Parallel 1

PAYING LIP SERVICE: A SUPPORT PROGRAMME FOR THE TEACHING OF MATHEMATICS AND SCIENCE IN ENGLISH.

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ABSTRACT

This paper intends to discuss the Language Immersion Programme (LIP) which is an outcome of ETeMS monitoring programme conducted in November 2002. The monitoring reports from Phase 1 of ETeMS training indicated that some of the ETeMS teachers were in critical need of language improvement , and therefore need to attend a short preparatory course in order for them to pursue Phase 2 of the ETeMS training.

The Language Immersion Programme (LIP) is targeted specifically at these teachers who need to improve their competence in English for teaching Mathematics and Science. The discussion will focus on a variety of activities and strategies used in the programme and how these activities and strategies helped teachers to enhance their language competence and their confidence in using English for the teaching of mathematics and science in non-threatening and language rich contexts.

Introduction

Mathematics and Science has been taught in English to selected classes in Malaysian schools since the beginning of this year, as a result of the initiative of Tun Dr. Mahathir Mohamed. It was no small task for the country to embark on such an initiative as most teachers were already teaching “happily” in Bahasa Malaysia and had to be prepared for the change in medium of instruction. ELTC, being entrusted with the task of preparing teachers for this change, ran the ETeMS course. It was found in Phase I of the ETeMS training that some teachers were in critical need for language improvement and would have difficulty coping with the Phase 2 of that course. Hence a separate Language Immersion Programme (LIP) was planned for these teachers in order to improve their competence in English to be able to teach Mathematics and Science in the language.

This paper will look at the variety of activities and strategies used in the LIP and how these activities and strategies helped teachers in non-threatening and language rich contexts to enhance their language competence and their confidence in using English for the teaching of mathematics and science.

NB: All teachers (course participants) were from the Malay medium of instruction. The course participants (CPs) have strong language awareness and a positive attitude towards learning the target language. However their lack of exposure to English impeded their pursuit of their goal.

Language Immersion Programme (LIP)

The LIP was designed with the aim of enhancing teachers' competence in English for teaching Mathematics and Science and to generate awareness among teachers of support materials that have been made available in the ETeMS programme. This was done by immersing teachers in an English language-rich environment to establish authentic and meaningful contexts that encourage the use of language functions to support the teaching of Mathematics and Science. It further helped teachers develop their critical and creative skills within the context of the proficiency programme.

The activities in the LIP include:

1. Journal writing
2. Language games
3. Project work
4. Forums
5. Debates
6. Simulation
7. Role-plays
8. Presentation

All these activities were carried out using a thematic approach to allow for authentic and meaningful contexts for language learning and integration of language skills. With the exception of journal writing, the emphasis was on aural-oral skills.

The themes chosen included:

Environment
Weather
Tourism

While teachers participated in activities that revolve around the theme, they were able to practise language forms and functions that would help them further develop their language skills in the teaching of Mathematics and Science in English. These language forms and functions were generally given by the facilitators, although some originated from the teachers themselves. They included:

1. Giving and carrying out instructions
2. Writing reports
3. Giving explanations
4. Asking questions
5. Describing processes
6. Describing objects
7. Extracting information
8. Information transfer
9. Negotiating
10. Stating opinions
11. Seeking clarification
12. Dictionary skills
13. Pronunciation and enunciation
14. Note-taking
15. Note-making

Discussion

The following were the strategies used in helping teachers become more competent and confident in using English to teach Mathematics and Science.

Strategies (examples given in actual presentation)

Strategy refers both to the general approaches and to specific actions or techniques used to learn a second language (Cohen, 1998)

1. Immersion programme.

   As this was an Immersion programme, it had all the necessary immersion-specific characteristics (Johnson et al, 1997)

   a) Facilitators had native (Malaysian English) or near- native proficiency in the immersion language to serve as a continuous model of the immersion language. CPs were surrounded with the immersion language, creating an inviting environment filled with oral language, as well as print and non-print material related to what they were studying (resources).
   b) Facilitators made it clear to CPs that they were expected to use the immersion

language at all times. Exceptions to this rule were made at the facilitator's discretion, when CPs were unable to get the meaning at all of some words.

c) High level of CP participation. Involving CP in the preparation and execution of lecture room activities increased CPs' comprehension.

d) Facilitators created an atmosphere in which students were encouraged to express themselves in the immersion language without fear of ridicule or overcorrection

e) Facilitators use activities (project, task-based work) that provided CPs with extensive opportunities to communicate with their peers.

f) Appropriate materials in the immersion language were used.

2. Thematic approach

   Ideally, the English for Science and Technology (EST) approach should have been used for CPs to learn English so as to teach Mathematics and Science. However, given that facilitators were not Mathematics and Science teachers, and the proficiencies of CPs were rather low, the thematic approach provided a suitable "meeting point" for facilitators and CPs and the authentic and meaningful context for learning.

3. Scaffolding (Bruner)

   Facilitators guided CPs on the necessary steps and provided them with resources in building up towards the final presentation of each theme.

4. Group work

   All the learning happened in a non-threatening environment. The interaction among members provided opportunities for practising necessary language forms and functions which were provided by facilitators or other CPs. There was also peer-learning. Scaffolding (Bruner) took place and group work also encouraged collaborative learning (Slavin, 1983).

5. Exercises given to the CPs reactivated /revisited CPs schemata and introduced new vocabulary in some. There was an element of reinforcement as CPs reused some words introduced to them.

6. Modules were used or devised according to the proficiency of the CPs (facilitators had a lot of flexibility in deciding the materials as long as they kept to the curriculum objectives).

7. Presentation/ Forum
   CPs had to talk in public making it a learning strategy on its own.

8. Individual work (including research) that CPs did in order to prepare for their talk promoted self-learning and enhanced their self-confidence.

9. Risk-taking was encouraged. CPs were reassured about everyone being prone to making errors in the course of language learning and that errors were inevitable and part of language learning. (Hedge, 2000)

Issues

The following were some issues that were attended to while the last is not answered yet.

1. Choice of activities – although activities were chosen according to proficiency of participants it required trial and error to discover that some were too difficult for the CPs.
2. The group of participants for each course was intentionally made small in order that personal attention could be given.
3. Some participants were selected pre-ETeMS showing that their schools had made its preemptive decision. Most of these decisions were correct (in retrospect).
4. As the programme relied on immersion, the question of the post LIP period arises that is how the CPs are going to continue learning English.

Objectives achieved?

The Real Issue is being able to teach Maths & Science in English. This really is unknown and will only be known during monitoring (ETeMS phase 2/1 in some). However, some preliminary inference can be gathered from the feedback obtained.

Assessment

This mainly assessed communication in English through:

1. forums
2. projects
3. reflective grids
4. reflective journal writing

Retrospectively it is suggested that journal writing should be implemented. What CPs expect of the course and whether it was achieved should be written down by CPs at the beginning and end of the course (in addition to organizer's objectives).

Available feedback

There was no objective pre-course and post-course tests, but feedback was available in the post-course evaluation by course organizers, from facilitators observations during LIP proper and from CPs in their post-course evaluation.

The post-course evaluation (by course organizers) showed reasonable oral and writing skills (getting message across) but poorer achievement in oral presentation as this was mainly individual work (and also due to the relatively short course duration. Added to the CPs' feedback this was a reasonable achievement for the LIP.

The facilitators observations during LIP proper showed improved confidence levels in CPs in using English and this corroborates with their feedback.

The feedback from CPs in their post-course evaluation also showed improved confidence levels as well as competence levels in English in the CPs.

Limitations:

1. Since this is a language immersion programme, it should run over a longer period that the actual 5 days. This is evidently not possible.
2. Very limited emphasis on writing, and not enough on grammar (since this was not a proficiency course)
3. Not enough background for pronunciation from dictionaries as CPs were Mathematics and Science teachers such that they had no foundation in phonetics/ phonology.
4. No feedback given to CPs about their assessment.

Recommendations

LIP has not shown whether CPs will be able to teach Mathematics and Science in English but improves confidence and some competence in CPs. Therefore it should be continued. It has a definite role in supporting the ETeMS. Participants can initially be identified by schools/Heads of Departments even pre-ETeMS but later on may be self referred.

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