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Students' Inclination towards English Language as Medium of Instruction in the Teaching of Science and Mathematics

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Abstract

Malay language, the national language of Malaysia has been the medium of instruction for Science and Mathematics for the past four and a half decades in Malaysia. The government however changed the medium of instruction of these subjects to English in January 2003. The "Teaching and Learning of Science and Mathematics in English" (PPSMI) policy was implemented in all primary and secondary schools. It aims to improve the English language proficiency among students as well as the learning and achievement level in science and mathematics. This paper presents findings of the study on students' inclination towards English language as medium of instruction in teaching and learning of Science and Mathematics in Higher Learning Institutions in Malaysia. The respondents were 291 undergraduate students from the Faculty of Science and Technology (FST) and Faculty of Education (FPEND) of Universiti Kebangsaan Malaysia (UKM). A questionnaire pertaining to students' inclination was used as research instrument. Using descriptive statistics, ANOVA and *t*-test, the study found that undergraduate students of FST and FPEND had an inclination towards English as medium of instruction in the teaching and learning of Science and Mathematics. Using the Post-Hoc test, it is found that Indian students and students from other races than Malay and Chinese have greater inclination towards English as medium of instruction in teaching and learning of Science and Mathematics in UKM for both faculties. However, FST students who studied in Mandarin and Tamil at pre-university level (STPM) had higher inclination compared to those who used Malay language or even English.

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Keywords: PPSMI, teaching and learning, medium of instruction, student's inclination;

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1. Introduction

The main aim of Teaching and Learning of Science and Mathematics in English (PPSMI) is to have students to strengthen their foundation in science and mathematics and enhance the usage of English in various technical areas. Knowing that English is the language of knowledge and international relations, the Special Ministry Meeting, on 8 May 2002, had agreed that both science and mathematics are to be taught in English. This decision was made from the study on the implementation of PPSMI by the Ministry of Education in April 2002 (Che Wan Jasimah & Norazmi 2005). Consecutively, on July 20 of the same year, the Education Minister Dato Seri Najib Tun Razak, officially announced the implementation of PPSMI to begin in year 2003. This policy was made based on the fact that science and mathematics are dynamic areas of knowledge in which all sorts of new discoveries and a large portion of information related to them are found in English (Pembina 2009).

The public and academics have shown different reactions in response to this implementation of PPSMI. To academicians, the decision made by the government did not comply with Section 17 of the Education Act 1996. The Act imposes the usage of national language as medium of instruction in all institutions of higher learning in the national education system (Pembina 2009). This decision was also deemed to be against the establishment of UKM, which was given the duty to uphold the national language as the language of knowledge. This view is consistent with the study made by Jumrang (2004). The study found that the use of scientific language in science can only be understood by learning its content. If students did not understand the delivery and lesson during the teaching and learning due to the use of the language, they will face learning difficulties. Cuevas and Beech (1983) stated that there were several issues to be considered before the implementation of teaching and learning of mathematics in English. Studies by Ellerton and Clarkson (1996) and Setati (2003) also agreed that students will benefit more if mathematics is taught in their mother tongue.

The issue of teaching and learning of science and mathematics can be viewed not only from the perspective of lecturers (Noriza *et al.* 2011) but also from the perspective of students who are directly involved in PPSMI (Zaidi *et al.* 2011). This study focuses on students' inclination towards English or Malay language as the medium of instruction in the teaching of Science and Mathematics. This research is part of UKM's main pilot research project entitled 'A Study on the Effective Implementation of PPSMI in UKM' (UKM-GP-PPKK-9-2009).

2. Methodology

The data of this research was obtained through the dissemination of questionnaires. The questionnaires were then distributed to students of the Faculty of Education (FPEND) who are majoring in Science and Mathematics, and Faculty of Science and Technology (FST). Both faculties were chosen to fulfill the objectives of the research due to the students' background where they had undergone the learning of science and mathematics since their secondary school level until their pursuance of higher studies at UKM. Thus, the perception of these students towards the implementation of PPSMI in UKM could be measured more accurately. A pilot study was conducted and the results from the findings enabled the researchers to improve the survey questions to meet the objectives of the research. The findings of the pilot study showed a Cronbach Alpha value of 0.957, which meant that a further study can be made.

The number of respondents involved was 291 students, in which 103 from the Faculty of Education (FPEND) and 188 from the Faculty of Science and Technology (FST). A Likert scale ranging from 1 to 10 was used to measure the inclination level of the students towards English as medium of instruction. The scale ranges from 1 that represents strongly disagree while 10 represents strongly agree to 18 questions about students' inclination. The students' inclination level towards English as the medium of instruction was then divided into three categories; namely strongly not inclined, inclined and strongly inclined. An average score of 1.00 to 3.99 showed that the students were not in favour of English as the medium of instruction. An average score ranging between 4.00 and 7.99 showed those in favour, while an average score ranging between 8.00 and 10.00 showed their high level of inclination.

A descriptive analysis was done to look at respondents' profiles based on demographic factors. Sequentially, nine hypotheses were identified to measure the students' inclination towards English. The hypotheses are as follows:

H1 : There is no difference in students' inclination towards English as medium of instruction among genders

H2 : There is no difference in students' inclination towards English as