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THE PERCEPTIONS OF UTM TEACHER TRAINEES ON THEIR READINESS TO TEACH MATHEMATICS AND SCIENCE IN ENGLISH

NOOR EFFINNA BINTI NOORDIN

A report submitted in partial fulfilment of the requirements for the award of the degree of Bachelor of Science with Education (TESL)

Faculty of Education
Universiti Teknologi Malaysia

MAY 2011
I declare that this thesis entitled “The Perceptions of UTM Teacher Trainees on Their Readiness to Teach Mathematics and Science in English” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Name : NOOR EFFINNA BINTI NOORDIN
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DEDICATION

Devoted to my beloved Papa and Mama
Noordin bin Mohd Noah
&
Fawziah binti Hj Ali

Brother and Sister
Noor Effin bin Noordin
Noor Effinny binti Noordin
Siti Raihani binti Kamso (Sis in law)

My little angel
Nur Alia Batrisyia binti Noor Effin

THANK YOU
for your unconditional love, prayer, support, guidance, and everything.
ACKNOWLEDGEMENT

Assalamualaikum w.b.t, with the greatest gratitude to Allah S.W.T. for the love and strength to overcome the hurdles and predicament in life and made me for what I am today.

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Not forgotten to my course mates who have helped in one way or another and my loving friends especially Nik Fatma Arisya binti Nik Yahya, Ikhwan Nurhakim bin Ismail and Nurainasuhada binti Mohamad Apandi who understand all the hardship that I have been through.

Last but not least, thank you to all who have been involved directly and indirectly in completing this study.
ABSTRACT

As a result of the new policy in the teaching of Mathematics and Science subjects in schools in Malaysia which was introduced in 2003, questions were raised with regards to the teachers’ attitude towards English and their ability to cope with the change in the medium of instruction in the teaching of the two subjects. Thus, the purpose of this study is to gain insights on Universiti Teknologi Malaysia (UTM) teacher trainees’ readiness to teach Mathematics and Science in English in terms of their attitude towards English language and their perceived competency in teaching the subjects. The respondents of this research were 53 fourth year undergraduate students of UTM from the Faculty of Education who had undergone teaching practice during their third year of study. 25 of them are students taking a Bachelor’s Degree in Education majoring in Mathematics while the other 28 are students pursuing a Bachelor’s Degree in Education majoring in Chemistry. The research instrument used in this study was questionnaire. Most of the questions had been adapted from questionnaires of previous research related to the study. The data obtained were analyzed using Statistical Package for Social Science (SPSS) where the mean of items were obtained to determine the respondent’s level of readiness to teach Mathematics and Science in English. The findings of the study revealed that the respondents are ready to teach Mathematics/Science in English as they have positive attitude towards the language. They also perceived that they are competent in three aspects which are in using the language that is English, possess content knowledge and capable of using Information and Communication Technology (ICT). It is hoped that this study can provide useful information to the various parties concerned such as the Ministry of Education, UTM and students to overcome the problems associated with the teaching Mathematics and Science in English.
ABSTRAK

Kesan daripada polisi baru yang diperkenalkan pada tahun 2003 berkaitan dengan pengajaran subjek Matematik dan Sains dalam Bahasa Inggeris di sekolah-sekolah di Malaysia, beberapa persoalan telah ditimbulkan berkaitan dengan sikap guru terhadap penggunaan Bahasa Inggeris dalam pengajaran serta kemampuan mereka untuk menghadapi perubahan terhadap bahasa pengantaran semasa mengajar kedua-dua subjek tersebut. Oleh yang demikian, kajian ini bertujuan untuk memperoleh pandangan guru-guru pelatih dari Universiti Teknologi Malaysia (UTM) terhadap kesediaan mereka untuk mengajar Matematik dan Sains dalam Bahasa Inggeris iaitu dari aspek sikap mereka terhadap Bahasa Inggeris serta kecekepan yang dimiliki untuk mengajar subjek tersebut. Responden bagi kajian ini adalah 53 orang pelajar tahun empat empat UTM dari Fakulti Pendidikan di mana mereka telah menjalani latihan mengajar semasa tahun ke-4 pengajian mereka. 25 orang daripada mereka merupakan pelajar yang sedang mengambil jurusan Sarjana Muda dalam Pendidikan khusus dalam Matematik manakala selebihnya merupakan pelajar yang sedang mengambil Sarjana Muda dalam Pendidikan bidang khusus dalam Kimia. Bahan yang digunakan untuk kajian ini adalah soalan kaji selidik yang diubah suai daripada kajian terdahulu yang berkaitan dengan kajian ini. Kesemua data yang diperoleh dianalisis menggunakan Statistical Package for Social Science (SPSS) di mana min bagi setiap soalan yang diperoleh digunakan untuk mengenal pasti tahap kesediaan para responden untuk mengajar subjek Matematik dan Sains dalam Bahasa Inggeris. Penemuan daripada kajian ini menunjukkan bahawa para responden sudah bersedia untuk mengajar Matematik/Sains di dalam Bahasa Inggeris kerana mereka mempunyai sikap yang positif terhadap Bahasa Inggeris. Mereka juga beranggapan bahawa mereka telah mahir dari segi tiga aspek iaitu aspek dalam penggunaan bahasa iaitu Bahasa Inggeris, mempunyai pengetahuan terhadap subjek tersebut serta kebolehan dalam menggunakan Information and Communication Technology (ICT). Kajian ini diharapkan dapat menyediakan informasi yang berguna kepada pihak-pihak yang tertentu contohnya Kementerian Pendidikan, UTM dan para pelajar untuk menghadapi masalah-masalah yang berkaitan dengan pengajaran Matematik dan Sains dalam Bahasa Inggeris.
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CHAPTER 1

INTRODUCTION

1.1 Introduction

There is no doubt that in this era of globalization, Mathematics and Science are two very important subjects that need to be taught to students at all levels of education. This is because the fields of Mathematics and Science have been widely known to play a very important role in the progress and development of a country. As stated by Friedman (2005), “… math and science are the keys to innovation and power in today’s world.” Faizah and Marzilah (2006) also share the same view with Friedman with regards to the importance of Mathematics and Science where they referred to Mathematics and Science as two core subjects which are capable of upgrading the potential of the nation by playing a major role in technological development. Sharifah Maimunah (2003) also emphasizes the importance of the two subjects where she argues that being knowledgeable in Mathematics and Science can give a competitive edge to a country in the economic race. She further states that countries which are forward in science and technology will be looked highly upon as they become more knowledgeable, modern and sophisticated in the world. Thus, it cannot be denied that learning Mathematics and Science is beneficial to us as it can lead us to a better life along with the country’s strengthening economy. This is in line
Due to the importance of Mathematics and Science knowledge, the Malaysian government has accentuated on the importance of teaching both of these subjects in English in schools, higher institutions, colleges and other education organizations since it is the aim of the government to make Malaysia as one of the scientifically educated nations by the year 2020 (Foong, 2004). Furthermore, there is a need to learn these two subjects in English as most scientific and mathematical materials are in English. Therefore, mastery of this language will be an added advantage to Malaysians. Additionally, learning Mathematics and Science in English would turn Malaysia as “the regional centre of excellence in the archipelago” (Mohd. Fadzli Ali et al, 2003) since the Malaysian education system would be able to keep up with the internationalization and globalization of the world.

In view of the importance of teaching and learning of Mathematics and Science in English, the Malaysian government had decided to introduce PPSMI which is a policy in Teaching and Learning of Science and Mathematics in English. As such, it is important to give sufficient and ample training to future Science and Mathematics teachers to teach the subjects in English so that they are capable of delivering the content knowledge effectively and efficiently to the learners along with the correct language.

1.2 Background of the Study

Throughout the years, lots of attention and effort have been put to ensure that the Malaysian education system achieves a high standard and one of the ways to
attain this is through curriculum reforms and teacher training. One of the most important changes made in the Malaysian education policy is the reintroduction of English as the medium of instruction (EMI) in Mathematics and Science subject at schools and university level or this is more frequently referred to as PPSMI (Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris). This policy involved the change made to the medium of instruction for both subjects from Malay which is the National Language of Malaysia to English.

The policy was introduced because the government suddenly realized the declining standard of English proficiency as well as language skills among Malaysians which may affect the development of Malaysian’s economy and even to achieve Malaysia’s vision to be a developed country by 2020. In addition, according to the statement made by the Ministry of Education (2002a), it is also “to ensure that Malaysians are able to keep abreast with scientific and technological development that is mostly recorded in the English language and to provide opportunities for students to use the English language and therefore increase their proficiency in the language”.

Besides, Gill (2005) states that there were several reasons for the sudden change in the language policy. Among them are “to have the ability to compete in the era of globalization; the government’s concern about the nation’s human resource capital in the knowledge economy society and the knowledge and information explosion in science and technology in English as the most important lingua franca”.

1.3 Statement of Problem

Teachers play an important role in making differences to students’ life as they are responsible in delivering knowledge, developing good attitude and at the same
time, enhancing the student’s learning with effective teaching. They are considered as resourceful people for the students since they are capable of teaching the students about real life, concepts and even moral values which may not be able to obtain by themselves.

Therefore, in order to ensure that the teachers are qualified to teach a particular subject along with other knowledge, they are required to undergo teacher training at training colleges or universities as it is one of the most important components in teacher education. Through this kind of training, the teacher trainees will be provided with the opportunity to “develop teaching competencies in a variety of instructional contexts, and at different levels, under the guidance and supervision of cooperating teachers and of the university lecturers” (Juliana and Rohaida, 2009).

In UTM, the faculty that offers teacher training programme is the Faculty of Education. This faculty offers variety courses and programmes such as Mathematics in education, Chemistry in education, English language for specific purposes and others. Each course and programme requires the teacher trainees to take subjects that are related to their studies or well known as core subjects. These subjects are provided in order to deepen the teacher trainees’ content knowledge on the course that they are pursuing. Besides, they are also required to take English subjects to help them to be more proficient in the language. The aim of the elective subjects, on the other hand is to develop the teacher trainees’ certain skills such as ICT skills which can help in enhancing their teaching process whereas the faculty subjects are intended to give knowledge and expose them to effective ways of teaching.

However, there are many challenges that need to be faced by the teacher trainees especially for those who need to teach Mathematics and Science in English. One of the major challenges is their ability to use English in the teaching of Mathematics and Science subjects. Moreover, questions have been raised as to whether they have the competency to integrate both content and language in their
teaching due to the complexity of the language itself. According to Australian Department of Education (cited by Faizah and Marzilah, 2006), “the language of Mathematics is complex and is not similar to everyday language. It consists of specialist vocabulary, precisions and the use of symbols.” Besides, it also said that “the language used for Science subjects comprises a large vocabulary of technical terms that have to be clarified to the students.” Therefore, if the teacher trainees are not proficient in English, they might have problem in delivering the subject content to the students.

In addition, in this era of globalization, teachers are also required to be equipped with certain skills which can enhance their teaching. One of it is the ICT skills. Little exposure in integrating ICT in the teaching and learning process also becomes one of the problems especially to those who are not familiar with this kind of technologies as well as did not have the knowledge on how to handle certain hardware in order to deliver the knowledge. This kind of skill is important like other skills since the technologies can make the teaching and learning process become much easier for the teachers as well as helping the students in their learning.

Thus, there is a need for the teachers “to acquire expert knowledge in the full range of competencies that make up the core skills of a content area teacher” (Juliana and Rohaida, 2009). Furthermore, due to the problems mentioned above, this research needs to be conducted in order to determine the UTM teacher trainees’ level of readiness to teach Mathematics and Science in English as well as to find out if they have the right attitude and competency in teaching before going to the real world.
1.4 Purpose of the Study

This research was conducted with the aims of investigating the perceptions of UTM teacher trainees on their readiness to teach Mathematics and Science in English. Their readiness can be determined through their attitude towards English language and also their perceived competency in teaching Mathematics and Science in English.

1.5 Research Objectives

Based on the problem statement above, the main objective of this research is to investigate the perceptions of UTM teacher trainees on their readiness to teach Mathematics and Science in English. This objective can be achieved by:

1. Investigating the attitude of teacher trainees towards English language.

2. Finding out the teacher trainees’ perceived competency in teaching Mathematics and Science in English.

1.6 Research Questions

Based on the research objectives above, the following are the research questions that can help determine the readiness of teacher trainees to teach Mathematics and Science in English. They are: