

**Assessment on Students'
Socio-Scientific Understanding:
A Research Report**

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**Southeast Asian Ministers of Education Organisation
Regional Centre for Education in Science and Mathematics**

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Participating Schools & State Education Departments

JOHOR

SMK Labis
SMK Seg Hwa
SMKA Johor Bahru

KEDAH

SMKA Baling
SMK Sin Min (CF)
SMK St Anne's Convent

KELANTAN

SMK Kg Chengal
SMS Machang
SMKA Tok Bachok
SMJK Chung Cheng

MELAKA

SMKA Sultan Muhammad
SMS Muzaffar Shah
SMK Yok Bin

NEGERI SEMBILAN

SMK Senawang
SMK Mantin
SMKA Dato' Haji Abu Hassan Haji Sail
SM Sains Rembau
SMJK Chung Hua

PERAK

SMK Panglima Bukit Gantang
SMKA Slim River
SMJK Shing Chung
SM Sains Telok Intan

PERLIS

SMK Arau
SMK Kuala Perlis
SMS Tuanku Syed Putra
SMKA Arau

PULAU PINANG

SMK Taman Sejahtera Bukit Mertajam
SMK Raja Tun Uda
SMK Bukit Gambir
SMJK Chung Hwa Confucion
SMK Telok Kumbar
SMK Sg Ara
SMK Sg Nibong
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SMS Kuala Selangor
SMJK Yoke Kuan
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Negeri Sembilan
Perak
Perlis
Pulau Pinang
Selangor
Terengganu
W.P. Kuala Lumpur

Executive Summary

The purpose of conducting this research is to investigate the selected lower secondary school students' perceptions and understanding of science; whether or not they can establish the relationship between science and the environment as well as between science and everyday life. Also, students' awareness of the impact of science on human and the environment are also explored. Furthermore, students' application of their scientific knowledge and understanding on scientific phenomena are also investigated. For instance, the students' comprehension on of the socio-scientific issues such as acid rain and green-house effect are explored in order to determine their strengths and weaknesses in understanding and explaining the phenomena; hence identifying the cause and effect as well as suggesting possible solution to the issues.

The assessment framework in this project includes three components such as scientific understanding, scientific process, and the situation and context relate to the application of scientific knowledge in everyday life. This project is conducted in Penang state and other schools in the Peninsular of Malaysia. The development and validation of instrument have complemented and permission sought and obtained from the Education and Planning Research Division (EPRD) Malaysia and State Education Departments in the Peninsular of Malaysia to conduct the survey. The survey questions were distributed to 12 schools in Penang and eight schools responded whilst at the national level 39 schools out of 55 schools responded to the survey. The study covers some overview and findings on students' ability to make choices and wise decision on the scientific matter presented.

In general students are found to like science, understand science and believe that science is very relevant to human's life. However, students are often seemed not being able to elaborate on the scientific ideas based on the given phenomena as their responses were quite brief and short even though the survey is in dual language; Malay and English. The findings also have shown that students have good background knowledge and understanding of science but need more exposure on high order thinking types of questions and guidance in answering the open-ended types of questions. Having said this, a new form of assessment known as Form Three Assessment or *PT3* (*Petaksiran Tingkatan 3*) has been introduced to fifteen years old students for the first time in October 2014. For this kind of assessment, the students must be able to elaborate their ideas and understanding as all the questions are subjective and more open-ended type of questions. Thus, they should be able to digest the questions that generate more contribution of ideas from their part.

Executive Summary

This survey provides a general overview for the teachers and educators to gain some insights and perspectives on students' understanding of socio-scientific issues, therefore the information gained in this report should not be treated as a definite outcome for any changes in policy in education; and also not for any stake holders or other third party to use it against the educational system in Malaysia.