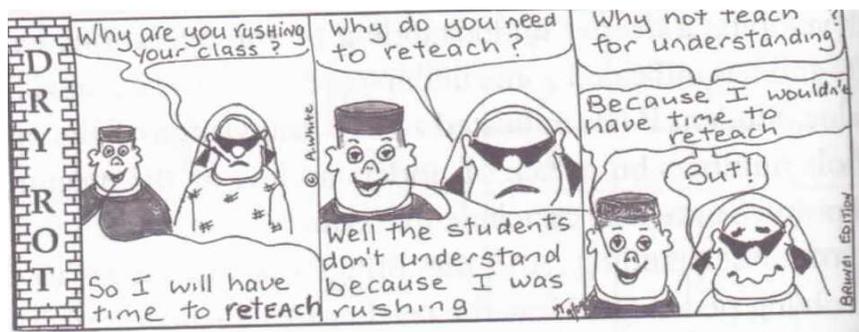
Teachers tend to focus only on contents and skills that will be tested in the public examinations. Both teachers and students will not "waste time" on exploring or learning new content areas or skills that were not tested in the syllabi. Students are made to memorise the "model answers" to would be examination questions. This phenomenon is so prevalent that there was an instance in the newspapers report several years ago that a primary school principal who quarantined a few of his very weak pupils from taking a public examination because he was worried that these pupils' performance might bring down his school achievement result. This is really a cause for concern.

(b) Rushing to finish the syllabus/content

Finishing syllabus becomes the sole responsibility of the teachers. Teachers have to make sure that they complete teaching the content of the assigned syllabus so that they have ample time to revise with their pupils before the public examinations. It was a common practice for teachers to finish the syllabus three to six months ahead of the examination date. For example,

if the UPSR examination is held in September, then the syllabus must be completed by March or latest by June.

The concern is if the syllabus content is planned to be completed in a year, can it be shortened to just half a year? Will the students understand the content fully? Why is there a need to finish the syllabus if the students could not understand? The following cartoon (Figure 1) appears to depict the dilemma.



Adopted from White, 2007, p.48

Figure 1

In fact, an informal survey of a few primary and secondary schools shows that most schools are required to set at least four test each school year, that is first monthly test (March); mid-year examination (May-June); second monthly test (August) and final year examination (October). However, this testing phenomenon might have been overemphasized by some schools. There were schools that set as many as six tests per year. Since one year has two semesters and each semester is about 20 to 22 weeks, this means that for every 6-7 weeks there is a test. Moreover, each test is scheduled for about a week for revision, a week for testing and a week for discussing the results. Thus, how many weeks are left for teaching?

As a consequence of “rushing to finish the syllabus”, some teachers have opted to teach by mainly “show and tell” approach. Two weeks ago I observed one “Excellent” mathematics teacher teaching a mathematics lesson. After showing an example, he gave another question for the pupils to try. After a few minutes, he asked one pupil to verbally solve the question while the teacher wrote the working on the blackboard. I was curious to know why the teacher did not ask the pupil to show his answer directly on the blackboard. The teacher reasoned that, “Normally I will ask the pupils to show their answers on the blackboard, but this is a primary six class. I have to finish the syllabus by June. So it is better for me to write the answer on the blackboard for them. It saves time.”

While it might save the teacher’s “time” and allows him to “finish” the syllabus, will this negate pupils’ “time” to communicate their mathematical thought that might further enhance their understanding?

(c) Learned paralysis

The term “Learned Paralysis” was coined by the former Malaysian Chief Director of Education, Tan Sri Dr Wan Zahid Nordin as a “subtle form of mental inertia” which he argued that most Malaysian students were suffering as a result of the examination oriented school system. He elaborated that students with learned paralysis are:

Insofar as on the surface, it has the appearance of desirable intellectual activity and indeed accepted by educational institutions as proof of high quality learning. I am referring to the ability to regurgitate information thrown at them when they are orally questioned or when they are taking examinations. You can be sure that the majority of students in schools and tertiary institutions who obtain straight A's are expert at regurgitating information as required by the way the examination papers are designed. There is no need to fully understand what is being put down in the answers. The marking scheme does not require that.

(Wan Zahid Nordin, 2009)

Therefore, students with learned paralysis might appear to obtain straight As in the public examinations, but “they do not possess soft skills. They are predictably hesitant and diffident and not forthcoming with ideas. They lack creativity and innovative skills. They lack the interpersonal skills to bring into play the unique diversity that characterizes our nation. They do not demonstrate a capacity for thinking.” (Wan Zahid Nordin, 2009)

Issue 2: Mismatch between the intended and the implemented curriculum

Although the Malaysian school mathematics syllabus listed its main aim as:

“The Mathematics curriculum for secondary school aims to develop individuals who are able to think mathematically and who can apply mathematical knowledge effectively and responsibly in solving problems and making decision. This will enable individual to face challenges in everyday life that arise due to the advancement of science and technology.”

(Ministry of Education Malaysia, 2003, p.1)

Subsequently, the document also suggested the following five elements to be focused on in the teaching and learning of mathematics:

- i) Problem solving in mathematics;
- ii) Communication in mathematics;
- iii) Reasoning in mathematics;
- iv) Mathematical connections; and
- v) Application of technology

To achieve the above aims, the document further proposed that various teaching approaches such as cooperative learning, contextual learning, mastery learning, constructivism, enquiry-discovery and future studies should be considered.

These are indeed noble aims and suggestions. The concern is to what extent have these noble intentions and suggestions been implemented successfully in the Malaysian classrooms? More often than not, many local studies have shown that drill and practice was the most common teaching approach adopted by Malaysian mathematics teachers. These teachers argued that they have to finish syllabus within a limited period of time, so the most expedient way is drill and practice since most of them strongly believe that “practice make perfect”. Hence, this kind of procedural learning where teachers provide examples then exercises for

pupils to practice and practice becomes the quick fix method which apparently produces instant outcome. However, as a result, this practice might produce a number of unintended consequences which raise concern, such as:

(a) Boring and meaningless lessons

Merely drill and practice may get pupils to feel that mathematics lessons as boring and meaningless. Consequently fewer pupils are interested to study mathematics.

(b) Not promoting mathematical thinking or communication among pupils

With drill and practice approach, pupils are not encouraged to communicate mathematically their solutions, to justify or explore new ways of solving problems. This kind of rote learning is clearly not going to promote pupils' creativity and innovation.

Suggestion for change

As observed by Yeap (2009) that the national test is also high stakes in Singapore and teachers tended to “teach to the test”. Based on analysis of test items in the recent primary grade national test, he proposed that the standardized national test can be used as a catalyst to promote good instructional practice. This is because since the national test emphasizes on higher order competencies instead of procedural skills, school teachers adjust and refine their instructional program to meet the demands of the national test. Therefore from the Singapore experience, one suggestion for change in the Malaysia mathematics assessment could be to gradually change the emphasis from procedural skills to higher order thinking competencies. In addition, to support the teachers for this change, teacher professional development programme such as Lesson Study might be needed to help teachers to collaborate and get ready for the change.

Conclusion

Assessment is supposed to reflect the intended curriculum (Wong, 2002) and to show what is valued. Very often, assessment ‘defines in detail what is regarded as acceptable and what methods for solving problems are preferred’ (Kaye Stacey, 2002, p.11). Yet, too much emphasis on assessment and examination may constraint or distort the implemented curriculum. For instance, assessment that focuses on skills will encourage “the teachers to use the ‘explain and practice’ strategy and the students will resort to ‘practice and memorization’” (Wong, 2002, p.3). On the other hand, assessment that emphasizes on problem solving and proof may encourage teachers to use teaching strategies that stress conceptual understanding. Therefore, the kind of assessment may determine the kind of mathematics teaching strategy and thus result in the kind of mathematics learning outcome of students.

To ensure future generation of Malaysians are capable of meeting the global challenges, it is the right time that Malaysian educators, policy makers and teachers make appropriate changes in the assessment system of both the public and school examinations. It is pointless and wasteful to have an education system with noble intention, formulate for the good of everyone, yet not implemented fruitfully to achieve what is intended at the classroom level. Pupils are the future asset and human capital of the country. Hence, it is the utmost importance to ensure that the Malaysian assessment system is assessing the right things and

not resulting in unintended negative consequences that defeat the whole purpose of the national education system.

References:

- Angelo, T. A. (1995). Reassessing (and defining) assessment. *AAHE Bulletin*, 48(3), 7-9.
- Nordin, Wan Zahid (2009). Learned paralysis: The unintended consequences of the classroom process. Keynote address of the Chairman of the Board of UiTM at Universiti Pendidikan Sultan Idris International Seminar on Education, 23 November 2009.
- Stacey, K., & Flynn, P. (2007). Principles to guide assessment with technology. In In Noraini Idris (Ed.), *Classroom assessment in mathematics education*, pp. 1-16. Kuala Lumpur: McGraw Hill Education
- White, A. (2007). Assessment in School Mathematics. In Noraini Idris (ed.), *Classroom assessment in mathematics education*, pp. 43-58. Kuala Lumpur: McGraw Hill Education.
- Yeap, B. H. (2009). Improving mathematical literacy through assessment. In U. H. Cheah et al., (Eds.), *Proceedings of the Third International Conference on Science and Mathematics Education [CoSMED 2009]*, Plenary paper, pp.25-29, 10-12 November 2009, Penang, Malaysia.