

A Walk in the Woods: Action Research on the Needs of Teacher Trainees Preparing to Teach Maths in English.

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ABSTRACT

The paper presents an understanding of the anxieties and fears of beginning teachers who are faced with the challenges of teaching mathematics and science in English during Phases One and Two of their Practicum. It also examines the needs of these trainees. It will also touch on the Buddy Support System in the college, the teacher training curriculum and the overall usage of English by lecturers, who themselves are not trained in the medium of English.

This paper will address the issues and concerns involved in creating a support system needed to help these trainees, as well as lecturers to come out of the woods with confidence and determination to use the English language as a medium of instruction.

Introduction

Action research is interesting and self motivating. At any possible teaching moment a teacher can start her action research to find out more about her teaching. A teacher can be encouraged to take up action research by hanging on to these words:

.....research is not only for those who are going to further their studies. It is something that you can do to share with other people...with your vast experience and knowledge, you can contribute a lot by sharing with other people...

(Lim, V. 1999)

It is with this “second hand” encouragement that I started to document my “desire to share with others” on the needs of teacher trainees who are preparing themselves to teach Mathematics in the English Language.

I was teaching English to two groups of teacher trainees who are majoring in maths in the Kursus Diploma Pendidikan Malaysia (KDPM) or the Teacher Education Diploma Course. Within the first month of teaching them, I began to feel that something had to be done to prepare them better for the future.

My Action Research

What was my concern?

The interest in the ability of trainee teachers teaching mathematics in English began when the nation called for a change in the curriculum in 2000. As a result, teacher-training colleges in Malaysia are now conducting training of Mathematics teachers in the English language. Mathematics lecturers are not only conducting their lectures in English but are also setting their course work, examination papers in English and Bahasa Melayu . When the teacher trainees are more ready in the future the test papers will be only in English.

Are the young teacher trainees able to teach Mathematics in English after three years of training? Would they have the fluency, and the confidence of native speakers of English or at least somewhere near to it? Malaysians have been brought up in the medium of the National Language for at least twenty years. English is taught to them as a second language. In fact, many of them are taught in their mother tongues, that is, Chinese or Tamil in the first six years of their formal school education. To these trainees, English is the third or even fourth language. Furthermore, for many of them, English is not even used socially. Hence English has only been a classroom language and an examination subject.

My concern became a research question when Student Wong and Student Halim (not their real names) and I had this conversation one day in class:

Madam, your English lesson is very interesting. But we have to learn English quickly. Can the 2 hours of English (i.e. the Asas Dinamika Guru/Kefasihan Bahasa Inggeris in the Malaysian Teacher Education Diploma or Teacher Dynamics English Language), be changed into something else which can help us prepare our Maths lessons in English...we want to learn your instructional language...we want to learn how to conduct the activities you have used...

I shared this conversation with a colleague and she found the words very **CATCHING**. I started to think why couldn't the English Syllabus for Teacher



Dynamics be more relevant so that the needs of the teacher trainees who are majoring in Maths can be met.

What did I find out?

I regard my search as a walk in the woods. It can be refreshing and relaxing but it can also be hazardous and somewhere in the woods we might lose our way. We, teacher trainers are in the misty domain of finding out how to find solutions to the national call of teaching Maths using English. As this is an urgent bugle call, we have three important tasks to do in the next few years:

- a) to train adequate number of Maths teachers for both the primary and secondary schools, using English as the medium of instruction
- b) to recruit more graduates to teach Maths in the English language and
- c) to conduct refresher courses, immersion courses for Maths teachers so that they can meet the demands of the new policy for the teaching of Maths in the English language.

The two groups of my Asas Dinamika Guru: Kefasihan Bahasa Inggeris students are a mixed group of English proficiency students. Some had very low scores in their English but a few were very good indeed.

How did I carry out my study?

I approached my students and told them about my interest in their issues and challenges as trainees who have to use the English language to teach maths. I told them that I would like to interview them and that they had to write reflections after each English lesson with me. They were eager to collaborate with me, as my focus would be in helping them to improve their instructional language.

Step One:

I first gave them a written test on instructional language (See Appendix A): Here are three of the 10 questions I gave them:

1. You would want to tell your students to put back the markers into the drawers.
What would you say?

2. You would like to tell your pupils to take the seats in the front of the class.
What would you say?

-
3. You would like to ask one pupil to come forward and volunteer to clean the blackboard. What would you say?
-

Most of them did not score well. In fact half of the class scored less than 50%.
(See Appendix B)

Step Two:

After the test, I reconstructed my teaching-learning scheme of work to help the trainees in my English lessons. I would concentrate on teaching them instructional language which would be useful to them in their future classroom.

In the first lesson after the test, I asked the trainees to collaborate with each other to come up with 100 instructions they would like to have in their exercise books, which they may need for the teaching of maths. We then spent several hours refining them. After having checked them, we practiced saying them. (See Appendix C). Some of the more confident trainees even had fun role-playing. I asked them to write their reflections and found that they were happy with the “extra” input and activity. But as time was a constraint we spent only five hours on this topic.

2. In order to further help them, I shared with them a very old book used by teachers in Sarawak during the 70's when English was the medium of instruction. This book is to help beginning teachers to teach Mathematics to Primary One. A very simple but well written book, any teacher would have found it practical. Even a non-Maths Major would find it easy to use.

Here is an example from the book:

New Work :

1. Teach the numbers 1 and 2 in exactly the same way as you taught the patterns for 1 and 2 in Lesson 6. Show the number card for 1 and for 2 as you teach them.

Say :

This is number 2. It's 1

This is number 2. It's 2

2. Give drills on numbers 1 and 2, using the large number cards.

Count 1, 2; show me number 2 (Hold up the 2 card) what's this? Clap 2/Jump 2/Tap2 (tapping in palm of hand); draw two boys/balls etc; point to 2 desks/boys, etc.

Source: Pages 14-15, Arithmetic and Physical Education for Primary One by Department of Education, Sarawak, Borneo Literature Bureau, 1967

The trainees were interested in the materials and copied more instructional language from the book. Even though the book is very old they found the book extremely helpful.

One of them wrote:

I was born in 1980 and this book was printed in 1967. It is older than me but I find the English language easy to follow and I am learning a lot from it... I can definitely use most of the instructional language in my daily lesson plans in the future. I am just so happy to have this book for reference.

Step Three:

Before they went for their Practicum Phase One, I had an open dialogue session with them to encourage them. I shared with them the reflection from of one graduate students (KPLI Rendah Maths major) who found working with an excellent mentor changed her whole life. She wrote:

*When I first joined the teacher's college after leaving university, I thought I had nothing more to learn. But after my first phase of Practicum I learned that I owe my Maths Mentor a great deal. He brought me new understanding of Mathematics and he created in me an inquiring mind. **His instructional language and English is so good that I am trying my very best to emulate him.** His methods of solving Maths problems are unforgettable. Besides, he is very patient, and he takes special time off to give my teammates and I guidance and counseling. Although he is very firm and strict in his teaching, he*

*is has a great sense of humour. He is very understanding and he indicates that he can relate to our problems because he too learned to use good English only very much later in life. He learned Maths in Chinese first during his primary school years, then at secondary and tertiary levels he used only Bahasa Malaysia. Now he has to use English. **And his English is so good that we are very inspired!***

After they have read the reflection we had a short discussion. This sharing of a graduate student's reflection also opened their eyes. I continued to tell them that they must make "full use" of their Maths mentor during their practicum. Furthermore, I made them promise to e-mail me and so did their Maths mentor too. This they did and we had a few exchanges of emails for the next few weeks while they were away from the college. I found that they were more forthcoming in their usage of English and they were able to use more sentences. I took great pride in their daily improvement.

Step Four

During the Practicum I had no opportunity to help them with their lesson plans. But I did tell them that I would read their lesson plans in English when they returned to the college. Several of them promised to write their reflections in English while most of them were able to **promise to pick up more instructional language from their school mentors**. After the Practicum, most of them brought their lesson plan books to show me and I was happy for them. English errors were not corrected by their Maths mentors and school mentors. And I too left them unchecked. But I did take down many of their errors for future use.

Step Five

With the second group, I had several reading lessons after they came back from the Practicum Phase One. I had a set back here as one class had to miss my English lessons due to other college programmes and my own traveling schedule.

Here is an example of one lesson:

The class was given different texts (on journal writing) to read. Instead of giving them the normal comprehension questions I asked them to work in groups and produce a mind map to summarise the main points. The mind maps were well done. But when they were asked to present their mind map to their peers, they were at first nervous and unsure of their English. They took more time than expected to complete their



mind map on the blackboard and their presentation was haltingly slow. However they were did manage to do “something”.

One of the trainees wrote :

*This lesson was important to me because for the first time I had to role play as a lecturer. It gave me a clear picture of what it is like to face adults and how to write clearly on the black bard. I think I have a lot to learn about writing well on the blackboard. I have to **really take care of my English.....***

(They were given two other reading passages to read to further practise their reading skills in subsequent lessons.)

Step Six

In another lesson with this group, I prepared a powerpoint presentation on “My Teacher” which included 10 slides. First I told them the life story of “the teacher” and then I asked them to prepare some **instructional language**, including several questions, to use for their lesson based on those slides. They wrote down their instructions after some group discussion. This round I found them very careful with their words. They even took out their dictionaries to refer to. Several of them asked for help. It was a very pleasant learning experience. The integration of ICT into the classroom learning was a good way of motivating them.

Step Seven

After studying their recorded interviews, lesson plans and written reflections, I had an open dialogue session with the two groups, on separate occasions, at the end of the semester. Each group appointed a secretary to help me record their discussion so as to help me to “complete” my action research. These are the conclusions that we drew together:

1. English Lessons have to be more appropriate and helpful (they need the kind of English that will help them write their lesson plans better)
2. As they have to use more English in the future, they would like to have enough language skills to make their classroom a “talking” classroom
3. They would like to learn how to conduct classroom activities using good English. In order to achieve this, they would like to have the time to read more books in the library. These books should also be pitched at their level of

understanding. They have found most of the maths books written in English too difficult.

4. They would like to write better (so that their portfolios and coursework can obtain better marks)
5. They would like to think well in English (so that they could have a “better image” in front of their future pupils)
6. They would like “more coaching” from their English lecturers so that they can “speak like a professional”
7. They would like to know all the grammar rules and how to apply them.
8. They would like to develop a good mental health in order to meet the challenges of the future.
9. They would like to have an understanding coach or mentor who can interact with them in English throughout their training period, someone who can be by their side for a while because they feel that “they are still not ready but they would really like to learn”
10. They would like to have a handbook like the one published by Borneo Literature Bureau.

What will I do with my findings?

- The findings highly support the efforts of the Ministry of Education in carrying out various initiatives in the teacher training colleges and in the schools:
 1. Buddy Support System
 2. Immersion Courses
 3. In service refresher courses for Maths teachers in English like EteMs courses especially on lesson scripting.
 4. ICT courses for lecturers and teacher trainees
 5. Greater usage of the Internet and E-mentoring
- If it is possible, the ADG/Kefasihan Bahasa Inggeris course should be given a second look or review. Perhaps a more realistic syllabus with a strong component on oral presentation and instructional language is designed.
- From the action research it is clearly indicated that the figure of a great mentor is important in the lives of teacher trainees. It is timely that a special mentoring programme for Mathematics should be considered by the Ministry of Education.

- A Handbook for Maths in English for each year of the primary school to be published by the Ministry in line with the new curriculum
- Mathematics and English lecturers should be given:
 - ❖ More time for preparation
 - ❖ More time to interact with the students
 - ❖ More time to read widely
 - ❖ More time to explore possibilities, interchange ideas with other Maths and English lecturers.
 - ❖ Opportunities for Maths lecturers to go for English courses
 - ❖ More courses on how to teach Maths better

Personally, I will surf the Internet for more relevant passages with the Maths Major trainees in mind, to help them improve their thinking, English language, to motivate them and to help them enjoy learning English. Already I have several passages earmarked for the future.

Conclusion

Based on their reflections and the lesson plans they had submitted to me after their practicum, and the final session with them, I noticed that they have improved tremendously. They were no longer shy, some have even incorporated words I provided in the lessons I had with them. Their favourite question used to be “How to say this.....?” (They will give me the Bahasa statement and I will translate for them) After the practicum, they have shifted their interest to better grammar, better sentence structure and better thinking.

Over time they will be better definitely.

This walk in the woods and the search for paths have kept me and my trainees on our toes for many months. My trainees and I are not out of the woods yet but we have developed a great relationship as buddies in learning. The understanding between us has helped clarified a lot of issues. The inspiration we have been able to give each other has also helped us in our learning and our desire to go further a field. Next year it will be their turn to do action research!



Bibliography

Department of Education, Sarawak. (1967) Arithmetic and Physical Education for Primary One” Kuching , Borneo Literature Bureau.

Hopkins,D. (1993) A Teacher’s Guide to Classroom Research.Open University Press.Buckingham.

Lim, V. (1999) A Personal Breakthrough: My First Action Research in Helping My Teacher Trainees Improve the Quality of Their Art Products” Maktab Perguruan Sarawak, Miri. Journal Penyelidikan Pendidikan MPS.

Owen,R. (Ed) (1974) Middle Years at School. London. A BBC Publication

Ramirez J, Mather,C., Chiodo J. (1994) A Mathematical Problem: How do we teach Mathematics to LEP Elementary Students? The Journal of Educational Issues of Language Minority Students,v13 p.1-12, Spring 1994 (Reading Materials for Maths Major)

Secada,W.G.,Carey D.A. ((1989) Innovative Strategies for Teaching Mathematics to Limited English Proficient Students. Program Information Guide Series No.10, Summer 1989 (Reading Materials for Maths Major)

Wallace,AM.J.(1998) Training Foregin Language Teachers : A Reflective Approach.Cambridge. Cambridge University Press

Wright, T (1991) Roles of Teachers and Learners. Oxford. Oxford University Press.



Appendix A

ADG/KBI Test

Lecturer : Puan Chang Yi

Write your answers in the space provided.

1. You would want to tell your students to put back the markers into the drawers. What would you say?

2. You would like to tell your pupils to take the front seats in the class. What would you say?

3. You would like to ask one pupil to come forward and volunteer to clean the blackboard. What would you say?

4. Your pupil is very upset because she has made a lot of mistakes in her test paper. What would you say to her to encourage her to do better next time?

5. Your pupil is very quiet in the class. What would you say to her to make her speak?

6. You have explained to the class what to do during the group project. What would you say to make sure that they follow the ground rules ?

7. Your pupil is late for class. What would you say to him so that he won't be late again?

8. You are going to introduce a new topic to your class. You would like to motivate them. What would you say?

9. You would like to encourage your pupils to ask questions. What would you say to them?

10. You would like to get your pupils' attention in class as you have detected some gross errors in their exercise books. You would like to explain to them again how to do subtraction. What would you say to them?

Appendix B

Test Results

Total Number of KDPM Mathematics Major = 56

Test Scores : 56 students sat for the test

1. All ten correct	-	100%	-	None
2. Scored 9 out of 10	-		-	None
3. Scored 8 out of 10	-		-	2 (4.3%)
4. scored 7 out of 10	-		-	2 (4.3%)
5. scored 6 out of 10	-		-	12 (26%)
6. scored 5 out of 10	-		-	10 (21.7%)
7. scored 4 out of 10	-		-	18 (39.1%)
8. scored 3 out of 10	-		-	10 (21.7%)
9. scored 2 out of 10	-		-	2 (4.3%)
10. scored 1 out of 10	-		-	none
11. scored 0 out of 10	-		-	none

