Malaysia: Experience In Analysing And Using Assessment data

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Education Act of 1996

“Part V – Assessment and Examination”

The National Education Philosophy

…developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious, based on a firm belief in and devotion to God.--

…education policy which gives emphasis on the wholesome development which includes both cognitive and non-cognitive skills (transversal skills)
The National Education Philosophy

Education in Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards and who are responsible and capable of achieving high levels of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society, and the nation at large.
developing learners’ physical, emotional, spiritual and intellectual abilities comprehensively and holistically

meaningful learning through assessments of learners’ profile, achievement, development and involvement

creating a world class nation, the underlying essence to create a learning environment that encourages life-long learning that is embedded with values and ethics in tandem with creative and critical thinking …..to be in par with international aspirations.
Assessment of Malaysia’s Education System

**National Assessment**

- Primary-UPSR
- Secondary
  - PMR
  - SPM/SPMV
  - STPM
  - STAM

**International Assessment**

- PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA)
- TREND IN MATHEMATICS AND SCIENCE STUDY (TIMSS)

**New Initiative for both Primary and Secondary School Based Assessment (SBA)** comprise of school based assessment and centralised exam PMR

**School Based Assessment**

- Academic
  1. Central Assessment
  2. School Assessment
- Non-Academic
  1. Physical Activities, Sports and Co-curricular Assessment
  2. Psychometric Assessment
Methodology

**Research Design**
- Quantitative and Qualitative
- Secondary Analysis

**Sample**
- Stratified Random Sampling
- TIMSS Sample Data

**Instrument**
- Test
- Questionnaires

**Data Collection**
- Administering Test and Questionnaires
  ([http://timss.bc.edu/timss2011/international-contextual-q.html](http://timss.bc.edu/timss2011/international-contextual-q.html))

**Data Analysis**
- Descriptive Statistics
- Inferential Statistics
- Multilevel Regression

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>Candidate</th>
<th>Candidate with minimal Competency</th>
<th>Percentage of candidates with minimal Competency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPSR</td>
<td>485,160</td>
<td>315,033</td>
<td></td>
<td>64.9</td>
</tr>
<tr>
<td>SPM</td>
<td>406,305</td>
<td>370,396</td>
<td></td>
<td>91.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>School</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMSS</td>
<td>180</td>
<td>5733</td>
<td>180</td>
<td></td>
</tr>
</tbody>
</table>
Findings of national and international assessment
Percentage of Students with Minimum Competency in Primary School Achievement Test (UPSR)

Malaysia Educational attainment levels in TIMSS compared to regional peers

Malaysia Educational attainment levels in PISA compared to regional peers

Percentage of Pupils with Minimum Competency in Malaysia Certificate of Education (SPM)
### Findings

<table>
<thead>
<tr>
<th>Factors</th>
<th>Variables</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Achieve-ment</strong></td>
<td><strong>Achievement in Content Domain</strong></td>
<td>The levels of achievement for both genders were below the benchmark set through the international average. This holds true for mathematics in all content domain and for science. Difference between the boys and girls were between 14 to 21, with the girls achieving slightly higher</td>
</tr>
<tr>
<td><strong>Achievement in Cognitive Domain</strong></td>
<td></td>
<td>In general, Malaysian students still remained within the low level of achievement group. Achievement level in Science was better than the achievement level in Mathematics in comparison to the international average. With respect the level of “Knowing” girls fared better. However, there is a trend to attain a lower achievement level as the cognitive levels assessed increased. Reaching as low 400 as the baseline for low achievement level. The average achievement of boys for the mathematics was very much below the 400 mark for higher levels of cognitive skills.</td>
</tr>
</tbody>
</table>
### Findings

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<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>Student attitudes towards subjects</td>
<td>In general, girls and boys showed below average levels of liking towards both subjects. The highest percentage was for “Somewhat liked” with 44 (science) and 46 (math). When collaborated with the average level of this group the average achievement level was at 418 (science) and 430 (mathematics). Though there was a 39% (math) and 35% (science) “like learning”, scored were no higher than the international average. The highest percentage of students that valued math and science obtained achievement level of 453. A high percentage of students were not confident in learning math. It is noted that high confidence might contribute to a higher level of achievement in mathematics reaching as high as 532 (intermediate level of achievement). A similar trend was also exhibited for Science.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>Student engagement</td>
<td>Despite having close percentage of students being engaged in the learning of subjects, Malaysia students didn’t attain as high a level as the international average. More than 50% responded that they were “somewhat engaged” during lessons.</td>
</tr>
</tbody>
</table>
Based on the analysis of the results, factors considered were aligned with initiatives to improve the educational outcome of students within the Malaysian Education System. Several factors were considered. Among them include:

- improvement of student interest and values towards learning Science and Mathematics;
- increasing student engagement in their learning;
- improvement of curriculum content to include student engagement and encourage high order thinking skills;
- building a framework for authentic and holistic assessment of student learning outcome as a monitoring instrument and as reference for further improvement.
<table>
<thead>
<tr>
<th>Item</th>
<th>Initiative</th>
<th>Department Responsible</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Restructuring of the current curriculum in preparation for the 21st century education</td>
<td>Curriculum Development Department</td>
<td>Standardization of Curriculum to reduce overlap of content and to promote higher order thinking skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The teaching and learning experience should have inquiry based approach and regular monitoring of implementation by the relevant department</td>
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<td></td>
<td></td>
<td></td>
<td>Development of the new curriculum for the Primary and Secondary level (KSSR and KSSM)</td>
</tr>
<tr>
<td>2</td>
<td>Schools Based Assessment</td>
<td>Examination Board</td>
<td>Shift towards weightage of School Based Assessment and National Assessment For more authentic holistic assessment</td>
</tr>
<tr>
<td>3</td>
<td>Teacher Professional Development</td>
<td>School Management Division</td>
<td>Appointment of School Improvement Specialist Coach (SIC+) for Science and Mathematics</td>
</tr>
</tbody>
</table>
### Curriculum Implementation Issues

Real time learning were more focused on imparting of knowledge and rote learning. Insufficient emphasis on high order thinking skills leading to low engagement of students in their learning experience which leads to reduced interest towards learning, reduced value in knowledge attainment, and reduced confidence towards learning the subjects of Mathematics and Science.

### Policy Recommendations

- Increase content of curriculum to include more high order thinking skills during the teaching and learning experience.
- Example of programme introduced – I-Think
- Characteristics- engaging teacher to engage students for Primary and Secondary level students
- Upper Secondary Schools – serious emphasis on hands-on and project based activities during the teaching and learning experience to prepare for High Order Thinking Skills in the SPM.
<table>
<thead>
<tr>
<th>Policy Domain</th>
<th>Policy Issues</th>
<th>Policy Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>National Examination carried out at the end of Year 6 – Ujian Penilaian Sekolah Rendah (UPSR) Form 3 – Penilaian Menengah Rendah (PMR) Form 5 – Sijil Peperiksaan Malaysia (SPM) Form 6 – Sijil Tinggi Peperiksaan Malaysia (STPM)/ Sijil Tinggi Agama Malaysia (STAM) All of the examinations is administered by the Examination Syndicate</td>
<td>School Based Assessment has been included into the National Examination Year 6 – UPSR (60%) and Schools Based Assessment (40%) Form 3 – Pentaksiran Tingkatan 3 (PT3) to consist of 4 components - School Assessment (formative assessment carried out by subject teachers during the Teaching and learning process) - Centralised Summative Assessment (PT3) - PAJSK (Pentaksiran Aktiviti Jasmani dan Sukan, dan Kokurikulum) - Psychometric Assessment Form 5 – Higher percentage of High Order Thinking Skills in the National Level Examination</td>
</tr>
</tbody>
</table>
## Policy and recommendation- Teachers

<table>
<thead>
<tr>
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<th>Policy Issues</th>
<th>Policy Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrance into Teacher Training Institutions</strong></td>
<td>Secondary choice of employment Medium achievement level applicants</td>
<td>Entrance level should be among candidates the high performing students Higher opportunity for increment and career advancement Opportunity for professional development through scholarships</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>Teacher training colleges require up-scaling to compete with international benchmarking</td>
<td>Training colleges upgraded to university status that entails research and further development in the field of education</td>
</tr>
<tr>
<td><strong>In Service teachers</strong></td>
<td>Professional development exposures to a small group</td>
<td>In service courses for professional development Expert teacher assistance from high performing schools</td>
</tr>
</tbody>
</table>
Key Features Of Evidence-Informed Policy Making

- Quality and accessible data (data cleaning);
  - Robust and accessible data collection and analytical instruments (validity and reliability);
  - Critical awareness of analytical assumptions and choices, and of theoretical perspectives that underpin the research methodology;
  - Understanding the limitations of even the most robust evidence on the interpretation of results;
  - Adjusting expectations of certainty and being able to manage uncertainty.
Issues and Challenges

In order to translate the findings of the national and international assessments, several limitations have posed issues and challenges. Among these include:

- Lack of technical experts and infrastructure in analysing large-scale data analysis are shared among divisions within the Ministry of Education. Therefore, these experts have to be outsourced from outside such as the Universities and institutions of higher learning.
- The “buy-in” from the policy maker based on data analysis and data findings.
- Gaps in the flow of information between data experts and the top management of the education system to the policy practitioners. Inferential gaps in knowledge and lack of certainty.
- Interpretation of findings with policy practitioners.
- Fast paced environment - often little time and many cases little resources.
Conclusion

- National and International Assessment have been used for improvement of the education strategies and outcome for Malaysia.

- As improvements implemented are still being carried out, the final outcome of these efforts will be seen in the future assessments.
THANK YOU!