

**BIDAYUH STUDENTS PERCEPTION TOWARDS THE LEARNING OF
MATHEMATICS IN ENGLISH**

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ABSTRACT

BIDAYUH STUDENTS' PERCEPTION TOWARDS THE LEARNING OF MATHEMATICS IN ENGLISH

Pirenlod Ak Nohik,

The teaching of Mathematics and Science in English has created various responses from teachers students, parents and the public. This study aims to investigate Bidayuh students, perception towards the learning of Mathematics in English. Data was collected from 250 Bidayuh students from a school in Serian District, Samarahan Division, Sarawak. The findings show that the Bidayuh students have negative perception towards the learning of Mathematics in English. It was also found that they face many problems in learning Mathematics in English. However, they are well aware of the importance of learning Mathematics in English. Therefore, the Bidayuh students choose to learn Mathematics bilingually (Bahasa Melayu and English).

ABSTRAK

PERSEPSI PELAJAR BIDAYUH TERHADAP PEMBELAJARAN MATEMATIK DALAM BAHASA INGGERIS

Pirenlod Ak Nohik

Pengajaran Matematik dan Sains dalam Bahasa Inggeris telah menimbulkan banyak reaksi dari pelbagai pihak terutamanya, pihak guru, pihak pelajar, ibu bapa dan masyarakat. Dengan itu, kajian ini dijalankan untuk mengenalpasti persepsi pelajar Bidayuh terhadap pengajaran Matematik dalam Bahasa Inggeris. Data yang digunakan dalam kajian ini telah diperolehi daripada 250 pelajar Bidayuh di sebuah sekolah di daerah Serian, bahagian Samarahan, Sarawak. Dapatan daripada kajian ini menunjukkan bahawa pelajar-pelajar Bidayuh mempunyai persepsi yang negatif terhadap pengajaran Matematik dalam Bahasa Inggeris. Selain itu, kajian ini juga menunjukkan bahawa pelajar-pelajar Bidayuh menghadapi banyak masalah dalam mempelajari Matematik dalam Bahasa Inggeris. Kajian ini menunjukkan bahawa pelajar-pelajar Bidayuh sangat sedar akan kepentingan mempelajari Matematik dalam Bahasa Inggeris dan seterusnya menujukkan bahawa mereka memilih untuk menggunakan dwi-bahasa (Bahasa Inggeris dan Bahasa Melayu) pembelajaran Matematik.

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List of Abbreviations

BSS	Buddy Support System
EteMS	English for the Teachong of Mathematics and Science
PMR	Penilaian Menengah Rendah
PTA	Parent Teachers Association
SPM	Sijil Pelajaran Malaysia
TIMSS	Third International Mathematics and Science Study
UPSR	Ujian Penilaian Sekolah Rendah

CHAPTER 1

INTRODUCTION

1.0 Overview

This chapter provides the background to the study, explains the research objectives and research questions, which focus on students' perception towards the learning of Mathematics in English language. This chapter also discusses the significance of the study to the current development in education and ends with a definition of term used in this study.

1.1 Background of the Study

The teaching and learning of Science and Mathematics in English, was suggested by the former Prime Minister of Malaysia, Tun Datuk Sri Dr. Mahathir Mohamad in 1993. The suggestion made is aimed to improve the standards of English, Science and Mathematics as to make Malaysians more competitive globally.

The teaching of Mathematics and Science in English was motivated by two main reasons. The first reason is English being an international language is the mean to acquire knowledge, establish international relationship and to grab the economic opportunities available round the globe. The notion that English is a global language is further defined by Imam, et. al (2005) by saying that it is a nation-building language These three aspects are the result of the rapid industrialization and globalization of trade. Thus, in order to compete globally, it is crucial for Malaysians to master the language, which is deemed as an important asset to face the challenges.

The second reason is due to the fact that Science and Mathematics are core subjects in the field of science and technology. Consequently, these subjects are important catalyst for

both the nation and societal developments. To be a developed country, Malaysians are hoped to become knowledgeable and skillful workers that would fit in any field in the global market and at the same time helps to increase the standard of living as well as contributing to economic development of the nation.

In line with the suggestion made earlier by Tun Datuk Sri Dr. Mahathir Mohamad and the rational behind it, hence, in 2002, the Education Ministry of Malaysia has decided to implement the use of English Language as the medium of instruction for both Mathematics and Science from the primary level to the secondary level of education. This also involves the assessments for both subjects in public examinations such as *Ujian Penilaian Sekolah Rendah (UPSR)*, *Penilaian Menengah Rendah (PMR)*, and *Sijil Peperiksaan Malaysia (SPM)*. The implementation of English Language as a medium of instruction for both subjects commenced in 2003 and it involves Year One of the primary level, remove class, form one, and form six lower secondary levels of education.

As part of the implementation, the teachers who are involved in the teaching of the two subjects are given training which include “English Language Proficiency Training, Curriculum Orientation and Pedagogy Course, and training in ICT usage” (Malaysia General News, Education Ready, 2002)

Unlike teachers, the students may not have enough exposure to the learning of Mathematics and Science in English language even though they may have heard of the importance of English language in the learning of Mathematics. Hence, being language and Mathematics and Science subjects learners, the participants are more likely to face problems or inconveniences in their learning especially when students have to shift from the Malay Language (Bahasa Malaysia) to English language as the language of instruction. Low level of competency may restrict them from learning and acquiring Mathematical skills and knowledge.

Researchers, Howie and Peterson (2001), Manoucheri (1997), Bookhart (1997), Suan (2005) and Suffolk (2005) found out that most students learning Mathematics in non-native language find it difficult. The difficulty in learning Mathematics in a non native language revolves between the needs to learn the subject and the low level of proficiency in the language of instruction. They further described that students find learning Mathematics in English is difficult because they could not understand Mathematical terms well, could not involve in group discussion, could not express themselves and could not or scared to ask and respond to questions because they have limited vocabulary due to less opportunity to learn and acquire the language of instruction. These studies were done with many different groups of participants with different geographical background, races and different age groups but none of them specifically look at specific ethnic group. Therefore this study seeks to find out the Bidayuh students' perception towards the learning of Mathematics in English. The Bidayuh is a one minority ethnic group found in the Serian district, in Samarahan division where most of them speak Bidayuh as their mother tongue. It is believed that learning Mathematics is far more difficult for students who do not speak the language of instruction (Suan, 2005). Thus, the Bidayuh students are among the disadvantage students in this education system.

1.2 PROBLEM AND OBJECTIVES OF THE STUDY

The background of the study explains briefly about the change that has taken place in the education system that affects the learning of adult and young learners throughout the world especially when the language of instruction is not their first language. Thus, this study proposed to find out students perception towards the learning of mathematics in English. The participants involved in this study the secondary school students from one ethnic group living in Sarawak. They live in the interior parts of the first and second divisions in the state, mainly in the districts of Lundu, Bau and Serian. Only a small portion of the Bidayuh population posses modern skills and expertise (Minos, 2002) have enjoyed satisfactory life while the rest are still far behind living in their own tradition and

also practice their mother tongue in their daily communication. Significantly, their practices influence the learning of their children. In communication, they are bonded with their mother tongue, the Bidayuh language resulting in difficulties in the process of learning especially when English was made the language of instruction in national schools. This makes the learning of Mathematics subject become more difficult for them.

1.3 RESEARCH QUESTION AND OBJECTIVES

The aim of this study is to find out students' views on the learning of mathematics in English

The research questions are:

1. Are the Bidayuh students aware of the importance of learning Mathematics in English?
2. What are the Bidayuh students' general perceptions towards the learning of Mathematics in English?
3. What are the problems faced by the Bidayuh students in learning Mathematics in English?
4. Which language do the Bidayuh students prefer in their learning of Mathematics, if given a choice?

1.4 SCOPE OF THE STUDY

This study is conducted around the notion that there are differences in student's views towards the learning of Mathematics in English language, leading to rejection or acceptance of the new reform in the education system. A lot of studies had been done and issues been debated worldwide to clarify students' views towards the learning of Mathematics in English. These include their feelings, beliefs, what they faced and what

they hope for through their learning. Therefore, this study aims to find out students' perception, which include general perception; what they think and how they feel, are they aware of problems they faced, do they see the relevance of learning Mathematics in English and what language would they prefer to use in their learning. This study conducted to identify a specific group of students' perception and hopefully the result would be helpful for teachers dealing with this group of students.

1.5 SIGNIFICANCE OF STUDY

This study is important due to its application to practice in the field of teaching and learning of Mathematics in the present mathematics curriculum. The findings of the study are considered having an application to the teaching practice and learning of the Bidayuh students. These would encompass three different aspects.

Firstly, the findings from the study will reveal the students' perspective regarding the implementation of teaching science in English. These will possibly give light to the policy-makers regarding their perspective on the implementation of the policy. In addition, these have valuable contribution to the claims made by the policy-makers regarding the important roles of the English Language as the medium of instruction in mathematics classrooms. One of the roles of this language in learning of Mathematics is that it acts as a medium for learners to gain knowledge from the wide array of resources. The knowledge gained will be of valuable contribution in the field of imparting the knowledge of mathematical problem solving which is dramatically empowered by the use of technology that would benefit them later upon their participation in the work-market. This will be in line with the government vision to establish a pool of knowledge-workers in order to achieve the status of an industrialized nation. Thus, the student's willingness reflects their positive perspective in taking up the challenge in learning Mathematics in English, which is greatly needed in the implementation of the policy.

Secondly, the study hopes to raise awareness among the participants regarding their potential roles in their own learning, in which their competency in English language is much needed. This is due to the fact that the participants' language competency and their experiences in learning mathematics using English language will be of great advantage in enabling them to read write and converse Mathematically in English. For that reason, the participants should feel motivated to play their potential roles in the acquiring the knowledge of Mathematics. In addition to that, the participants' skill in acquiring the language lessons is of great importance in helping learners in terms of their knowledge acquisition. In Mathematics, the teacher of Mathematics will only be able to teach a small amount of vocabulary and that most of the time the students will have to learn more on their own, whether by reading printed materials, listening to recorded lectures or by exploring the net. Thus, they will have to master the skills of learning the language first before they can actually use what they encounter when working on their own. Thus, from this aspect, the skill in mastering the language is of great contribution to the learning of Mathematics because the material written in English language is widely available.

Thirdly, the participants' roles are not only contributing to the implementation of the policy but at the same time they can also to acquire and use the knowledge they gain in the process of learning the content of the subject matter. Therefore, the participants should not treat the English language merely as a medium for learning or acquiring mathematical knowledge but they should also make full use of their English language competency for the purpose of gaining and widening their own knowledge from the content of the subject to a greater thing that goes beyond the requirement of learning Mathematics throughout their life. This is because after attending a lesson, the teacher might be giving some extra works. Students who are equipped with the Internet access will go through uncounted amount of information that would definitely be the source of burden or knowledgeable input that would widen up the scope of their learning. That is when the acquisition occurs. This may help them to be competent learners in the learning

of Mathematics as well preparing them to face the challenges from the current globalization.

1.6 DEFINITION OF TERM

In this study, the word perception is repeatedly used and can bring about numerous definitions and thus need to be clarified.

1.6.1 Perception

Martin and Mark (2005), defined perception as personal journey through education and the various ways in which they acquire, hone, apply and develop skills, knowledge and understanding in increasing challenging situation. Mc Kay and Hornburger (1995) said that perception involved beliefs, emotional reaction and behaviour tendencies and therefore linked to individual values and beliefs. For the purpose of this study, perception refers to the Bidayuh students' feelings and beliefs [anxiety, boredom, security and enthusiasm] and awareness in which includes, awareness of problems faced and importance of learning Mathematics in English language and finally their linguistic preference.

1.7 Chapter Review

This chapter has given an overview of the background of the study, the reason for the study and also research questions to be answered. Specific terms used in this study have also been elaborated for further understanding of the readers. The following chapter will review some related studies on perception towards the learning of M3 in English language.

CHAPTER 2

REVIEW OF LITERATURE

2.0 CHAPTER OVERVIEW

This chapter aims to provide related literature regarding the use of English Language in the teaching of the Mathematics by reviewing studies done by other researchers.

2.1 LEARNING SUBJECT MATTER IN ENGLISH LANGUAGE

The difficulty of teaching and learning subject matters in non native language is not only faced by Malaysians but it appears in other parts of the world whose native language is not English. The heart-breaking pace of Science and Technology increases the awareness of everyone to grasp English as a mean to master the skill in becoming competitive globally. Thus, the teaching and learning of subject matters in English is seen as the only alternative since there is a wide array of available resources.

However, learning subject matters in a non-native language is not an easy task. Teachers are facing difficulties to deliver the content and communicate ideas (Suan, 2005).The researcher also noted that students find it difficult to learn the subject and to understand the language used in their learning. These problems could be due to the lack in their language proficiency in which the subject is being taught because learning the subject matter and learning to use the language of instruction are two different things (Hong. 2005). To be specific, the language of mathematics is different from the ordinary English language. Suffolk (2005), defines the language of Mathematics and Sciences as a shorthand, with abbreviation, symbols and rules to learn, where symbols and numbers do not match words and thus difficult to translate into ordinary English. Similarly, other subjects like history, geography and others, in some ways are having their own registers,

that do not match the general English language. These problems restrict teachers and students to teach and learn subject matters effectively.

2.2 ENGLISH AS MEDIUM OF INSTRUCTION IN MALAYSIA

English Language plays a significant role in the teaching and learning of subject matters. Malaysian government, especially under the Ministry of education had gone through various stages changes in its education system.

During the pre-independence, the schools adapted English language as medium of instruction in its school except for language subjects like Mandarin in Chinese schools, Tamil in Tamil Schools and Bahasa Malaysia in national schools and the system continued until early 1980s. Later in 1984, it started the second change, where all the subjects taught were in the Bahasa Malaysia. Since then, the standard of English declined and got worse day by day to the extent that the graduates were not fluent or competent enough to communicate in English.

The changes in the education system did not end there. It went for another change due to the facts that the school leavers and the graduates are not competitive enough to join workforce either nationally or internationally and to achieve a developed nation by the year 2020. Thus, in 2003, another change in the language of instruction from Bahasa Malaysia to English language was made for the teaching of Mathematics and Science.

However the implementation of English as medium of instruction which taken place since until the present time has created a lot of inconveniences not only at the ministry or department levels but also to the teaching staffs and also the most affected party; the students.

According to Kochen (1984) as cited in Gill (2002, p.12), the term knowledgeable worker is derived from the term knowledge work, which encompasses “work activities that are knowledge-based, knowledge-intensive and knowledge generating.” This is in line with the Vision 2020 in which the underlying aim is for Malaysia to achieve the status of an industrialized country. This would need Malaysians to be skillful and knowledgeable in various aspects. As English Language is the *lingua franca* and the language for acquiring the vast resources of knowledge, the government is putting great emphasis on the use of the English Language as the medium of instruction particularly in the teaching of the Mathematics.

In addition to that, the government realizes the potential of English Language in the various fields. One of these is in the field of technology. In fact, English Language is the primary language of technology, which is crucial to be mastered. This is in relation to the statement made by the former Prime Minister of Malaysia, Tun Datuk Seri Dr. Mahathir Mohamad (1994, cited in Foo & Richards: 2004) in which he stated that “we have to learn the language of telecommunications, of computers, of the Internet”. These are related to the advancement of the era of information technology, which allows rapid exchange of information both scientifically and technically. Thus, having the competency and proficiency in English Language are considered as survival skills in this competitive era because these qualities enable individuals to exchange ideas, collaborate, make friends and trade internationally. Those who are competent and proficient in the language will have more opportunities for career development.

Apart from that the use of English Language is not only limited as a medium for academic or language enhancement purposes; it is also used as a mean to acquire knowledge. Being knowledgeable is very important because it will enable Malaysians to be equally competitive with other developed nations. Hence, the implementation on the use of English Language in the teaching of Mathematics is one of the government’s strategies in the nation building. Therefore, one of the strategies according to

Ambigapathy as cited in Jayakaran & Teh (2002, p.239), is to propel the country into the front-line of the information age and bring a more productive future for the people.

With regards to the various important roles of English Language in the nation building, the government of Malaysia has decided to implement English Language as the medium of instruction in the teaching and learning of Mathematics subjects. This has resulted in the introduction of the English for Science and Technology syllabus. Foo and Richards (2004) point out that the focal point of the syllabus is on the “Informational component” and this is taken from the “General syllabus”. They also said that, the syllabus is organized in terms of “acquiring information from various sources including the electronic media, processing that information, and presenting it for different purposes” (2002, p.238). In addition to those, the syllabus seeks to;

“lay the foundation in the use of English in the fields of science and technology not only for the present but also for further studies at the tertiary level. This programme does not aim to teach the subject matter ... rather, it is designed to help ... and to understand methods of scientific thoughts and enquiry in English common to all kinds of scientific and technical discourse. The knowledge gained will not only enhance personal learning but also enable learners to think critically of issues in science and technology”.

(Curriculum Development Center, 2001, cited in Foo and Richards, 2002, p.238)

The syllabus includes wide areas of information including general science, physics, chemistry, biology, mathematics, environmental education and various technologies (Curriculum Development Center, 2001). From these areas, topics and themes are developed, which are to be taught in the English Language. Using the language as the medium of instruction, learners will learn various registers in Mathematics that will assist them to be accustomed with the main scientific concepts. Hence, based on the extract above, the teaching of the Mathematics subjects does not deal with the Mathematics subject matters only but the syllabus is designed and aimed to help learners in the

acquisition of knowledge through scientific thoughts and enquiry similar to those of scientific and technical discourse. For that reason, it will enhance the learners' personal development in the learning process as well as to train them to be critical thinkers. In addition to this, learners are prepared to expand their individual capabilities and creativities beyond their normal routines.

2.3 ENGLISH LANGUAGE AS MEDIUM OF INSTRUCTION IN MATHEMATICS CLASSROOMS

In the year 2003, Mathematics [and Science] subjects were taught in Bahasa Malaysia and the students were trained and taught these subjects were well versed in that medium of instruction used. However, with the introduction of the new curriculum where English Language is used as the medium of instruction for the Mathematics, the learners who have had no strong foundation of that second language may find it difficult to grasp the idea or concepts of what has been taught. Without a strong foundation of the new language of instruction may limit the chance to learn and acquire mathematical knowledge. Similarly, their involvement in the process of learning may be increasing. To gain knowledge, they have to reach for resources, where a large number of them are written in English language. Even if they are able to read and acquire mathematical knowledge, some of them may not be able to face classroom situation where they need to communicate: to ask and answer questions. Ramakrishnan (2002), stated that "not all science teachers exclusively trained to teach in Bahasa Malaysia can teach their subjects in English". His statement is not only reflecting the Mathematics teachers' ability but also the present state of students' learning.

With the implementation of the English Language as medium of instruction in the teaching and learning of Mathematics, students not only need to be competent in the subject matter of the subjects but also having the proficiency in the new medium of instruction. With that, English students are more likely to face obstacles and challenges