TEACHING EFFICACY BELIEFS OF PRIMARY SCHOOL TEACHERS IN USING ENGLISH TO TEACH MATHEMATICS AND SCIENCE

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ABSTRACT

This study seeks to find out the teaching efficacy beliefs level of the Mathematics and Science teachers in using English to teach the subjects. In spite of the various external problems faced by the teachers, the results show that the teachers have high efficacy belief levels in themselves and have the capacity to affect students' performance. It is also a study to find out if the Personal Teaching Efficacy (PTE) or the General Teaching Efficacy (GTE) is more influential in determining the teaching efficacy beliefs of the teachers. These two constructs appear to be of equal influence and importance in the determination of the teaching efficacy beliefs of the teacher. The study also indicates that the personal academic achievement of the teachers in English during their school days is not significant in determining the teaching efficacy beliefs of the teachers in the classroom. It does not affect the teachers' efficacy beliefs in using English to teach the subjects well. The findings of this study may be useful for policy makers and implementers to continue to monitor the ETeMS programme as the Mathematics and Science teachers need the support to make a successful change in the medium of instruction, from Bahasa Melayu to English in delivering the two subjects well.

BACKGROUND

The implementation of ETeMS raised many issues and challenges among classroom practitioners. Some of them are positive and excited by the prospects of teaching Mathematics and Science in English but there are also some who are indifferent and negative about it. In times of change, different reactions are considered normal. The creative tension that comes with the changes will lead to new ways of doing things. As such, it is necessary to find out the impact of ETeMS on the existing beliefs of the teachers.

STATEMENT OF PROBLEM

The government's decision to change the medium of instruction in the teaching of Mathematics and Science from *Bahasa Melayu* to English affects the Mathematics and Science teachers generally.

For more than twenty years, teachers trained in the Malay medium as well as those trained in English have largely used *Bahasa Melayu* as a medium of instruction so most teachers were sceptical about their own confidence and capabilities in delivering the subject matter in English. Therefore, the decision to teach Mathematics and Science in English is a "big challenge" for many of the teachers.

PURPOSE OF STUDY

Now that the curricular change is in its third year of implementation, it is timely that all those involved in the innovation should examine how the change is impacting our educational system. Issues pertaining to the efficacy of teachers in the implementation of the innovation should be examined. This is to ensure that the standards of quality and accountability that are demanded from within the educational fraternity as well as the general public are fulfilled.

The researcher desired to find out the efficacy beliefs' level of the Mathematics and Science teachers in handling the two subjects now that it is in its third year of implementation. The study also intended to find out to what extent were the Mathematics and Science teachers' beliefs of influence in using English to teach the two subjects effectively.

RESEARCH QUESTIONS

The focus of the present study was on the teaching efficacy level of the Mathematics and Science teachers in using English as a medium of instruction. More specifically, the research aimed to find out the following:

1. What is the teaching efficacy beliefs' level of the Mathematics and Science teachers in using English to teach the subjects?

2. Is the Personal Teaching Efficacy (PTE) or General Teaching Efficacy (GTE) more influential in determining the efficacy beliefs of Mathematics and Science teachers in using English to teach the subjects efficiently?

3. Is the efficacy beliefs of the Mathematics and Science teachers influenced by their MCE or SPM English grade?

SIGNIFICANCE OF RESEARCH

To facilitate the transition into English, the Ministry of Education has given Science, Mathematics and English teachers a monetary incentive as a token of appreciation for the extra effort in light of the language shift over and above the computers, books and courseware provided. Now itself, billions of ringgit are spent on capacity building of the teachers' teaching efficacy.

With the ongoing language proficiency, courseware and monitoring programmes, teachers are continually inducted into the new curriculum. Therefore, it is pertinent that teachers adapt to their situations and exercise their skills in pedagogy to maximize opportunities and troubleshoot any problems that may arise.

The researcher's concern in this research is the teachers as they play a key role in the curricular change. The performance of the students is largely dependent on them. It is important that they are not only equipped with knowledge, skills and the right attitude towards teaching and learning but also positive self-efficacy to teach well.

LIMITATIONS

Due to time constraint, only 100 Mathematics and Science teachers were involved in this study. The sample in this study cannot be used to generalize the teaching efficacy of all the teachers teaching the two subjects. Furthermore, training given to these Mathematics and Science teachers by different facilitators varied from place to place. Thus, the perception of the Mathematics and Science teachers in one state might not be the same as that of another state.

METHODOLOGY OF STUDY

Sample

The population of the study is the in-service primary school mathematics and science teachers who are currently teaching in national or national-type primary schools in the state of Selangor. The sample consists of 100 Mathematics and Science optionists who had taught Mathematics or Science in English for a minimum of six months to three years.

Instrumentation

The Science Teaching Efficacy Beliefs' Instrument **(STEBI),** developed by Riggs and Enochs (1990) was used. It used a 5-choice, 23-item Likert-type scale. The instrument is made up of 23 items, consisting of two sub constructs, personal teaching efficacy (PTE) and general teaching efficacy **(GTE)**.

Data Collection Procedures

The process of data collection took two weeks. Representatives from various schools were contacted to ascertain how many Mathematics or Science trained teachers could participate in the study. The representatives were told of the objectives of the study and they were very supportive towards it. Following this, appointments were made with the representatives so that the questionnaires could be distributed and collected as soon as possible.

SUMMARY OF RESULTS AND FINDINGS

The overall mean for the composite STEBI was 84.3, while that of PTE and GTE were 48.15 and 36.18 respectively. This indicates that the teachers' efficacy beliefs are of high levels and above the cut-off points respectively. Hence, with regard to Research Question 1, the data in this study shows that the Mathematics and Science teachers have high teaching efficacy beliefs in themselves and have the capacity to affect students' performance. They believe they can teach well and are not affected by the external factors.

An analysis using a scatter plot to determine the relationship between the constructs indicates that there is a positive value between the variables, PTE and GTE. The analysis shows that the relationship of PTE and GTE is positive and strong. The two constructs, which are the main factors in determining the teaching efficacy beliefs of the Mathematics and Science teachers, were found to be of equal importance.

Another correlation analysis carried out, indicates that the English grade of the Mathematics and Science teachers were not significant to their efficacy beliefs in their teaching. This implies that no matter what grades the teachers have for English in their MCE or SPM level, their efficacy beliefs for teaching Mathematics and Science in English are not affected.

CONCLUSION

From the findings, the teaching efficacy beliefs' level of the Mathematics and Science teachers in using English to teach the two subjects is high. The two constructs, the PTE and GTE are of mutual influence in determining the efficacy beliefs of the Mathematics and Science teachers. Meanwhile, the efficacy beliefs of the Mathematics and Science teachers are not affected by the English grade in the MCE or SPM examinations.

Note: ***This research was also presented at TED-ELTC ETeMS Conference 2005: Fostering Schools that Learn***

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