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**PERCEPTIONS OF TECHNOLOGY: A
MALAYSIAN PRIMARY
EDUCATION PERSPECTIVE**

A thesis submitted
in partial fulfilment of the requirements
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**In the name of Allah
The Most Gracious, The Most Merciful**

*Dedication
thanks for the inspirations
and continuous support
to my beloved family*

*saleh
afif
rif'at
ziha
zhifa
nadia*

ABSTRACT

This study investigates the perceptions of technology held by Malaysian in primary education. In particular, the study looks into students' understandings of and attitudes towards technology. The study was carried out with 521 primary students, 272 girls and 249 boys, and 28 of their teachers in the Malaysian state of Sarawak. A case study design, using a measure of student perceptions of technology consisting of a writing/drawing activity, a picture quiz, and a technology questionnaire, teacher interviews and curriculum content analysis was employed in this study.

The findings from this study show that students' understandings of technology are low. Like the findings obtained elsewhere, students associate technology with products, especially high-tech products and electrical appliances. A comparison by gender, however, shows that there is significant difference in the understanding of technology between boys and girls. Meanwhile, in the comparison related to ethnicity, native students' understandings of technology are slightly lower than those of non-native students. In the comparison by location, the findings show that rural students tend to associate technology with building and low-tech products, while urban students tend to associate technology with computers.

Malaysian students' attitudes towards technology, however, are positive. This finding parallels findings obtained in Australia, England, New Zealand and elsewhere. Comparison by gender, ethnicity and location shows that there is no apparent difference between boys and girls and between urban and rural students interest in technology. However, native students are more interested in technology as compared to non-native students, while urban students are more positive about the social aspects of technology. This view about technology among students corresponds to the views held by teachers and as stated in the technology curriculum documents.

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CHAPTER ONE

INTRODUCTION

In Malaysia, the vision of becoming an industrialised country by the year 2020, as outlined in the Malaysian's Government VISION 2020 statements (Mahathir, 1991) has brought about greater encouragement of technology. Technology development is seen as one of the factors for the achievement of industrialised status. Thus science and technology have been identified as one of the nine challenges to achieve such a vision.

Malaysia's education programme in science and especially technology, has been given greater emphasis in the changes or innovations to the school curriculum as a move towards realisation of the above vision. The recent inclusion of science education (Malaysian Ministry of Education, 1993a) at the primary school level and the compulsory subjects of living skills and integrated living skills for all students in primary and lower secondary education, respectively, further manifest the importance of science and technology.

Technology education is linked to science education as there is no separate curriculum for technology education. Elements of technology are included in the senior science subjects (Rohana, 1994) and in the recently introduced primary science curriculum. In the senior science subjects, elements such as food technology, micro-technology and biotechnology are included. However, these subjects are offered as options. A section on technology is included in the primary science curriculum. In this curriculum, the focus of technology incorporates the history of technology, structure and design, and the appreciation of what technology has done to humans. The secondary science however was introduced in schools since the 1980's.

The living skills subject has been reorganised using an integrated approach called *integrated living skills* (Malaysian Ministry of Education, 1991) with the aim of producing an individual who is self-reliant, literate in technology and economics, possesses self-confidence and who has initiative and is creative, innovative and productive. At primary school level, this curriculum is introduced to develop the manipulative, entrepreneurial and self-management capabilities of the students as well as to instil among them, positive

attitudes towards technology and entrepreneurship. In this aspect, students are required to acquire the basic skills and knowledge about technology and entrepreneurship.

Technology is understood today as human problem solving to meet needs or wants in society through the development of products, systems and environment. It is more than simple artefacts, such as cars or computers. The subject technology is “directly concerned with the individual’s capacity to design and make, to solve problems with the use of materials and to understand the significance of technology” (Eggleston, 1992).

The main focus on capabilities or skills, as seen in these curricula, is geared towards industrialisation. The development of these curricula, similarly to all curricula and matters related to the planning and implementation of education in the Malaysian educational system, are guided by the National Education Philosophy (Malaysian Ministry of Education, 1993b) which states that:

Education in Malaysia is an on-going 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 level of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and nation at large.

(p.vii)

The formulation of this philosophy is stated as “in the context of preparing more dynamic, productive, caring and humanistic citizens for the forthcoming challenges in the process of national development towards attaining the industrialised status” (Malaysian Ministry of Education, 1993b, p.vi).

The extent to which the students are being prepared to carry the responsibility of achieving the country’s vision, through the implementation of technology in schools, is not known. Furthermore, the nature of technology education, since its implementation, initially in

1990, has never been properly studied to determine its effectiveness in preparing students to face the reality of a technological world. Technology is taught through two curricula, science and living skills, and by different science and living skills teachers. How these teachers interpret the curricula and their understandings of the nature of technology are important for the understandings of technology that the students develop.

This study responded to the author's concerns about perceptions of, and the attitudes towards technology held by Malaysians, especially by the education community. This research employed a case study design to investigate students' perceptions of technology in the Malaysian state of Sarawak. Primary school students in the regions of Kuching and Samarahan, both the urban and rural areas, were involved. Students' perceptions of technology were investigated by using an instrument consisting of three activities: writing or drawing about technology, identifying pictures that are related to technology, and a technology questionnaire (see Rennie & Jarvis, 1994). The technology curriculum documents, living skills and science, and teachers' perceptions and experiences of teaching these curricula, were also investigated.

With the knowledge of how students and teachers perceived technology, and how it is taught in schools, this research will be able to give an insight whether there is a likelihood that students can be entrepreneurs, or whether the vision of an industrialised nation can be achieved in terms of the appropriate perceptions.

The overview of chapters in this thesis is as follows: chapter two reviews literature concerning the meaning of *technology*, its relationship to science, technology in school curricula, and students' perceptions of *technology*. The outlines of the research methodology, sampling, instrumentation and administration procedures adopted are outlined in chapter three. Chapters four, five and six present the findings of the study of the technology-related documents analysis, students' perceptions of technology, and teachers' perceptions of technology and experiences of school technology respectively. These findings are integrated and discussed in chapter seven.