

Learning together

through international collaboration
in teacher education in Malaysia



Report of a project to develop a Bachelor of
Education (Honours) in Primary Mathematics

Seeking for knowledge, is part of the life
Taking challenges, you need to sacrifice
Explore everything of the world education
To foster children our next generation

Teaching a nation without limitation
Teach with warm and care without hesitation
Concern to all pupils, giving information
Always be ready to all situation

Student teachers
BEd degree programme – Malaysia

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Foreword



Education is at the heart of a civilised society. It brings social cohesion, economic prosperity and a respect for others. Being a qualified teacher brings with it a huge responsibility for the education of young people but it also brings the rewards of professional pride and the joy of helping people change their lives for the better. There are very few professions that are as satisfying as that of being a teacher.

Our University is proud to have worked in partnership with the Ministry of Education Malaysia, Institut Perguruan Kota Bharu and Institut Perguruan Temenggong Ibrahim to develop the BEd(Hons) in Primary Mathematics degree programme. During the forthcoming years, the graduates from this programme will have an enormous impact on the intellectual and social development of the young people of Malaysia. It is a privileged position to hold. My sincere congratulations to all those who have contributed to this highly successful project and to the research documented in this report.

A handwritten signature in black ink that reads "Tim Wilson". The signature is written in a cursive style and is flanked by two horizontal lines, one above and one below.

Sir Tim Wilson

Vice Chancellor University of Hertfordshire, UK, September 2003 – December 2010

Signed whilst Vice Chancellor

Contents



Executive Summary	5
Chapter 1 Introduction	7
1.1 Learning together through international collaboration in teacher education in Malaysia	8
1.2 Ministry of Education Malaysia	8
1.3 Institut Perguruan Kota Bharu	9
1.4 Institut Perguruan Temenggong Ibrahim	9
1.5 University of Hertfordshire	9
Chapter 2 Background	11
2.1 Education in Malaysia	12
2.2 Teacher education in Malaysia	12
Chapter 3 Bachelor of Education (Honours) in Primary Mathematics degree programme development: the project	13
3.1 Overview of the project	14
3.2 Bachelor of Education (Honours) in Primary Mathematics degree programme	14
3.3 The project timeline	18
Chapter 4 Bachelor of Education (Honours) in Primary Mathematics degree programme development: the research	21
4.1 Overview of the research	22
4.2 Senior management team and teacher educators: face-to-face interviews	24
4.3 Lecturers: self-completion questionnaires and face-to-face interviews	25
4.4 Student teachers: self-completion questionnaires	27
4.5 School mentors: self-completion questionnaires	31



	Chapter 5	The main research findings	33
5.1	The collaborative approach to the project		35
	Key themes The collaborative approach to the project		47
5.2	The Action – Reflection – Modelling (ARM) approach to learning and teaching		48
	Key themes The Action – Reflection – Modelling (ARM) approach to learning and teaching		103
5.3	Learning and teaching strategies and objectives		105
	Key themes Learning and teaching strategies and objectives		113
5.4	Effective learning and teaching		114
	Key themes Effective learning and teaching		123
5.5	Changes and future developments		124
	Key themes Changes and future developments		139
5.6	Learning and teaching primary mathematics in English		140
	Key themes Learning and teaching primary mathematics in English		147
	Chapter 6	Professional benefits from learning together through international collaboration in teacher education in Malaysia	149
6.1	Reflections on professional benefits		150
6.2	Insights from a newly qualified teacher		153
	Acknowledgements		155
	References		156

Executive Summary

The Ministry of Education Malaysia established an innovative project in partnership with four overseas universities as part of its programme to develop primary teaching in Malaysia from a diploma to a graduate profession. In 2005, the University of Hertfordshire, UK was successful in its proposal to the Ministry to design, validate, support and quality assure a Bachelor of Education (Honours) degree programme for initial teacher training for a single cohort of 120 students over four years.

The BEd(Hons) in Primary Mathematics, with English and Health and Physical Education as minor subjects, was co-constructed using the expertise of teacher educators in two Institutes of Teacher Education in Malaysia, Institut Perguruan Kota Bharu and Institut Perguruan Temenggong Ibrahim and the University of Hertfordshire School of Education. The degree programme met the requirements for training Malaysian school teachers to teach in Malaysian schools.

The rationale for the BEd degree programme was to provide student teachers with the knowledge, understanding and skills necessary to teach Mathematics, English and Health and Physical Education through the medium of English within the primary school system in Malaysia. This followed a policy decision by the Government of Malaysia to change the medium of instruction from the Malay language to English for the teaching and learning of Science and Mathematics subjects. Implementation of this policy, known as *Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris (PPSMI)* began in 2003. The policy was reversed in 2010.

The University of Hertfordshire School of Education adopted a capacity building model of working, which allowed Institute staff to deliver the University degree in the first instance and then to develop and run their own degree in subsequent years. In addition to the attachment programme, when colleagues from Malaysia observed teaching and visited schools in the UK, capacity building activities also formed part of the rigorous quality and assessment processes included in the development of the degree. During preparation and moderation weeks colleagues worked together to plan the modules and mark and moderate the student teachers' work. The University of Hertfordshire link tutor visited twice yearly and the University conducted successful validations at both Institutes in Malaysia and held Boards of Examiners each December.

The BEd degree programme was underpinned by relevant aspects of standards for the award of Qualified Teacher Status in accordance with the requirements for initial teacher training in England and with the requirements of the Malaysian primary school system. Student teachers acquired relevant knowledge and understanding, intellectual, practical and transferable skills through work in a combination of settings including lectures, workshops, tutorials and coursework. Practical knowledge and understanding of teaching and learning in the context of Malaysian primary education was achieved through school placements. Independence in learning was supported by encouraging student teachers to contextualise new learning into their school placement setting, reflecting on and evaluating practice, sharing and learning from each other and studying independently. Methods of assessment included written assignments, presentations, reflective journals, the production of teaching resources, unseen examinations and observed school placements.

The learning and teaching approach developed specifically for the project included three principles: Action – Reflection – Modelling (ARM). These principles underpinned the programme, and guided both the way in which the Malaysian lecturers worked with the student teachers and the way in which the students then worked with the pupils. The Ministry specified that pupils needed to become more active learners rather than passive ones in order to meet global challenges. 'Action' represented the principle that learning involves active participation and active learning on the part of the learner. The principle of reflective learning was also derived from Malaysian and UK ideas. Finally modelling, related to moving from an emphasis on theories towards a situation in which those theories were both explained and then modelled in practice. Developing partnership relationships by using shared principles was essential in the success of this project and Institute and University colleagues worked together to develop a shared approach.

The Graduation Ceremony for all 120 student teachers was held in Malaysia in March 2010. The ceremony was attended by all the student teachers and their parents, members of staff from the Ministry of Education Malaysia and colleagues from the Institutes and the University of Hertfordshire, including the Vice Chancellor.



This report provides an overview of the project and then sets out the method and main findings from the longitudinal research study. This was carried out to investigate the views and experiences of project participants in two main areas: the collaborative approach to the project and issues relating to learning and teaching, including the ARM principles. A mixed method approach was used. Most of the research data was collected using survey methods: face-to-face interviews and self-completion questionnaires.

The main message of this report is reflected in its title *Learning together through international collaboration in teacher education in Malaysia*. In this report, senior managers, teacher educators and lecturers share some of their learning from working together to develop and implement the new degree programme. Initial tentative collaboration develops into personal and professional friendships. Student teachers voice some experiences from their first and final school placements. They describe how they used ARM; highlight some of the benefits of the approach and identify some of the challenges associated with introducing a different pedagogy in schools as they were 'learning to teach'. There are

glimpses of 'lively and attractive' classes in which 'pupils enjoy and feel comfortable to learn' and 'are eager to answer my questions'. School mentors provide additional insights into the student teachers' learning and teaching practice. The richness of the contributions is reflected in the many quotations included in the report.

The report concludes by focusing on the ongoing value of the project. Some of the participants reflect on the professional benefits of the project and identify ways in which it has influenced and continues to influence their practice. Once again, the emphasis is on listening to individual voices, this time of colleagues who worked and learned together as they developed the degree programme. The story of the project told in this report ends as it started, in Malaysia; not, however, in the Ministry of Education but in a rural area of Perak. One of the student teachers who graduated in March 2010 shares some insights into his experience of his first few months of practice as a newly qualified teacher. His educational enquiry provides a powerful and vibrant example of the ongoing impact of the project.

Chapter 1

1

Introduction



1.1 Learning together through international collaboration in teacher education in Malaysia

Learning together through international collaboration in teacher education in Malaysia is the report of an enterprising partnership between the Ministry of Education Malaysia, two Institutes of Teacher Education in Malaysia, Institut Perguruan Kota Bharu and Institut Perguruan Temenggong Ibrahim and the University of Hertfordshire, UK. The University of Hertfordshire School of Education was engaged by the Ministry of Education Malaysia to develop a Bachelor of Education (Honours) in Primary Mathematics, with English and Health and Physical Education as minor subjects. The degree programme, co-constructed using the expertise of all partners, met the requirement for training Malaysian school teachers to teach through the medium of English in Malaysian schools. Development of the degree programme has made a valuable contribution to moving primary teaching in Malaysia from a diploma to a graduate profession.

Learning together through international collaboration in teacher education in Malaysia provides a record of the project itself. It also documents in-depth insights from contributors to the project in two main areas: the collaborative approach to working together and issues relating to learning and teaching, including the Action – Reflection – Modelling (ARM) pedagogical approach, which underpinned the degree programme.

The main message of this report is reflected in its title *Learning together through international collaboration in teacher education in Malaysia*. Senior managers, teacher educators and lecturers share some of their learning from working together to develop and implement the new degree programme. Initial tentative collaboration develops into personal and professional friendships. Student teachers voice some experiences from their first and final school placements. They describe how they used ARM; highlight some of the benefits of the approach and identify some of the challenges associated with introducing a different pedagogy in schools as they were 'learning to teach'. There are glimpses of 'lively and attractive' classes in which 'pupils enjoy and feel comfortable to learn' and 'are eager to answer my questions'. School mentors provide additional insights into the student teachers' learning and teaching practice. The richness of the contributions is reflected in the many quotations included in the report.

Whilst the report is written for the contributors to the project, including the Ministry of Education Malaysia; the two Institutes of Teacher Education in Malaysia; the University of Hertfordshire, UK; the student teachers and the school mentors, the findings and lessons learnt are relevant for and applicable to all those engaged in international collaboration and teacher education.

1.2 Ministry of Education Malaysia

The Ministry of Education Malaysia is responsible for the education and training of primary school teachers in Malaysia. This training takes place through the Institutes of Teacher Education, formerly known as Teacher Training Colleges, and is overseen by the Teacher Education Division within the Ministry of Education.

The education and training of secondary school teachers became the responsibility of the newly established Malaysian Ministry of Higher Education in 2004. Secondary school teachers are trained through the government-funded universities.

Mission and objectives

The mission of the Ministry of Education Malaysia is: 'To develop a world-class quality education system which will realise the full potential of the individual and fulfill the aspiration of the Malaysian nation' (Ministry of Education Malaysia website, <www.moe.gov.my>, 2010).

The objectives of the Ministry are:

- 'To produce loyal and united Malaysians.
- To produce happy, well mannered individuals who have faith, knowledge and vision.
- To prepare the nation's human resource for development needs.
- To provide educational opportunities for all Malaysians.'

Ministry of Education Malaysia website, <www.moe.gov.my>, 2010.

1.3 Institut Perguruan Kota Bharu

Founded in 1954, Institut Perguruan Kota Bharu (IPKB) in the north of peninsular Malaysia near the Thai border is the oldest Institute of Teacher Education in Malaysia. It offers both initial teacher training and a full range of professional updating courses for trained teachers. The Institute also provides English language teaching in the form of short courses. Student numbers at IPKB are approximately eight hundred on standard programmes but these numbers are exceeded when short courses are taking place.

1.4 Institut Perguruan Temenggong Ibrahim

Institut Perguruan Temenggong Ibrahim (IPTI) in Johor Bahru in the south of peninsular Malaysia near Singapore was established in 1964 and quickly became one of the largest Institutes of Teacher Education in Malaysia. It has extensive sporting facilities. The Institute offers short courses as well as initial teacher training and professional updating for existing teachers. English language short courses are available to other public service employees, such as nurses. Institut Perguruan Temenggong Ibrahim has approximately two thousand students.

1.5 University of Hertfordshire

The University of Hertfordshire (UH) has a student community of over 24,500 including more than 2,000 international students from over eighty-five different countries. The University has a global network of over 165,000 alumni.

The School of Education offers a highly-rated range of undergraduate and postgraduate programmes, including Bachelor of Education, Bachelor of Arts in Education Studies, Postgraduate Certificate in Education and Masters of Arts in Early Years, CPD, and Health and Medical Education as well as a highly successful Doctorate in Education programme.

The School of Education has a range of national and international collaborative programmes including Malaysia, Egypt, the USA and Australia as well as throughout the Hertfordshire region and the UK. The School trains more than 500 teachers every year.



2

Background



2.1 Education in Malaysia

Education was identified as an important growth area in the Sixth Malaysia Plan, 1991–1995, designed to support Malaysia ‘...to reach the ultimate goal of becoming a developed nation by the year 2020’ (Government of Malaysia, 1991).

National Philosophy of Education

The National Education Policy is based on the following National Philosophy of Education:

‘Education in Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving a high level of personal well-being as well as being able to contribute to the betterment of the family, the society and the nation at large...’

(Laws of Malaysia, Act 550 Education Act 1996:11)

National Education System

Within the government education institution category, the National Education System at school level comprises pre-school education, primary education, secondary education and post-secondary education.

Pre-school education is for pupils aged four to six years. Formal education for children in Malaysia starts at the age of seven. This primary education lasts for six years (Year 1 to Year 6); although in practice this stage might take between five and seven years. Pupils take the Primary School Evaluation Test (UPSR) at the end of Year 6. Pupils are tested on reading, writing and comprehension of the Malay language and English; arithmetic skills and primary science concepts and skills. Secondary education consists of lower secondary and upper secondary education and is followed by post-secondary education. This is education for students who have completed lower and upper secondary education, but excludes higher education.

There are four main types of school in Malaysia: the National schools, the Chinese schools, the Tamil schools and the privately managed Islamic religious schools.

2.2 Teacher education in Malaysia

Teacher education in Malaysia is overseen by the Teacher Education Division, a section in the Ministry of Education Malaysia. Recent changes in teacher education have included an extension of the training from three years to five and a half years and the award of a degree instead of a Diploma in Teaching. The government aims that at least seventy per cent of teachers in primary schools should be degree holders by 2010, with a target of hundred per cent for teachers in secondary schools (UNESCO; International Reading Association, 2008).

There are nearly thirty teacher training institutes located across all fourteen states in Malaysia, which provide pre-service and in-service courses. Since 2006 their status has been revised from Teacher Training Colleges to Institutes of Teacher Education. Each institute has approximately eight hundred to one thousand students in pre-service training.

The different types of school provide a challenge for the Teacher Education Division in terms of providing training in the required languages as well as teaching some subjects in the national language. In addition, it is compulsory for teachers of all four types of school to be proficient in English.

In 2002 a policy decision was made by the Government of Malaysia to change the medium of instruction from the Malay language to English for the teaching and learning of Science and Mathematics subjects. Implementation of this policy, known as Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris (PPSMI) began in 2003. The decision was ‘...based on the government’s concern on the nation’s human capital development towards achieving the standard of a developed country, as well as an early preparation to compete in the era of globalization.’ (Ministry of Education Malaysia website, <www.moe.gov.my>, 2010). This policy was reversed in 2010.

Primary school teacher education

Candidates selected for pre-service primary school teacher education are required to successfully complete an eighteen month foundation course before taking a four year degree programme. Successful trainee teachers are awarded the Bachelor of Teaching degree at the end of their training. They are posted to primary schools in Malaysia and work for three years ‘...before they are confirmed as full-fledged teachers’ (UNESCO; International Reading Association, 2008:82).

Chapter 3

3

Bachelor of Education (Honours) in Primary Mathematics degree programme development:

The Project



3.1 Overview of the project

The University of Hertfordshire School of Education was successful in its proposal to the Ministry of Education Malaysia to design, validate, support and quality assure a BEd(Hons) in Primary Mathematics degree for initial teacher training for a single cohort of 120 students over four years (January 2006 to December 2009). The cohort of students studied in the two Institutes of Teacher Education in Malaysia, fifty students at IPKB and seventy students at IPTI.

The Program Ijazah Sarjana Muda Pendidikan (PISMP) or BEd degree programme in Primary Mathematics, with English and Health and Physical Education as minor subjects, was written collaboratively by teacher educators in IPKB, IPTI and the University of Hertfordshire School of Education. The expertise and experience of all partners was used to design a degree programme that met the requirements for training Malaysian school teachers to teach in Malaysian schools.

The collaborative activities led by the School of Education included training and developing staff in teaching at graduate level, assuring quality and supporting the development of quality procedures, and preparing the staff in the Institutes to take on the future delivery of Ministry of Education Malaysia validated BEd degrees.

The BEd degree programme development was part of a larger project, which involved four universities: the University of Hertfordshire and Canterbury Christ Church University in the UK and Deakin University and Queensland University of Technology in Australia. Overall, the four universities worked with eleven teacher education institutes in Malaysia. Each university worked independently with its partner institutes. The project was created by the Ministry of Education Malaysia in order to move primary teaching from a diploma to a graduate profession. The project was funded by the Malaysian Treasury.

3.2 Bachelor of Education (Honours) in Primary Mathematics degree programme

Rationale

The rationale for the BEd degree programme was to provide student teachers with the knowledge, understanding and skills necessary to teach Mathematics, English, Health and Physical Education through the medium of English within the primary school system in Malaysia. It was provided as a four-year full-time course of study.

The programme was underpinned by relevant aspects of standards for the award of Qualified Teacher Status in accordance with the requirements used in England for initial teacher training as set out in *Qualifying to teach – Professional Standards for Qualified Teacher Status and Requirements for Initial Teacher Training* (Department for Education and Skills/Teacher Training Agency, 2002) and with the requirements of the Malaysian primary school system. It did not include recommendation for Qualified Teacher Status in the UK.

Student teachers

The 120 student teachers who entered the degree programme had all successfully completed the eighteen month Preparatory Course for the Degree for Primary Education provided by the Ministry of Education Malaysia. All the student teachers were seventeen or eighteen years of age at the beginning of the programme.

Learning and teaching methods and strategies

Student teachers acquired relevant knowledge and understanding, intellectual, practical and transferable skills through a combination of lectures, seminars, small group discussion, workshops, tutorials, fieldwork, coursework and directed school-based tasks. There were two seminar groups at IPKB and three seminar groups at IPTI.

Student teachers were encouraged to develop independent study skills progressively throughout the programme, both to supplement and consolidate what was being taught and learnt and to broaden their individual knowledge and understanding of the subject. In addition, practical knowledge and understanding of teaching and learning in the context of Malaysian primary education was achieved through school placements where each student progressively assumed the class teacher's roles and responsibilities. This was supported by lectures, seminars, tutorials and directed tasks in the Education Studies modules. Throughout the programme, learners were encouraged to develop knowledge and intellectual skills further by independent study. Effective primary school practice was modelled by lecturers in taught sessions and workshops.

Independence in learning was supported by encouraging student teachers to contextualise new learning into their school placement setting, reflecting on and evaluating practice, sharing and learning from each other and studying independently.

Assessment methods

Methods of assessment of knowledge and understanding, and intellectual and practical skills included written assignments, presentations, posters, reflective journals, the production of teaching resources, unseen examinations and observed practicums/school placements.

Formative assessment of transferable skills was by participating in workshops and seminars, building

professional relationships with staff in placement schools and completing directed school-based tasks. Summative tasks included evaluation and reflection on experience, analysis of classroom practice, presentations and a small-scale research project.

Modules

The compulsory programme modules are shown in Table 1.

Table 1 BEd (Honours) degree in Primary Mathematics compulsory modules

LEVEL 1 (Year 1)	LEVEL 2 (Year 2)	LEVEL 3 (Year 3)	LEVEL 3 (Year 4)
<p>Core University Courses (Malaysian University Requirements) Strategic and Innovative Thinking and Co-Curriculum Management Islamic and Asian Civilisation</p> <p>Education Studies Children and Learning & School Based Experience (10 days)</p> <p>Subject Major (Mathematics) Introduction to Mathematics and the study of Integrated Curriculum of Primary School Management Decision Mathematics Geometry and Measurement</p> <p>Subjects Minor (Physical Education & Health Education, English) An Introduction to Physical and Health Education English 1: English Proficiency</p>	<p>Core University Courses (Malaysian University Requirements) English for Academic Studies Information and Communication Studies</p> <p>Education Studies Teaching and Pedagogy</p> <p>Subject Major (Mathematics) Statistics Algebra and Problem Solving</p> <p>Subjects Minor (Physical Education & Health Education, English) Physical and Health Education in the Malaysian School Curriculum English 2: English Methodology</p> <p>Practicum/School Placement Placement A (8 weeks)</p>	<p>Core University Courses (Malaysian University Requirements) Citizenship Studies</p> <p>Education Studies School and Society Special Education Needs</p> <p>Subject Major (Mathematics) Investigation in Algebra Creative Mathematics Teaching Communication in Mathematics Classrooms & School-based Experience (20 days)</p> <p>Subjects Minor (Physical Education & Health Education, English) Developing Excellence in Physical and Health Education English 3: English and Literacy in Practice</p>	<p>Education Studies Being a Mathematics Teacher and Researcher Arts and Creativity in Education</p> <p>Subject Major (Mathematics) Mathematics and ICT (GSP) Effective Teaching of Mathematics</p> <p>Subjects Minor (Physical Education & Health Education, English) English 4: English for the Graduate Professional Issues in Physical and Health Education</p>

The principles underpinning the learning and teaching approach

Action – Reflection – Modelling

In the initial planning of the project it was identified that learning and teaching principles needed to be determined. These would underpin all the work undertaken on the courses, and guide both the way in which the Malaysian lecturers worked with the student teachers and the way in which the students would then work with the pupils. As a number of staff in the UK and Malaysia would be involved with the project these principles needed to be clear and easily shared and remembered. The University of Hertfordshire School of Education had already identified learning and teaching principles in a process involving all academic staff employed at the time of development. These were shared in an ongoing way with staff, students and external partners (University of Hertfordshire School of Education, 2006). The process of development was important to ensure that the principles were lived and not merely a paper exercise. It was not appropriate, therefore, to use the same principles with the UK-Malaysia project. It was decided that project specific principles would need to be developed.

In the case of the BEd degree programme it was difficult to identify these principles together as staff colleagues because the University of Hertfordshire had been given a particular brief about what was needed from the Ministry of Education Malaysia. The principles needed to be in line with this brief and with what was known about the values and beliefs already underpinning Malaysian education. These principles had to be identified by University of Hertfordshire staff prior to the first visit to meet staff in Malaysia. Colleagues from the UK and Malaysia could then work together to share understanding and practice in relation to the principles.

A group of University of Hertfordshire School of Education colleagues with a particular interest in principles of learning and teaching worked together to share what was required by the Ministry and what was known about principles of Malaysian education from official documents and published research. It was appreciated that the principles needed to be clear and concise, as they would be shared by so many people. After discussion the words 'Action – Reflection – Modelling' were chosen to represent the principles, as will be explained below. The acronym 'ARM' had a visual representation to aid memorisation and implementation.

Action

The word 'action' was chosen to represent the principle that learning involves active participation and active learning on the part of the learner. The Malaysian Ministry of Education had specified that in order to meet global challenges pupils needed to become more active learners rather than passive ones and that learning by doing should supersede

rote learning where appropriate. This linked to University of Hertfordshire School of Education ways of approaching educating teachers, which used social constructivist approaches. It also related to UK approaches to working with children in schools, which were based on theories of learning including those developed by Piaget, Vygotsky and Bruner (Piaget, 1954; Bruner, 1974; Vygotsky, 1978). The principle was related, therefore, to the way in which it would be recommended both that staff work with student teachers and that students work with children.

Reflection

This word describing the principle of reflective learning was also derived from a combination of both Malaysian and UK ideas. The use of 'critical reflection' as important for adult learning, developed by such writers as Schön and Brookfield (Schön, 1982; Brookfield, 1995) was already part of the University of Hertfordshire School of Education learning and teaching principles. The text *Reflective Practice in Malaysian Teacher Education* (Lee Wai Heng and Tan Sok Khim, 2004) also demonstrated that students undertaking teacher education in Malaysia were expected to use reflection, particularly during their school experiences. This, therefore, was a logical approach to underpin learning and teaching in this shared context. In the UK, work in schools encouraging children to reflect on their own learning was being developed and used and this would be the second tier of the principle, which again would apply to working both with student teachers and with children.

Modelling

The final area of principle related to moving the education of teachers from an approach in which student teachers were told the theories of practice towards showing what these theories would look like in practice. In the previous few years in the UK there had been a move away from a theoretical and towards a more practical approach to teacher education. In relation to the Malaysian context the aim was to achieve a balance, so that the current emphasis on theories would give way to those theories being explained and then modelled in practice. This modelling would enable student teachers to experience and explore approaches in college before using them in school.

Modelling as a process in teacher education has been identified as important (Loughran, 2006). It was used in University of Hertfordshire School of Education primary teacher education practice fairly easily owing to the extensive experience of primary teaching by staff. It was anticipated that this would be more difficult for Malaysian teacher educators with different prior knowledge, experience and conception of their role. For example, many of the Institute staff did not have experience of primary teaching and had taught in secondary schools before moving to teach in the Institutes. This was

why it was important to include modelling as part of the principles that would be used throughout the new courses. Modelling by staff to student teachers would be followed by modelling by student teachers to pupils in school. The teacher as role model, particularly in relation to moral behaviour and ethical responsibility (Carr, 1993), is part of Malaysian culture and therefore the idea of modelling in relation to learning and teaching could be linked to these ideas.

Sharing the principles

Without a shared understanding and agreement of principles they cannot be used in practice. Having identified ARM it was essential that University of Hertfordshire and Malaysian colleagues could work together to develop this shared understanding. The context was complex as it was important that Malaysian colleagues should not feel that 'alien' principles were being imposed, even though they had been developed by University of Hertfordshire staff, albeit with attention to Malaysian principles. Most of the sessions of the first preparation week were therefore devoted to gaining the beginning of an understanding of different learning and teaching approaches and the value of the experience and educational provision in both countries. University of Hertfordshire staff led sessions in which they modelled active learning and reflection on this learning. Practical sessions and reflection on these, coupled with video examples of active learning in UK schools were used to begin to share the principles of ARM. These sessions involved issues such as room layout – moving chairs from rows representing a transmission model of learning and teaching to chairs grouped round tables for constructivist approaches. They involved valuing the significant theoretical knowledge of Malaysian colleagues and demonstrating how examples could be modelled in practice. The sessions opened up conversations about learning and teaching at degree and school levels and most importantly began to develop trusting relationships in which ideas could be critiqued and challenged.

Despite having concentrated yet limited time together, the importance of developing a shared approach to working and to understanding the principles that would underpin the new courses was paramount. Without the beginning of shared understanding the new ways of working could not be successful. In addition to the time spent on this process in the first session it was also part of the focus of all the other preparation weeks. This enabled a deepening understanding by all involved and allowed new colleagues to join the group and be included in this development. ARM was also explained in all course literature and was a key focus of the work with student teachers. This continued emphasis on the three aspects underpinning the learning and teaching approach allowed for the principles to be seen in action. They allowed shared understanding across modules and between colleges

and countries. This work also showed to colleagues and to students in both countries the importance of identifying the principles underpinning practice and deepening that understanding by using them and reflecting on this use. Developing partnership relationships by using shared principles was essential in the success of this project.

The model of working

The model of working adopted by the University of Hertfordshire School of Education was that of capacity building. This would allow Institute staff to be able to deliver the University of Hertfordshire degree in the first instance and to develop and run their own degree in subsequent years. This involved working with and training the lecturers in the partner Institutes as part of their continuing professional development. The model had the following components:

- *Preparation and moderation weeks.* Prior to each semester, a team of eight members of staff from the School of Education spent one preparation week in Malaysia working with lecturers from both Institutes to plan each of the four modules. At the end of the semester the team returned for the moderation week when all the student teachers' work was marked and moderated. A rigorous process was used to ensure accuracy and equity of marking across the two Institutes and across the subject disciplines. Each preparation and moderation week began with staff development activities.
- *Link tutor visits.* The link tutor from the School of Education visited the Institutes twice a year to observe teaching, speak to the student teachers and ensure that quality, standards and procedures were being maintained.
- *UK attachments.* Four members of staff from the Teacher Education Institutes in Malaysia spent two weeks at the School of Education each year, observing teaching and visiting schools.

Academic quality

Rigorous quality and assessment processes were included in the development of the BEd degree. In addition to the preparation and moderation weeks and the visits by the link tutor described above, these processes included:

- *University of Hertfordshire Validations.* The University of Hertfordshire Academic Quality Office conducted successful validations at both Institutes in Malaysia in November 2005.
- *Boards of Examiners.* Members of the University of Hertfordshire School of Education and external examiners visited Malaysia for Subject and Principal Boards of Examiners, held each December between 2006 and 2009.

Annual Building Capacity Conference

Each of the four universities engaged with the Ministry of Education Malaysia in BEd degree programme development organised an annual conference for the providers of Initial Teacher Training in Malaysia. These conferences were further examples of the capacity building model of working used by the University of Hertfordshire School of Education. Members of staff at IPKB and IPTI were involved in the planning and delivery of the conference arranged by the University of Hertfordshire. This conference, held in Johor Bahru in February 2007, was attended by delegates from all the institutes engaged in the project with the Ministry of Education Malaysia.

Graduation

The Graduation Ceremony was held in Putrajaya, Kuala Lumpur, Malaysia in March 2010. All 120 student teachers

graduated, nine with First class honours. The ceremony was attended by all the student teachers and their parents, members of staff from the Ministry of Education Malaysia and colleagues from IPKB, IPTI and the University of Hertfordshire, including the Vice Chancellor.

This was a joint graduation with three of the four universities involved in the project. (Queensland University of Technology in Australia arranged its own separate graduation.) This was a sumptuous celebration of the project held in a beautiful conference venue in the heart of the Malaysian administrative centre. The complex arrangements were made by all of the project stakeholders and the event was a great success; a fitting end to a large and ambitious project. Special awards were given to four students in each institute for achievement in the following areas: Academic; Internship (Practicum); Co-curriculum; Overall.

3.3 The project timeline

Table 2 shows the BEd degree programme development project timeline, which presents a chronology of some of the main activities.

Table 2 BEd degree programme development. The project timeline showing the main activities

2005 > Preparation	2006 > Year 1 Semester 1 Semester 2	2007 > Year 2 Semester 3 Semester 4	2008 > Year 3 Semester 5 Semester 6	2009 > Year 4 Semester 7 Semester 8	2010 >
January					
	Orientation/ Induction visit	Link tutor visit			
February					
	Link tutor visit	Capacity Building Conference			
March					
			Preparation week 6	Preparation week 8	Graduation Ceremony
April					
	Preparation week 2		Link tutor visit		

2005 > Preparation	2006 > Year 1 Semester 1 Semester 2	2007 > Year 2 Semester 3 Semester 4	2008 > Year 3 Semester 5 Semester 6	2009 > Year 4 Semester 7 Semester 8	2010 >
May					
	Moderation week 1	Moderation week 3 Preparation week 4	Moderation week 5	Moderation week 7	
June					
Visit hosted by Ministry of Education Malaysia. Bid prepared					
July					
Degree programme written	Collaborative Partners Conference UK				
September					
Administrative audit	Link tutor visit				
October					
UK short course	UK attachment	UK attachment Link tutor visit Preparation week 5	UK attachment Link tutor visit Preparation week 7	Link tutor visit	
November					
Validation events. Preparation week 1	Moderation week 2 Preparation week 3	Moderation week 4	Moderation week 6	Moderation week 8	
December					
	Boards of Examiners	Boards of Examiners	Boards of Examiners	Final Boards of Examiners	

Chapter 4

4

Bachelor of Education (Honours) in Primary Mathematics degree programme development:

The Research



4.1 Overview of the research

Purpose

The main purpose of the research was to investigate the views and experiences of project participants in two main areas:

1. the collaborative approach to the project; and
2. issues relating to learning and teaching; including the Action – Reflection – Modelling (ARM) approach to learning and teaching, which underpinned the degree programme.

Participants

The following groups of project participants contributed to the research:

Senior management team and teacher educators.

Members of the senior management teams from Malaysia and the University of Hertfordshire and teacher educators from the University were interviewed early in the process of the project. Members of the senior management teams were interviewed again at the end of the third year. The focus of these interviews was the collaborative approach to the project.

Lecturers. Lecturers from the two Institutes of Teacher Education in Malaysia shared their views on aspects of learning and teaching through taking part in face-to-face interviews and/or completing a questionnaire at the end of the third year of the project.

Student teachers. Student teachers on the BEd degree programme completed questionnaires about different aspects of learning and teaching at the end of their first and final placements. Additional information was documented prior to the start of the programme.

School mentors. School mentors completed questionnaires about aspects of the learning and teaching deployed by the student teachers who were taking part in the BEd degree programme. These questionnaires were completed during the student teachers' final placement.

Research methods

A mixed method approach was used to investigate the views and experiences of project participants. Most of the research data was collected using survey methods: face-to-face interviews and self-completion questionnaires (McColl *et al.* 2001).

In order to meet the purpose of the research, most of the survey questions were open-ended, inviting contributors to share their views and experiences on the issues of interest. The collection of qualitative data was complemented by some quantitative data collection. The focus on using qualitative data from open-ended questions is supported by Pope and Mays (1995:43), who explained:

'...The goal of qualitative research is the development of concepts which help us to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to the meanings, experiences, and views of all the participants...'

In an *Introduction to Qualitative Research* Merriam (2002:5) suggested:

'...the product of a qualitative inquiry is *richly descriptive*. Words and pictures rather than numbers are used to convey what the researcher has learned about a phenomenon...'

Important additional information about the project was captured using video recordings and photographs. For example, video recordings were made of some of the students teaching on practicum and to document some of the feedback from mentors. Resources used for learning and teaching sessions were a further source of information.

The findings from a review of the literature have been used to provide some context for the project in this report. Some of the information obtained during this literature review has been included in earlier chapters. It sets out some of the issues relevant to collaborative working and learning and teaching, including the pedagogical approach known as ARM used in the degree programme.

Table 3 shows the research timeline, research methods and participant groups. The exact number of contributors to the research is not known because anonymity was preserved for the self-completion questionnaires. However, more than 180 different participants engaged with the process.

Table 3 The research timeline, research methods and participant groups

Year Semester	Survey method	Participant groups	Number of contributors
2006 – year 1 (Semester 1)	Face-to-face interviews	Senior management team and teacher educators (Malaysia/University of Hertfordshire)	7
2007 – year 2 (Semester 4)	Self-completion questionnaires	Student teachers (Malaysia)	110
2008 – year 3 (Semester 6)	Self-completion questionnaires	Lecturers (Malaysia)	23
2008 – year 3 (Semester 6)	Face-to-face interviews	Lecturers (Malaysia)	8
2008–09 – years 3–4 (Semesters 6, 7)	Face-to-face interviews	Senior management team (Malaysia/University of Hertfordshire)	6
2009 – year 4 (Semester 7)	Self-completion questionnaires	Student teachers (Malaysia)	87
2009 – year 4 (Semester 7)	Self-completion questionnaires	School mentors (Malaysia)	47

Management and presentation of the findings

The main findings from the research are presented in Chapter 5. These findings are presented under the following section headings: the collaborative approach to the project; the Action – Reflection – Modelling (ARM) approach to learning and teaching; learning and teaching strategies and objectives; effective learning and teaching; changes and future developments; learning and teaching primary mathematics in English. Under each heading the findings are presented by participant group in the order in which participants were engaged in the project: members of the senior management team, teacher educators, lecturers, student teachers and school mentors. The sequence in which the findings from individual questions are presented does not necessarily correspond to the sequence in which the questions were asked in each survey.

The responses to most of the open-ended survey questions were managed by collating extracts from the responses to form themes, further divided into sub-themes. These were checked during the editing process to improve consistency of categorisation. There was overlap between some themes and sub-themes and the richness and complexity of the data meant that some extracts could be allocated to more than one sub-theme. Some key-word counts are included.

Table 4 shows three sets of themes. These are used to provide a framework for organising the extracts in the report and to give some consistency to the presentation of the findings. The sets of themes were derived from the questions, the responses and the subject area. For example, the third theme set (learning and teaching) relates to the learning cycle and to the main areas and standards that teachers need to address in initial teacher development.

Table 4 The theme sets and main themes used for presenting extracts from survey responses

Theme set	Main themes
The collaborative approach to the project	Project overall Programme development, learning and teaching Concerns, anxieties and uncertainties
The ARM approach to learning and teaching	The ARM approach The ARM approach: Action The ARM approach: Reflection The ARM approach: Modelling
Learning and teaching	Learning and teaching Assessment and feedback Planning Professional attributes

The extracts included in the report are taken from the full set of responses to each question; a small number of extracts are included more than once. The voices of project participants are emphasised with the inclusion of longer quotations from some responses. In most cases the extracts and full quotations are illustrative and do not represent the complete set of responses.

Most of the survey responses were transcribed from interview notes or self-completed questionnaires. Some of the spellings and abbreviations are standardised in the report. Most references to the University of Hertfordshire are included as the shorthand, acronym UH, which is often used as a term of familiarity and affiliation by partners and alumni. Words that could not be identified are shown in square brackets with a question mark. In some cases the presentation of responses has been revised, for example, bullets have been removed or phrases have been linked with semi-colons.

Interpretation of the findings

The study was longitudinal in nature (four years) and during this period some of the participants contributed to more than one of the research methods used and at more than one stage of the project. The survey responses provide in-depth insights into aspects of the project from participants with direct personal experience of the issues involved. The rich and varied data sources provide opportunities for triangulation, adding to the validity of the findings.

The main limitations of the approach used for the research are those common to the methods used. For example, responses to surveys might depend on respondents' recall or be influenced by discussion with others.

4.2 Senior management team and teacher educators: face-to-face interviews

The approach

Preliminary interviews of members of the senior management team and teacher educators were carried out in Malaysia and in the UK during the first year of the programme (Semester 1, 2006). Some interviews were tape-recorded, others were recorded using notes taken at the time of the interview. All interviews were typed up afterwards and then presented as a summary of the main points with some direct quotations.

Additional interviews were conducted during Semesters 6 and 7 (November 2008 to January 2009). These additional interviews were not tape-recorded – responses were transcribed during the interview and typed up afterwards. It was not possible to record complete interviews, although comprehensive notes were taken.

The interview schedules

The interview schedules included questions about collaboration and the nature of working collaboratively with colleagues from Malaysia or the University of Hertfordshire, as appropriate. For some questions the wording was identical for both sets of interviews; for others the questions were rephrased to allow for the progression of the project.

The preliminary interviews were used to collect data from all interviewees about their views before the project began. The colleagues from Malaysia were also asked some of the questions in the context of a further two phases of the project. These phases were before and after they worked together with colleagues from the University of Hertfordshire for a week in Kuantan to write the degree. The three interviewees from the University of Hertfordshire were not involved in the degree writing process.

The sample

Interviewee characteristics and profile

Five members of the senior management teams from Malaysia and the University of Hertfordshire and two teacher educators from the University took part in the preliminary interviews. One of the teacher educators was a new member of staff who joined the project team within three months of taking up her post at the University. Six members of the senior management teams took part in the additional interviews. On each occasion, four interviewees were from the Institutes of Teacher Education in Malaysia. Three of these interviewees took part in both sets of interviews.

4.3 Lecturers: self-completion questionnaires and face-to-face interviews

The approach

The survey of lecturers was carried out in October and November 2008. The questionnaire was sent to members of the senior management team in Malaysia at the end of October 2008. Copies of the questionnaire were then distributed to lecturers who had been involved in the teaching of any BEd modules. Completed questionnaires were brought to moderation week in November. Lecturers completed the questionnaires anonymously and some respondents might have contributed to both the questionnaire and the interviews.

Face-to-face interviews were carried out in Malaysia during moderation week in November 2008. These interviews were used to explore some of the issues raised in the questionnaire responses in greater depth. The interviews were not tape-recorded – responses were transcribed during the interview and typed up within a week. It was not possible to record complete interviews, although comprehensive notes were taken.

The questionnaire and interview schedule

Questionnaire

The self-completion questionnaire used for the survey of lecturers in Malaysia was designed to provide information about the lecturers' experience of working with lecturers from the University of Hertfordshire, their teaching on the BEd and other programmes, and some biographical information. It was developed using the findings from a pilot study in which eight respondents completed a draft version of the questionnaire.

The introduction to the questionnaire included an explanation of the use of the findings as valuable support for programme development at IPTI and IPKB, as well as for those involved in training and educating teachers more generally. Respondents were encouraged to include as much detail as possible.

Interview schedule

The questions used during the interviews with lecturers in Malaysia were designed to follow up on some of the issues raised during the survey. The preparation of the questions was informed by the findings from a preliminary analysis of the responses to the questionnaire. The purpose of data collection was the same as for the survey.

The sample

Questionnaire respondent characteristics and profile

Twenty-three completed questionnaires were returned. Respondents were not asked to indicate their Institute (IPKB or IPTI) but twelve respondents were from one Institute and eleven respondents from the other. The length of time respondents had worked in their Institute ranged from one year to twenty-two years. One respondent did not complete this question.

All respondents indicated the age group applicable to them as follows: 30–39 years (two respondents); 40–49 years (thirteen respondents) and 50+ years (eight respondents). Eleven respondents were men, ten were women; two respondents did not complete this question.

Subject specialism. Mathematics was the subject specialism given by thirteen respondents and pedagogy by two respondents. The following subject specialisms were each suggested by one respondent: curriculum and instruction; education; English; English language; English proficiency, literature; philosophy; physical education – health education and sports (co-curriculum); statistics.

Experience of attending preparation and moderation weeks

There were five completed semesters prior to the survey. Four respondents (two from each Institute) had attended the preparation and moderation weeks for all five semesters. Seven respondents, almost a third, had attended preparation and moderation weeks for a single semester. Most respondents had attended both the preparation and moderation weeks for the same semester. More than half of the respondents (thirteen) had attended the preparation week for Semester 6. Figure 1 shows the number of respondents who had attended the preparation weeks and moderation weeks for Semesters 1–5.

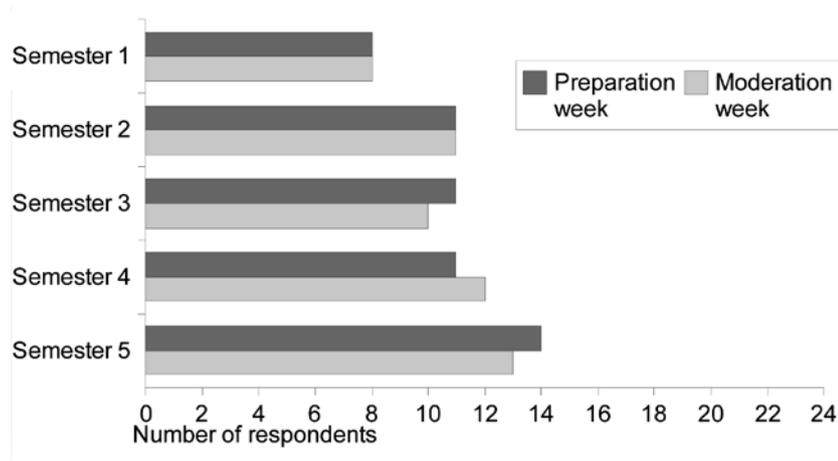


Figure 1 Lecturer questionnaire: the number of respondents who had attended the preparation weeks and moderation weeks for Semesters 1-5

Experience of teaching on the modules. Lecturers who had taught on twenty-two of the twenty-three programme modules were represented in the sample. Table 5 shows the number of respondents who had taught on a particular module. This ranged from seven, almost a third, for the School and Society module to zero for the Islamic and Asian Civilisation module.

Table 5 Lecturer questionnaire: the number of respondents who had taught on a particular module

Module	Number of respondents
Module Year 1	
Strategic and Innovative Thinking	2
Islamic and Asian Civilisation	0
Children and Learning	1
Introduction to Mathematics	5*
Decision Mathematics	3
Geometry and Measurement	5
An Introduction to Physical and Health Education	1
English Proficiency	1
Module Year 2	
English for Academic Studies	1
Information and Communication Studies	1
Teaching and Pedagogy	2
Statistics	5
Algebra and Problem Solving	4
Physical and Health Education in the Malaysian School Curriculum	1
English Methodology	2
Module Year 3	
Citizenship Studies	1
School and Society	7
Special Education Needs	3
Investigation in Algebra	4
Creative Mathematics Teaching	5
Communication in Mathematics Classrooms	4
Developing Excellence in Physical and Health Education	1
English and Literacy in Practice	2
Total number of different modules taught by respondents	22

Note: * one response not clear

Table 6 shows the number of modules on which individual respondents had taught. The number of modules ranged from one (seven respondents) to six (two respondents).

Table 6 Lecturer questionnaire: the number of modules on which individual respondents had taught

Number of modules taught	Number (%) of respondents
One module	7 (30%)
Two modules	6 (26%)
Three modules	5* (22%)
Four modules	0
Five modules	3 (13%)
Six modules	2 (9%)
Total number of respondents	23

Note: * one response not clear

Interviewee characteristics and profile

Eight lecturers, four from each Institute, IPKB and IPTI, took part in the interviews that were carried out to follow up on the lecturer survey.

Subject specialism. Two colleagues from each team (one from IPKB and one from IPTI) were interviewed as follows: mathematics (two lecturers from each of the two modules, creative mathematics and communication mathematics), PE (two lecturers) and English (two lecturers).

4.4 Student teachers: self-completion questionnaires

The approach

The surveys of student teachers on the BEd degree programme were carried out in September to October 2007 (Semester 4), at the end of the first placement and again in May 2009 (Semester 7) at the end of the final placement.

The questionnaires

The questionnaires used for both of the surveys of student teachers were designed to provide information about the students' experience of using the ARM approach to learning and teaching. The questionnaire used for the second survey included an additional question about learners to match the question asked of the cohort of student teachers at the start of their programme.

The sample

Respondent characteristics and profile

One hundred and ten completed questionnaires were returned during the first survey of student teachers and eighty-seven were returned during the second survey. Forty of the respondents to the second survey were male; forty-three were female; and four respondents did not indicate their gender. Table 7 shows the number of respondents from each of the Institutes and the overall response rates.

Table 7 Student teacher questionnaires: number of respondents and overall response rates

Survey of student teachers	Number (%) of respondents IPKB Total = 50	Number (%) of respondents IPTI Total = 70	Total number (%) of respondents IPKB and IPTI Total = 120
End of first placement	45 (90%)	65 (93%)	110 (92%)
End of final placement	36 (72%)	51 (73%)	87 (73%)

Reasons for becoming a teacher

At the beginning of the BEd degree programme, all members of the cohort of student teachers were asked the following question: **'Why do I want to be a teacher?'** The reasons given by the student teachers included the desire to gain and share knowledge and to contribute to the development of Malaysia. Some respondents saw teaching as a noble and respected profession and teachers as role models. The sacrifices and challenges of teaching were recognised by some, together with professional and personal benefits in terms of building confidence and communication skills and providing a good salary and holidays. Ambitions for future progression in their professional role or through gaining further qualifications were also noted. The following examples of the student teachers' responses to this question illustrate these ideas.

'I want to be a teacher because teacher is one of the honor job. I like to teach especially to children. Besides that, I want to help myself, my family, my race, my region and also my country. I also want to gain my knowledge and share it with my student and other friends. Teacher is a noble job because they willing to sacrifice a lot of thing just because want to look their students success. Like a candle, burn it self to bright to night.'

'In 10 years in the future, I imaging myself sit on the main chair in the state education office as a Director Officer.'

Student teacher – Malaysia

'I want to be a teacher because this profession is a good job. Beside there, I can teach all pupil with my knowledge and expend my creativity to make students interest in all subject in the school. In addition, I can learn how to communicate with other people especially parents when they want to know about their children in the school. Furthermore, I can train to be a good leader whether in the school or in my village soon. Moreover, I want to aid student in money, energy or materials. This is also my ambition since primary school.'

Student teacher – Malaysia

'When I've started in this course, I really proud of myself because I am gonna be a teacher. It was my ambition since in primary school. I try to be a good teacher which can make people feel comfortable with me without feel very arrogant. Teacher can make me become more confident, brave and good in communication because at school, teachers always need to talk to parents and something else. It is usual as a teacher we need to face a lot of responsible such as master of ceremony (mc) which want us to speak and stand in front of audience. When I become a teacher, I can understand the situation/circumstance of the students where they are poor or in trouble also can help them as much as I can. A good teacher can make students respect us with our qualification and knowledge at the same time be humble. Teachers, teach me how to be more patient when face with discipline pupil but I can accept it because it was my responsible and job dream.'

Student teacher – Malaysia

'Be a teacher is one of my ambition since I'm in standard 4. Now, when I get the offered from [the Institute] to link with University of Hertfordshire I so happy. I'm so excited to be a teacher because it is a good jobs for a woman. In the same time, I will be so friendly with other teachers, students and also parents. Teacher is always with a books. Some people say that books is a second wife or husband. So that, I can know a lot of knowledge. I'm also can share my experience or knowledge with all of people in the world. I want to teach a students in a rules of discipline. Be a teacher, I can enter a lot of programmes with the students such as in co-curriculum or other. So that, I can know the "nature" of people in the world such as a poor family, ethnic family and some else.'

'The interested to be a teacher is I hope for one day. I want to be a model of new generation for our country. It also can help me to create my good attitude as a teacher and know how to manage our time. Lastly, this profession can built our attitude to be "carefull" and patient. So, I hope I can be a good teacher for my future. I'm really confident to be a teacher for next generation.'

Student teacher – Malaysia

'I always ask myself since the first time I choose this profession as a teacher. After studied in preparation of PISMP, I know that why do I want to be a teacher.'

'First at all, I think the profession as a teacher can build my attitude. Because I know that when we be a teacher we must have good attitude to show to our student and the other society that we are the role model and make them believe to us. The profession can build my confidence of myself by do a lot of presenting, talking and discussion for my studies. Besides that, it also can create my discipline especially in manage the time. So, I think it give a lot of benefit to me to choose be a teacher.'

'Furthermore, my ambition is I want my generation success in their life and build the our country as model country for the other country. So, I really confident that this profession very suitable for me to get my vision. And know, I must study hard to prove that I can do it successfully.'

Student teacher – Malaysia

'I want to be a teacher because I want to help in developing human kind. I want to contribute something to my country. For example, by sharing my knowledge with the pupils, at least I have given something that is very valuable. Besides, as a human being, it is my responsibility to help other people to have better lives in terms of knowledge. I will be very satisfy if I can help other people to succeed. For me, the greatest honour for a man is that he can guide or make other people success. There are no engineers, doctors and lawyers in the world if the teachers do not teach them. The teacher sacrifices himself just for other people.'

'In the future, I wish that I am not only be a teacher. I will further my study into the highest level to get as much knowledge as possible. People may think that I am looking for status that is PhD but for me, I just want to get knowledge. Via knowledge, the person can only be in high status. I want to explore new knowledge and at the same time, share it with others. Once I live, I want to contribute something to the human development.'

Student teacher – Malaysia

'I want to be a teacher because it is my ambition since I was kids. I love to teach other people and students for their own good. I also love kids very much. For me teacher is a nice and good jobs. For Muslims, we will get a good deeds or reward...when teach somebody else. With teaching, I also can gain and improve my knowledge. Teach a students is not an easy job because it is very challenging. I am very interesting on challenging stuff, other people will respect me because teacher is a very nice jobs. Become a teacher can also make my life become more better and interesting.'

'For 10 to 15 years forward, my aim is I want to be a Director in Education Ministry. I want to help all the people and teacher in Malaysia. Before of that, when I become a teacher, I hope that all my student will become a successfull person in their life.'

Student teacher – Malaysia

'There are many other occupations or jobs outside. But I only choose to be a teacher as my profession. This is because being a teacher is my dream job. I was inspired by both of my parent as they are now still teaching in their schools. Being a teacher need much of patience and discipline. This job ask me to do well in all of my daily activities as I myself will be an idol to my students and also the people around me.'

'It is a great opportunity to be sitting in this course. It is an advantage for me to get the degree in teaching without spending much of my life time in studies. This programme can create dedicated and skilled teacher better than other programme of teaching.'

'Further on, being a teacher will face much of hard time. It will need me to be creative an easily adapt to the environment well. I wish that I can developed and create good student of mine in another 10 years. I promise to myself to be a good teaching in giving my knowledge to my students.'

Student teacher – Malaysia

'I want to be a teacher because it was my ambition since I was young. I used to told my parent that I want to be a teacher when I grow up. Moreover I inspired my teacher. I appreciate their effort teaches me to make me success in my life.'

'Another reason why I want to be a teacher is it is a noble job. Everybody respect teacher and has higher level in society. Furthermore it is a guarantee job and has good salary. It is enough to afford our life.'

'Moreover I got support from my family, my grandmother want me to become a teacher. She said it is a nice job for a woman. Actually, I want to follow my parent footstep. Both of them is a teacher. I was exposed about teacher's life since I was small.'

'In addition, I like children very much. For me they are very cute and innocent. I think it is my duty to create them to be a better person to our country and religion.'

'My last point is I think that teacher is a leader in society. People will follow teacher behavior and agree about what teacher speak. So it is important for a teacher to have healthy life because he is a role model for society.'

Student teacher – Malaysia

'I want to be a teacher because I can help in the basic development of a country. Teacher is a spirit builder, once the spirit of a nation become strong, then the country will be develop well also. Children is the basic and future of a country, so at their very young age, I wish that I can teach them to be a good citizen and in future they will able to develop my country.'

'Beside doing my profession, I wish that in the future I can stay with my family more. That's the second reason I want to be teacher. In my country, teacher only half day work in school, so I can stay more at my home take care of my family. Furthermore, teacher is a professional that have the most holidays. What I mean with half day work is we only have to stay in school for half day, and we can bring the work back home to complete.'

Student teacher – Malaysia

'I want to be a teacher because it's my ambition since I'm in primary school. My teachers in primary and secondary school be the role model for me. They impressed me by their attire and attitude. I choose being a teacher because I think that it's a wonderful and a global career which can able us to teach and serve to others. By being a teacher I can give my knowledge to students to make they succesfull in their life. It's also a challenging and great profession because we will face a lot of problem when teaching students. By successfully teaching a student we can serve to the society and community. Teacher is a profession where they can teach students who will be the future leaders, doctors, engineers, lawyer, accountants and many more. Our Malaysian government need around 70,000 teachers more to face the problem because the increasing rate of students.'

Student teacher – Malaysia

'First of all, teacher job is one of the noble career other than nurses. This job not only helped us to improve in life but going to make sure our next generation achieve goals in their life. Our life going to be bright if we choose teachers job.'

'Other than that, students and parents will worship us...if we are the teacher. It's indirectly make our life more beautiful. Besides that this is also my ambition since I'm in primary school. And I'm really try for it and achieve that.'

'Students is like a plain paper. And I'm really very glad to make that plain paper very colourful like rainbow. After I get the degree I'm not going to stop my learning. I'll continue my studies in Masters or PhD in few years time to come. In ten years time from now, I will be professor or lecturer.'

Student teacher – Malaysia

'Actually, to be a teacher is my ambition since I'm in primary school. This is because I want to be like my parents and want to follow them, to be a successful teacher!'

'I also want to contribute myself to my beloved country, Malaysia. I want to sacrifices my energy and thinking to develop my society.'

'Beside that, I want to prove to myself and my family that I can take the challenge in this difficult task (to be a good teacher).'

'Be a teacher also give me many benefits. One of that, I can have a long time for holiday in a year compare with other workers. So I can use that time with my family.'

'For the ten years later, I'm imagine that I will teaching in a rural area school and try my best to teach the students at the area. I also want to attract them to learn in school happily, not with forced. I want them to realise that knowledge is everything in their life. I will make sure all of my student can grow up as knowledgeable person and they can give contribution to this country.'

Student teacher – Malaysia

'First and foremost, the reason why I want to be a teacher because teaching is a noble career. I will be the back bone to bring or spur knowledgeable and educated society. I will able to provide a lot professions in variety field to this country.'

'Instead, I will having a bright future by become teacher. Good and sufficient income/salary to fend my life. Teacher always be respected and get a good reputation if become a perfect role model for the student.'

'Apart from that, teacher will be always educated and knowledgeable. He have to earn knowledge everyday and always have to refresh before he teach the students. Therefore, due to I like to read more, I choosing this field.'

'If I becoming a teacher, I will provide a effective methods to teach the students and will always make sure they learned. I will help poor student who are brilliant but not able to resume higher studies, financially. I will ensure my quality of teaching.'

'In nutshell, I will be more patient and smart to confront a lot of different students. I will make sure to be successful in their life.'

Student teacher – Malaysia



4.5 School mentors: self-completion questionnaires

The approach

The survey of school mentors was carried out in May 2009 whilst the student teachers were still on final placement. The draft questionnaire was discussed with members of the senior management team in Malaysia in March 2009. Copies were then distributed to school mentors by lecturers from the Institutes who also collected the completed questionnaires.

The questionnaire

The questionnaire used for the survey of school mentors was designed to provide information about the mentors' views of the BEd student teachers' use of specified teaching strategies and effectiveness of classroom teaching compared with previous student teachers.

School mentors were also asked whether the classroom teaching of the BEd student teachers was different from that of previous students and, if so, to suggest three ways in which it was different. Some biographical information was also collected.

The sample

Respondent characteristics and profile

Forty-seven completed questionnaires were returned, twenty from IPKB and twenty-seven from IPTI. The length of time respondents had been teaching ranged from ten years to twenty-nine years (IPKB) and from three years to thirty-four years (IPTI). This data is shown for all respondents in Table 8.

Table 8 School mentor questionnaire: number of years each respondent had been teaching

Number of years	IPKB Number (%) of respondents	IPTI Number (%) of respondents	IPKB and IPTI Number (%) of respondents
1–5	0	7 (26%)	7 (15%)
6–10	1 (5%)	8 (30%)	9 (19%)
11–15	10 (50%)	2 (7%)	12 (26%)
16–20	1 (5%)	2 (7%)	3 (6%)
21–25	4 (20%)	5 (19%)	9 (19%)
26–30	4 (20%)	2 (7%)	6 (13%)
31–35	0	1 (4%)	1 (2%)
Total number of respondents	20	27	47

All respondents completed a question about the number of times they had been a mentor for students. Three respondents indicated 'many times' or 'a few times'. The remaining respondents provided numerical answers, which ranged from 0–8 times (IPKB) and from 0–16 times (IPTI). Two respondents from IPTI gave a range of 14–16 times. Approximately a third of all respondents, six (30 per cent) from IPKB and nine (33 per cent) from IPTI indicated that this was their first time as a mentor or that they had been a mentor only once.

Chapter 5

5

The main research Findings



The main findings from the surveys of project participants are presented in this chapter. The voices of the contributors to the research give some insight into issues relating to the BEd degree programme development in Malaysia. This chapter of the report also includes some excerpts from published literature.

Sections 5.1 to 5.6

The main findings in this chapter are set out in the following sections:

- 5.1 The collaborative approach to the project
- 5.2 The Action – Reflection – Modelling (ARM) approach to learning and teaching
- 5.3 Learning and teaching strategies and objectives
- 5.4 Effective learning and teaching
- 5.5 Changes and future developments
- 5.6 Learning and teaching primary mathematics in English

In each section, the findings from the research are introduced using excerpts from published literature, which 'set the scene' within the broader context. These excerpts are followed by the main findings from the questionnaires and interviews which provide the views and experiences of those who took part in the project. The section concludes with a 'closing comment' from the Malaysian setting.

Context box

The following 'context box' provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

Time-frame

Members of the senior management team in Malaysia had a longer 'run-in' period for the project than those from the University of Hertfordshire.

Kuantan

Malaysian and University of Hertfordshire colleagues wrote the degree programme in July 2005. This meeting took place in Kuantan, Malaysia.

Using acronyms

Acronyms are widely used in Malaysia for the names of places, institutions and organisations. For example, many universities and colleges are known by their acronym such as IPKB, IPTI and UH. The pedagogical approach used in this project, Action, Reflection and Modelling was also shortened in this way to form ARM.

Education systems and pedagogical approaches

There are many similarities between the education systems in Malaysia and the UK. However, there are three fundamental differences in approach that are relevant to this project. These differences relate to subject knowledge; the assessment structure and the pedagogical approaches used in Malaysian schools.

Subject knowledge: In Malaysia, subject knowledge has prime importance in teaching. For example, the Malaysian model meant that student teachers needed to study undergraduate level maths whereas this was not a requirement for primary student teachers at the University of Hertfordshire.

Assessment structure: In Malaysia, unlike the UK, examinations are of key importance in assessment in teacher education programmes.

Pedagogy: Pedagogical approaches that involve rote learning are commonly used in schools in Malaysia rather than the social constructivist approaches, often used in the UK.

Preparation weeks

Most of the sessions of the first preparation week were devoted to gaining the beginning of an understanding of different learning and teaching approaches and the value of the experience and educational provision in both countries. University of Hertfordshire staff led sessions in which they modelled active learning and reflection on this learning. Practical sessions and reflection on these, coupled with video examples of active learning in UK schools were used to begin to share the principles of ARM. These sessions involved issues such as room layout – moving chairs from rows representing a transmission model of learning and teaching to chairs grouped round tables for constructivist approaches. They involved valuing the significant theoretical knowledge of Malaysian colleagues and demonstrating how examples could be modelled in practice. The sessions opened up conversations about learning and teaching at degree and school levels and most importantly began to develop trusting relationships in which ideas could be critiqued and challenged.

In addition to the time spent on this process in the first session it was also part of the focus of all the other preparation weeks. This enabled a deepening understanding by all involved and allowed new colleagues to join the group and to be included in this development. ARM was also explained in all course literature and was a key focus of the work with student teachers.

Student teachers' level of English

Many of the student teachers studying the BEd degree were bilingual or multilingual. They studied the degree in English, taught by Malaysian staff. Non-standard language forms are used in Malaysia. For example, Bahasa Malaysia (Malay language) does not have tenses and plural forms are constructed by repeating a word, for example, *kanak-kanak* is child-child = children.

Institute lecturers' level of English

All of the lecturers were bilingual or multilingual. Most of the staff had little experience of working and teaching in English.

University of Hertfordshire lecturers' language competence

None of the University of Hertfordshire staff spoke Bahasa Malaysia. Most documents were available in English and Bahasa Malaysia but there was a need to identify and learn key phrases and terms used in schools and higher education and to develop good working relationships.

5.1 The collaborative approach to the project

This first section of the main research findings introduces the collaborative relationship using some excerpts from the literature. It then presents some views of the collaborative approach to the project using the voices of teacher educators and members of the senior management team. The research findings include interviewees' definitions of collaboration; their expectations and experience of working collaboratively and of the development of the collaboration; factors that promote or constrain the collaboration; and some of the professional benefits. The section concludes with a closing comment from a Malaysian perspective.

The findings in this section are set out using the following headings:

- A Excerpts from the literature
- B Expectations, experience and development of the collaboration
- C Factors that promote or constrain the collaboration
- D Professional benefits of the collaboration
- E What does collaboration mean?
- F Examples of the collaboration
- G Closing comment from Malaysia

A small number of contributors' comments in this section of the report are also available in later sections. They include reflections on learning and teaching and reflections on the project and on future developments.

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'The term collaboration is used in many ways and has a variety of meanings to different people. Here's our working definition:

'Collaboration is a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals.

'The relationship includes a commitment to: a definition of mutual relationships and goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards.'

Mattessich and Monsey 1992:7

'...What is needed is that all international contacts be self reflective and critical of their processes and effects. Not only should they reflect on the benefits and gains in knowledge by the different parties involved but also on how different parties can be actively involved in developing their own voice and taking increasing control in managing their own mathematics education to achieve their interests. International collaborations between mathematics educators

should be transparent, reflective and accountable in examining their own rationale, aims, processes and outcomes. Questions of voice and power should always be upfront.

'...International collaboration should aim at developing a shared vision between the different players and realise that the contribution of the different players with differing access to power is problematic. Similarly, these international exchanges should aim to balance the tension between changes in structures and changes in cultures that allow for genuine collaboration. Not only do questions of costs and processes of international exchanges need scrutiny but also the assumptions behind them. Exchanges that are simply based on "helping" developed countries (to become like us?) are often based on paternal colonial assumptions and do not contribute to genuine collaboration. Collaborations should be based on mutual respect and trust in the ability of the different partners to contribute different types of learning to the collaborative enterprise.'

Atweh and Clarkson 2002:7-8

In a section on **Collaboration: Teaching together**, Loughran suggests:

'Teachers working together, collaborating and teaming in ways that provide professional support for one another leads to improvements in practice as the sharing with, and learning from, one another offers meaningful ways of framing and reframing existing practice...

'...This commitment to collaboration is based on the recognition that there is much to learn from others and that such learning is enhanced through making the tacit explicit. And, just as we see that collaboration is important for our students in their learning about teaching, so too we see it as important in our learning of teaching about teaching.

'Collaboration creates situations in which it is crucial that ideas, beliefs, views and thoughts about practice be made explicit. In so doing, the underlying features of practice which, under different circumstances may go unnoticed and unquestioned, are presented for analysis, scrutiny and investigation...'

Loughran 2006:57, 59

B Expectations, experience and development of the collaboration

The views of teacher educators and members of the senior management team

Questions from the preliminary interview schedule: 2006 – year 1

**What were your expectations of working collaboratively with Malaysian/University of Hertfordshire colleagues?
What was your actual experience of collaborative working?**

Seven interviewees, four from Malaysia and three from the University of Hertfordshire, answered this question. The issues raised by the interviewees related to their expectations and experience of the project overall; of programme development, learning and teaching and some concerns, anxieties and uncertainties. The responses highlighted some of the differences in approach, which are identified in the 'context box' at the beginning of Chapter 5. Some extracts from the responses are shown as quotations and summary points in Tables 9 and 10.

Table 9 Senior management team preliminary interviews: extracts from responses by Malaysian colleagues to describe their expectations of working collaboratively with University of Hertfordshire colleagues and their actual experience of collaborative working

Expectations	Actual experience
Project overall	Project overall
<ul style="list-style-type: none"> share experiences with UH <i>After Kuantan</i>: a very good experience <i>Before first preparation week</i>: resources, video clips how good to collaborate 	<ul style="list-style-type: none"> '...I'm very glad it is collaborative so it's not a UH programme run in Malaysia but we do it together' things we do that UK does not – evaluation and diagnostics most activities were collaborative <i>Collaboration at trial validation</i>: UH gave a lot of support and a mock; challenge was to get colleagues to understand different procedures friendly discussion on content, then agreement, then UH provided ideas guidance and help given our ideas were shared <i>Orientation week</i>: '...the way you share your ideas with us help us to conduct the programme on our own' <i>Kuantan</i>: very positive working attitudes (they did a lot of preparation) '...leaders should lead by example so there must be lots of preparation'
Programme development, learning and teaching	Programme development, learning and teaching
<ul style="list-style-type: none"> high expectation of learning lots from UH excited – looking forward to learning new things about ITT <i>After Kuantan</i>: much ITT experience but not in a degree programme. So much to learn from UH <i>Before first preparation week</i>: input on how to run programme <i>Before first preparation week</i>: expected lecturing and some presentation (from UH) <i>After Kuantan</i>: difference in agreed content – expected to be equivalent of local university. But content is primary school maths <i>Before first preparation week</i>: expected UH to explain how to deliver and what strategies to use expected to learn a lot from a foreign university, especially about primary education – not like local university courses pick up learning and teaching ideas to make the classroom more interesting change learning and teaching in the primary school mobilise college staff to change what happens in the classroom <i>Before first preparation week</i>: UH will train staff correct hands on procedures and activities 	<ul style="list-style-type: none"> we have university level maths, no need to go so high, it's more of pedagogy... '...we were quite impressed with the way you run training sessions...we learnt new ways of doing things collaboratively' <i>Orientation Week</i>: we learned a different way to run this eg reflecting on their own learning... 'I find this very relevant' we learned together, we shared our ideas learned much from UH, especially Connections model¹ students enjoy the new approach modelling by UH on how to deliver a session <i>Collaboration at trial validation</i>: good experience for lecturers <i>Collaboration at trial validation</i>: exciting, much learned, hard to respond to questions <i>Orientation week</i>: good for us to see you conduct a session <i>Kuantan</i>: how to structure a degree <i>Kuantan</i>: exciting learning experience seeing new things eg lack of exams <i>Collaboration at trial validation</i>: learned many new things <i>Orientation week</i>: got first-hand knowledge by observing UH; students very motivated by it learned a lot from the first preparation week – how to deliver it; all modules prepared so no problems; demonstration of ARM; you showed us how to integrate it <i>Orientation week</i>: students very pleased about visit
Concerns, anxieties and uncertainties	Concerns, anxieties and uncertainties
<ul style="list-style-type: none"> <i>After Kuantan</i>: demands are greater, more work to be put in <i>After Kuantan</i>: lots of things unknown about the programme teething problems – won't be just the same as previous programmes 	<ul style="list-style-type: none"> <i>Collaboration at trial validation</i>: perturbing – lots of documents, incomprehensible <i>Collaboration at trial validation</i>: very worried because we didn't know what it was all about

¹ Haylock, D. and Cockburn, A. (2003) *Understanding Mathematics in the Lower Primary Years*. Paul Chapman Publishing

Table 10 Senior management team and teacher educator preliminary interviews: extracts from responses by University of Hertfordshire colleagues to describe their expectations of working collaboratively with Malaysian colleagues and their actual experience of collaborative working

Expectations	Actual experience
Project overall	Project overall
	<ul style="list-style-type: none"> • hierarchy; reluctance to offer ideas needed drawing out • exchanging ideas • sharing clarifications and asking for suggestions, <i>'It felt as if we were part of one team'</i> • desire to work as one team – people were talking more • very positive from the beginning • shared philosophy and ethos • <i>'...highlighting areas to include was entirely collaborative'</i> • need to get to know each other and work out roles, where they were coming from, their expectations. <i>'...at the beginning we were a bit separate'</i> • we made it clear it was shared and their ideas were valued • <i>'they were taking the lead by the end and seeing that they had a lot of expertise in this'</i>
Programme development, learning and teaching	Programme development, learning and teaching
<ul style="list-style-type: none"> • different approaches to learning and teaching – formal, chalk and talk • academic nature of their ITT; more academic maths • avoid going with pre-written module but did have bare bones 	<ul style="list-style-type: none"> • effective eg [colleague from Malaysia] got the idea of ARM and was willing to have a go so it encouraged others • posters of how they teach – good exchange of ideas, same wavelength • Crystal model¹ used which is globally recognised – point of contact • Malaysian colleagues took the lead in session detail - <i>'...important for them to be in the driving seat'</i> – they have the contextual knowledge; <i>'...we were leading from behind'</i>...supporting suggestions in line with the model – we took a more leading role on assessment
Concerns, anxieties and uncertainties	Concerns, anxieties and uncertainties
<ul style="list-style-type: none"> • didn't know what to expect • concerned about my lack of qualifications • mixed feelings • initially not talking the same language • anxious – get module together and meet student needs; UH requirements and their previous experience • anxious about own lack of experience • not sure what they expected from us • unsure how project would work 	<ul style="list-style-type: none"> • concern about mutual expectations • worries dispelled in first session. <i>'There was a foundation for partnership'</i>

¹ Crystal (1987: 83) in his encyclopaedia uses: 'a 6-level model of structure which uses three basic notions (transmitting, medium, semantics), each containing a twofold division. The model also incorporates the dimension of language in use, which is related to the concerns of language structure through the notion of pragmatics.'

² UH colleagues were modelling the approach they used in the School of Education in the UK.

Question from the preliminary interview schedule: 2006 – year 1

What are your expectations about working collaboratively in the next training week?

The same seven interviewees, four from IPKB and IPTI and three from the University of Hertfordshire, answered this question. Their comments in response to this question included:

– have set up a good working relationship; no problems in cooperating; ‘...we have some kind of professional development between us.’

Member of senior management team
– Malaysia

– we may need to prepare things but then it is a contribution from both sides; it is easier to get everything from UH but it is not such good training. When we deliver training for others it will be from our experience.

Member of senior management team
– Malaysia

– if we can continue to work in this way, nothing can hinder our progress.

Member of senior management team
– Malaysia

– more of a working team, more ownership because they have been teaching it.

Teacher educator
– University of Hertfordshire

– fewer concerns because initial fears allayed; more positive expectation of success; [the next time we all meet] it will be a different starting point – extract from what we did and what works.

Teacher educator
– University of Hertfordshire

– people who’ve been involved before will expect to bring their ideas, it will be a partnership of sharing ideas.

Member of senior management team
– University of Hertfordshire

Question from the preliminary interview schedule: 2006 – year 1

Will the collaboration change/develop over the four years?
Will it change or be different?

Four members of the senior management team from IPKB and IPTI answered this question. There was some overlap with the points made in response to the previous question about the next training week. Additional comments in response to this question included:

– yes, as we explore new things it will change as we grow to understand each other.

Member of senior management team – Malaysia

– don’t want it to change; progress from where it is, adapt and give it a boost.

Member of senior management team – Malaysia

The views of members of the senior management team

Questions from the additional interview schedule: 2008–2009 – years 3–4

Has the collaboration changed/developed since it started?

If yes, how has it changed/developed?

What is the nature of the collaboration now? (or How do you see the collaboration now?)

Some of the phrases used by members of the senior management team in response to these questions are shown in Table 11.

Table 11 Senior management team additional interviews: extracts from responses to describe the way in which the collaboration had changed/developed since it started and the nature of the collaboration at the time of interview

Has the collaboration changed/developed since it started? If yes, how has it changed/developed?	What is the nature of the collaboration now?
<p>Colleagues from IPKB and IPTI (four)</p> <ul style="list-style-type: none"> changed for the better, getting more close. Better understanding the enthusiasm, the hard work is still there, the interest in the project is still very evident more as a personal friend/more on a personal basis now rapport is much better/rapport has increased see a shift in the staff that's coming over 	<ul style="list-style-type: none"> learn a lot more like partners/more of a partnership/ like a partnership where we focus on contribution from both sides originally we weren't very brave, confident about giving our ideas more free to express ourselves, inquire, seek help from each other more personal friends – gone beyond an academic collaboration very fruitful collaboration
<p>Colleagues from UH (two)</p> <ul style="list-style-type: none"> feels more balanced now know each other better both at an interpersonal level but also knowing each other's systems better our partners are taking much more action themselves, become more independent much more a feeling of equality/more equal partnership now although at first it was meant to be collaborative they wanted to do what we wanted to do 	<ul style="list-style-type: none"> much more...a group of professionals meeting much more equal

The following comments were made in response to the first question:

'Has the collaboration changed/developed since it started? If yes, how has it changed/ developed?'

'...We knew it would be quite challenging. We were sure we would have some changes and some differences. The collaboration has tremendously changed the systems of working in the department. The programme has brought us some new ideas in teaching and learning especially in what UH has supplied, especially ARM. ARM is a very good tool. ARM is carried out throughout the 4 year BEd programme. Changed for the better, getting more close. Better understanding...'

**Member of senior management team
– Malaysia**

'Initially we just worked together as colleagues but more as a personal friend a much close relationship now rather than just professionally.'

**Member of senior management team
– Malaysia**

'The structure/methods are still the same but they go better together now – the rapport is much better, more on a personal basis now. But the enthusiasm, the hard work is still there, the interest in the project is still very evident. People are still very enthusiastic about it. The rapport has increased.'

**Member of senior management team
– Malaysia**

'I think the main change is probably that our partners are taking much more action themselves – they have become more independent. I think it is a more equal partnership now – that's how I think it has changed. Although at first it was meant to be collaborative they wanted to do what we wanted to do. It's much more equal – healthier than it was.'

**Member of senior management team
– University of Hertfordshire**

'I think we have got to know each other better both at an interpersonal level but also knowing each other's systems better so lots of things that arise you can contextualise...'

'Another change – the more we get to know each other and each other's systems the more benefits that we've had. Before it felt slightly unbalanced, feels more balanced now.'

'One of [the] ways it has worked in practical terms is that the various processes in the degree, for example, marking and moderation we have had to be much clearer about it on this programme but we have also had to introduce some refinements, for example, cross module moderation and also the feedback for students to respond to tutor feedback. Consequence – sharper about own procedures, beneficial especially for new staff – so clearly set out. Also in terms of relationship with senior management team, I think much more a feeling of equality if you like in the relationship.'

**Member of senior management team
– University of Hertfordshire**

The following comments were made in response to the follow-up question:
'What is the nature of the collaboration now?'

'Now we are more like partners. Originally we weren't very brave, confident about giving our ideas. Now it is more of a partnership. For example, for first/second year module we were quite worried about the content but realised the UH staff do take our views into consideration, so now it's more like a partnership.'

**Member of senior management team
– Malaysia**

'Now more personal friends – gone beyond an academic collaboration. Now we are more free to express ourselves, inquire, seek help from each other.'

**Member of senior management team
– Malaysia**

'It's like a partnership where we focus on contribution from both sides. Both sides have a say, both sides contributes.'

**Member of senior management team
– Malaysia**

'The last point – it's much more equal so although they still look to us for a lead where appropriate, I think there are fewer occasions where that is necessary.'

**Member of senior management team
– University of Hertfordshire**

'I think now it is much more a case of a group of professionals meeting to share ideas and experiences.'

**Member of senior management team
– University of Hertfordshire**

'Very fruitful collaboration whereby both parties – the College (and the Training Division) learn a lot from each other...We learn a lot more from you. The programme has brought us some new vision. We work on this first batch of BEd programme and this BEd is something very new and we can see the difference between our BEd programme and the programme we normally have. Very obvious when the placement school say they prefer the BEd students – more updated and make the teaching and learning in the classroom different and enjoyable. BEd students being asked by the teachers in school what they are getting from the programme. They are asking for a course for the teachers in the school. Can help the schools so much especially if we can introduce them to ARMs in the programme – what the students have been doing in the placement.'

Member of senior management team – Malaysia

C Factors that promote or constrain the collaboration

The views of teacher educators and members of the senior management team

Question from the preliminary interview schedule: 2006 – year 1

What would promote collaboration?

Teacher educators and members of the senior management team suggested several factors that in their view would promote collaboration. Some of these suggestions are listed below.

Malaysian colleagues suggested: the curriculum and assessments are collaborative; have included some Malaysian elements – do this more; you've observed us teaching – give us feedback and tell us how to improve; get the module outline (in advance?) so we can plan; visit UK to know what practice is like in schools.

University of Hertfordshire colleagues suggested: respect colleagues' professionalism; continue empowering and getting Malaysian colleagues to take a leadership role; be genuinely interested in what they are doing; take their ideas and show how they link with what we do; being clear that we don't know things so we work together on a problem because neither party has the solution. Practical issues suggested included: working in smaller groups and emailing information in advance to capitalise on the links already made and to provide an opportunity for colleagues in Malaysia to talk to their own colleagues.

The views of members of the senior management team

Question from the additional interview schedule: 2008–2009 – years 3–4

What has promoted collaboration?

Table 12 shows some of the factors members of the senior management team thought had promoted collaboration. One of the factors identified was the nature of the relational framework.

Table 12 Senior management team additional interviews: some factors identified in response to the question: 'What has promoted collaboration?'

Malaysian colleagues	University of Hertfordshire colleagues
<ul style="list-style-type: none"> initiated by the Training Division (TED) the people, their personalities it's not just a working relationship I feel like I have ownership of the programme distance is not a factor. Can get information without delay the UH staff have also given a lot of cooperation – that part of it we value very much (for example, books, CDs) a sincere working relationship we are working towards a common goal the willingness of both sides to share knowledge and experience a lot of support from both sides from the administration 	<ul style="list-style-type: none"> the interpersonal aspect is crucial really familiarity with the procedures on everybody's part no longer the 'custodians of knowledge'...I think they look on us in a different way frequency of contacts so that you know people better/ the fact that people do meet so often quite a lot of stability of staff and leadership on both sides. Because of that people become easier with each other and confident of each other some...have actively promoted collaboration – have actively worked at it and thought about it...So it's not accidental

Some of the responses to this question are given below.

'Lot of factors. 1) Initiated by the Training Division. 2) So much that we can learn from this programme. Day to day this programme has new things for us to know especially when we have the module. Maths – not just to teach numbers but "how to teach numbers". In this programme a lot of "how to teach" is being carried out. So we have to model to the students. Initially very little modelling being carried out. With the ARM we know we have to carry that out in the lecture before the students can do it in the classroom. In the school the students are clear to do in the classroom. It promotes the programme. 3) How our students learn through the reflective mode. Asked to reflect on the learning and teaching. Learn through reflection more than they can through the other sources.'

**Member of senior management team
– Malaysia**

'The people, their personalities. The UH staff are very friendly and because we see each other twice a year we are also "friends" in the social sense. It's not just a working relationship so easier to get ideas out.'

'...I feel like I have ownership of the programme. Even though in the UK, with emails I can get things done. So distance is not a factor. Can get information without delay. The UH staff have also given a lot of cooperation – that part of it we value very much (for example books, CDs) because we don't have access to that kind of resources here. Find our students enjoy their activities in the class...that brings a positive reinforcement for us that it works; it really works – seeing the students' reaction.'

**Member of senior management team
– Malaysia**

'To me it is a sincere working relationship. College lecturers are very sincere professionals. We are working towards a common goal.'

**Member of senior management team
– Malaysia**

'The willingness of both sides to share knowledge and experience. Everyone tried to contribute. A lot of support from both sides from the administration regarding this project...A lot of support from the TED and administration.'

**Member of senior management team
– Malaysia**

'I think frequency of contacts so that you know people better. Think the interpersonal aspect is crucial really. I think it is also familiarity with the procedures on everybody's part. So at the beginning we were establishing procedures which were known to us and new to them – now more equal because they are known to us all. No longer the "custodians of knowledge" as we were at the beginning. Crucial thing – I think they look on us in a different way.'

**Member of senior management team
– University of Hertfordshire**

'I suppose I would say it's the fact that people do meet so often. A really important thing is that we've had quite a lot of stability of staff and leadership on both sides. Because of that people become easier with each other and confident of each other – less frightened [of] treading on each other's toes...Also some...have actively promoted collaboration – have actively worked at it and thought about it...So it's not accidental...'

**Member of senior management team
– University of Hertfordshire**

Question from the preliminary interview schedule: 2006 – year 1

Can you identify any constraints on the way we work together collaboratively?

Question from the additional interview schedule: 2008–2009 – years 3–4

Can you identify any constraints on the way we have worked together collaboratively?

Some examples of the constraints identified by teacher educators and members of the senior management team during the preliminary and the additional interviews are given here. Two interviewees did not identify any constraints during the additional interviews. One of these interviewees commented: *'I don't feel like there's any constraints, I am very comfortable with the partnership.'*

Constraints – project overall

Interviewees identified: accountability; hierarchy; differences in the degree of autonomy and management between colleagues in Malaysia and the University of Hertfordshire; resources and facilities.

Constraints – programme development, learning and teaching

Interviewees identified: all need to understand the learning and teaching philosophy – there are limitations of the cascade model; understanding the terms used – need to communicate more to get clarification.

Constraints – concerns, anxieties and uncertainties

Interviewees identified: uncertainty about what is wanted in the process; if people are anxious may not be as open with each other – on both sides.

D Professional benefits of the collaboration

The views of teacher educators and members of the senior management team

Question from the preliminary interview schedule: 2006 – year 1

Question from the additional interview schedule: 2008–2009 – years 3–4

What are the professional benefits to you of the collaboration?

What have you got out of it?

Teacher educators and members of the senior management team identified several professional benefits during the preliminary interviews. Some of these benefits have been divided into two main themes and listed below.

Benefits relating to the project overall

Malaysian colleagues identified: very positive – learn more from the University of Hertfordshire and share our ideas with them.

University of Hertfordshire colleagues identified: see world from a different perspective; working in another culture, picking up signals, sensitivity to the group; reflecting on own and the School of Education practice; getting ideas from a new group of colleagues; working with different University of Hertfordshire colleagues – experience problem solving, new situation, learning together.

Benefits relating to programme development, learning and teaching

Malaysian colleagues identified: how to write a curriculum, validation procedure, resourcing; graduate skills – will use on other programmes; QTS skills; learn more and share ideas, change lecture delivery; attend more training sessions; we benefit a lot even though we are very experienced. Past learning is mainly from reading [rather than experiential learning]; learn other things, get a lot of input, progress/development is faster; in maths, a new horizon in learning and teaching; emphasis on practical work – taking this into other courses. *'It's a miracle to us actually.'* We are very pleased with our new learning and teaching techniques; students more involved in their learning – now 70 to 80 per cent student activity.

University of Hertfordshire colleagues identified: it has developed my thinking about teaching – why I do what I do; better comments on reflective logs; different emphases to different parts of the course, for example, media and popular culture – we could use them more.

Members of the senior management team identified several professional benefits during the additional interviews. These included personal and professional confidence, knowledge and understanding, illustrated in the following responses:

'...Teaching and learning. For teaching and learning when we start the programme, the first Induction course, UH came with a solid foundation – ARMs to guide us through the programme. We were fascinated that ARMs can bring something new. We understand ARMs better and better and see it as a good tool for the students and lecturers. The successfulness of ARMs being carried out.

'Assessment. Really something very new. Normally we were seeing exam as total assessment. We now carry out formative and summative assessment. Students find it strange not to have exam. We say it is better – the guidance is important [using assessment]...'

**Member of senior management team
– Malaysia**

'It has opened up a new perspective. Now we know education system in UK better I am able to compare what happens in UH and [the Institute]...From management point of view I am gaining more management experience, which if I hadn't got onto this programme I wouldn't be doing. So benefited from pedagogical and administrative effect. Also from communication – if I need to know anything about education system in UK I have someone to go to.'

**Member of senior management team
– Malaysia**

'Professionally, before was teaching local post-graduate programme. Started to use a lot of high level questioning techniques, more student centred approach. Try to use this to become more efficient. Later the ARM model, very similar to what I was practising before. Before I was singing alone, but now I am singing in a choir. Now very comfortable because everyone is doing the same thing.'

**Member of senior management team
– Malaysia**

'One thing is the validation process; we learn the rules and regulations. The way we mark assignments and give comments and areas for improvement. We don't do that in Malaysia. Terrific for the students – one of the things we learn from this project. Also the graduate skills. How we gear our curriculum so they [develop] these graduate skills.'

**Member of senior management team
– Malaysia**

'...Better insight into how programmes work and into University practices and procedures. It's given me a lot of professional confidence knowing that we can go out and can do this work. Some of that then feeds back into how you deal with people and situations back in the UK. The professional confidence is also personal confidence. I thought I was professionally confident before but now I am even more so...'

Member of senior management team – University of Hertfordshire

'I think it has given me confidence of being in a leadership position in a completely different context. Given me a chance to see how much some of your decisions and actions are contextually determined and how many decisions and actions don't change. The biggest thing I have gained is knowledge of a completely different education system and...the opportunity to understand the differences – what it's given me is a deeper understanding of why they do some things in completely different ways. Some understanding of their principles and philosophy and compare them with ours. Also an opportunity to look at some of our procedures, for example, moderation and planning and be able to step back and see them through a different lens.'

**Member of senior management team
– University of Hertfordshire**

E What does collaboration mean?

The views of teacher educators and members of the senior management team

Question from the preliminary interview schedule: 2006 – year 1

Question from the additional interview schedule: 2008–2009 – years 3–4

What does collaboration mean to you?

Members of the senior management team and teacher educators were asked to give their own views of the meaning of collaboration towards the end of the interview. Interviewees' responses during the preliminary interviews are given below. They include the phrases: balancing leadership, both parties gain, a common good, contribute, cooperation, enhance the objectives, equal partnership, sharing ideas, sharing experience and expertise, working together.

– get something from UH, also contribute ourselves to make progress; UH very experienced and famous but they can learn from us 70 per cent – 30 per cent.

**Member of senior management team
– Malaysia**

– working together; sharing ideas so the end result is better than it would have been separately; all collaborators' work is valued and people don't bring the same thing.

**Member of senior management team
– University of Hertfordshire**

– two or more parties to enhance the objectives decided by those parties *'and both parties gain from the collaboration.'*

**Member of senior management team
– Malaysia**

– sharing ideas in equal partnership for a purpose; hierarchy can get in the way.

**Teacher educator
– University of Hertfordshire**

– working together for a common good.

Member of senior management team – Malaysia

– sharing experience and expertise; balancing leadership – each person taking that role at some point.

**Teacher educator
– University of Hertfordshire**

– *'...in cooperation I think you have given us a lot of support both in training but also in resources.'*

**Member of senior management team
– Malaysia**

Some of the responses of members of the senior management team to the question about collaboration during the additional interviews are given below. One respondent drew a figure to illustrate the point.

'Collaborative working I see initially we benefit from you – one-sided – on the receiving end. But as we work along the way not me on the receiving end. UH telling me that they are learning together on this. From then on I realised this is a two-way benefit. We are giving some benefit to UH as well. IPTI, IPKB and UH in the middle are transmitting in all ways. Now every party is benefiting from the collaboration.'

**Member of senior management team
– Malaysia**

'Collaboration means a partnership, 50:50 if possible, helping each other for a main objective. We hope the...students in [the Institute] when they graduate will be able to carry out their duties competently.'

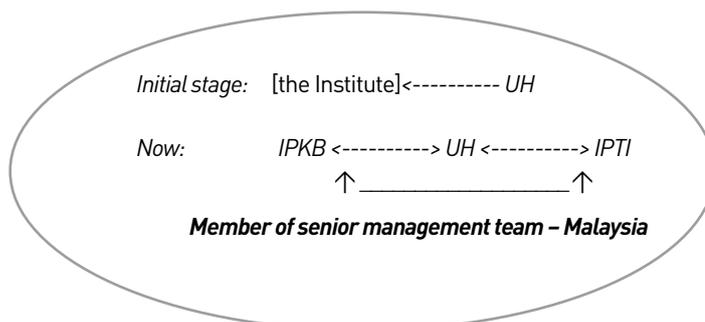
**Member of senior management team
– Malaysia**

'We are working together sharing information, expertise, resources. Working to achieve a common goal. Sort of two-way communication. We are contributing to each other instead of receiving from one party.'

**Member of senior management team
– Malaysia**

'Working together for a common interest where both sides contribute in a meaningful manner. Both sides can give opinions and come to a common consensus. A meaningful partnership.'

**Member of senior management team
– Malaysia**



'I think it's the notion of drawing on two pools of expertise so that the end result is better than it would have been if you'd pursued it individually, and I think going with that is the notion of leadership rotates depending on what you are looking at. Because that's how you overcome some of the issues of equality...'

Member of senior management team
– University of Hertfordshire

'Having a shared understanding and working towards common goals. Having confidence in each other's ability to do whatever you're doing together. But also not being afraid to question. It's not about accepting the status quo; it's about having the confidence in each other to move things forward.'

Member of senior management team
– University of Hertfordshire

Question from the preliminary interview schedule: 2006 – year 1

If we asked the same question of our colleagues what do you think they would say collaboration was?

Three interviewees made the following suggestions in response to this follow-up question.

– working together with partners and getting ideas and feedback from the partners and coming together to have a common understanding and common way of working.

Benefits to the University of Hertfordshire? – learn from what we are doing, things they don't do in the UK like testing and evaluation.

Member of senior management team
– Malaysia

– from what I understand, UH is also thinking along the same lines – they don't want to give us everything but they want us involved in this programme so we can learn new things and I believe that learning through experience is the best way to learn.

Member of senior management team
– Malaysia

'...I would say that you also study from this collaboration business so from your point that you are looking at us and study from us.'

Member of senior management team
– Malaysia

F Examples of the collaboration

The views of members of the senior management team

Question from the additional interview schedule: 2008–2009 – years 3–4

**Can you give examples of the collaboration in action for you?
If yes, what example(s) can you give?**

Five interviewees gave the following examples in response to this question.

'Every year we have the induction twice when we do the outline – very important component. Come for moderation twice a year. The attachment programme when two lecturers attended the October visit to be in UH and experience the actual teaching and learning in the University...'

Member of senior management team
– Malaysia

'The marking is a real collaborative effort and the module preparation. Because personally from year 1, year 2, year 3, I realise I can contribute a little more as time went on, so from year 2, year 3, I feel a shared ownership of the module. Year 1 – not sure how my ideas will be looked upon when I put forward any suggestions because we have this top down approach by tradition.'

Member of senior management team
– Malaysia

'During the year we have preparation week to prepare modules for the coming semester. We prepare them together (for example, module outline, handbook). Before this started we thought we would receive everything from UH. Sometimes we get more input from the University, sometimes less – anyhow it is a sharing of our professional knowledge.'

Member of senior management team
– Malaysia

‘Transfer of knowledge and experience from UK and Malaysia. We learn how to set up a degree course which is new for us. Our own degree programme is based mainly on this model. So mainly focus on this model. The main part of the maths programme used the collaborative project with UH.’

Member of senior management team – Malaysia

‘I think arrangements and practical difficulties are now tackled much more collaboratively. For example, in the planning sessions there is a more equal contribution now...’

**Member of senior management team
– University of Hertfordshire**

At the end of the additional interviews (years 3 to 4), members of the senior management team were asked whether they had any further comments about the collaboration or about any other aspects of working with colleagues from Malaysia or the University of Hertfordshire. These comments are in Sections 5.5 and 5.6.

G Closing comment from Malaysia

‘Teacher education has always been a crucial and symbolically significant field of education development. A country’s nation building lies in the hands of its teachers. No matter how good the curriculum, infrastructure or teaching aids, at the end of the day it is the teachers who make a difference...’

Noraini Idris et al. 2007:102

Key themes The collaborative approach to the project

The research findings from Section 5.1 are drawn together into some key themes, illustrated using extracts from responses to the interviews with members of the senior management teams from IPKB, IPTI and UH and teacher educators from UH. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *Collaboration is a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals.*
- *International collaborations between mathematics educators should be transparent, reflective and accountable in examining their own rationale, aims, processes and outcomes.*
- *Collaborations should be based on mutual respect and trust in the ability of the different partners to contribute different types of learning to the collaborative enterprise.*
- *Collaboration creates situations in which it is crucial that ideas, beliefs, views and thoughts about practice be made explicit.*

Expectations, experience and development of the collaboration

The views of teacher educators and members of the senior management team (year 1)

Expectations and experience of collaborative working relating to:

- **the project overall:** most activities were collaborative, guidance and help given, our ideas were shared, very positive working attitudes, desire to work as one team, shared philosophy and ethos
- **programme development, learning and teaching:** we learned together, students enjoy the new approach, good exchange of ideas, same wavelength
- **concerns, anxieties and uncertainties:** lots of things unknown about the programme, didn’t know what to expect, concern about mutual expectations, worries dispelled in first session. *There was a foundation for partnership*

In years 3 to 4, members of the senior management team described the nature of the collaboration as: more of a partnership, more personal friends – gone beyond an academic collaboration, very fruitful collaboration, much more equal.

Factors that promote or constrain the collaboration

The views of teacher educators and members of the senior management team (year 1, years 3–4)

Factors thought to have promoted collaboration included the people, their personalities, a feeling of ownership of the programme, working towards a common goal, the willingness of both sides to share knowledge and experience, the interpersonal aspect, frequency of contacts and quite a lot of stability of staff and leadership on both sides.

Examples of constraints on working together collaboratively were accountability, hierarchy, differences in the degree of autonomy and management, understanding the terms used and uncertainty about what is wanted in the process.

Professional benefits of the collaboration

The views of teacher educators and members of the senior management team (year 1, years 3–4)

Professional benefits relating to the project overall included sharing ideas, working in another culture, reflecting on own practice, learning together, management experience, knowledge of a different education system, professional and personal confidence.

Professional benefits relating to programme development, learning and teaching included how to write a curriculum, validation procedure, a new horizon in learning and teaching, developing personal thinking about teaching, different forms of assessment.

What does collaboration mean?

The views of teacher educators and members of the senior management team (year 1, years 3–4)

Interviewees' views of the meaning of collaboration included the phrases balancing leadership, both parties gain, a common good, contribute, cooperation, enhance the objectives, equal partnership, sharing ideas, sharing experience and expertise, working together. Collaboration was thought to mean:

- Working together; sharing ideas so the end result is better than it would have been separately; all collaborators' work is valued and people don't bring the same thing.
- *Working together for a common interest where both sides contribute in a meaningful manner. Both sides can give opinions and come to a common consensus. A meaningful partnership.*

Examples of the collaboration

Members of the senior management team (years 3 to 4) suggested that the attachment programme and the activities of preparation and moderation weeks were examples of the collaboration in action.

5.2 The Action – Reflection – Modelling (ARM) approach to learning and teaching

This second section of the main findings uses excerpts from the literature to introduce the ARM approach to teaching and learning: Active learning, Reflection on learning and practice, and Modelling by the teacher to support learning. It then sets out some of the lecturers' recollections of their previous experience of using the principles of this approach and the ways they taught using ARM and taught ARM to student teachers on the BEd degree programme. This section also includes student teachers' descriptions of the way they used ARM during their first and final school placements and records some of the benefits and challenges they found when they used this approach. The ways in which the lecturers used ARM on different programmes and adapted the approach for different audiences and settings are also reported here. Once again, the emphasis is on listening to the voices of the contributors to the project, this time the lecturers and student teachers.

The section concludes with a closing comment from Malaysia.

The findings in this section are set out using the following headings:

- Excerpts from the literature
- Previous experience of using aspects of ARM
- Learning and teaching using ARM
- Benefits of using ARM
- Challenges of using ARM
- Using ARM on other programmes and in different settings
- Closing comment from Malaysia

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'Active learning strategies emphasise constructivistic qualities in knowledge processing. These are independent inquiry, and structuring and restructuring of knowledge. In active learning, the processing of knowledge also requires a problem-solving orientation, a critical approach and an evaluation of knowledge...'

Niemi 2002:764

'Effective reflective practice is drawn from the ability to frame and reframe the practice setting, to develop and respond to this framing through action so that the practitioner's wisdom-in-action is enhanced and, as a particular outcome, articulation of professional knowledge is encouraged. What is learned as a result of reflection is, to me, at least equally as valuable as reflection itself. It is through the development of knowledge and understanding of the practice setting and the ability to recognize and respond to such knowledge that the reflective practitioner becomes truly responsive to the needs, issues, and concerns that are so important in shaping practice.'

Loughran 2002:42

'Modeling is inherent in all that we do in teacher education. Intended and unintended learning about teaching occurs through our modeling whether we are conscious of our actions or not. With that in mind, modeling then can be conceptualized as teaching in the very ways we encourage our students to teach but to do so with the intention of offering them access to the thoughts of, and knowledge about, such practice by explicating the underlying purpose of that teaching approach. This is in stark contrast to the misconception that modeling is a mock teaching demonstration or a tacit call for students of teaching to "teach like me."'

Loughran 2006:95

B Previous experience of using aspects of ARM

The views of lecturers

The interviews with lecturers were prefaced by the following statement: 'As you know, the BEd degree with the University of Hertfordshire is supported by the ARM approach to teaching and learning: Active learning, Reflection on learning and practice, and Modelling by the teacher to support learning.'

Question from the interview schedule: 2008 – year 3 (Semester 6)

Which aspects of ARM were you using before the BEd degree with the University of Hertfordshire?

This question about the lecturers' use of the three aspects of ARM prior to the BEd degree was included to follow up on some of the feedback obtained from lecturers who completed the questionnaire. However, it meant that interviewees had to recall the teaching and learning approaches they had used more than two years earlier and one interviewee commented '*I can't really recall*'. Nevertheless, six interviewees specified that they had used all three components of ARM before starting the programme. Table 13 shows extracts from each of the eight responses to this question.

Table 13 Lecturer interviews: extracts from responses to the question: 'Which aspects of ARM were you using before the BEd degree with the University of Hertfordshire?'

Extracts	Action	Reflection	Modelling
<i>There was modelling to a certain extent. Some active participation. I use it in a very unstructured way, but not so much on reflection</i>	yes (some)	yes (not so much)	yes (a certain extent)
<i>I can't really recall. I have done active learning – all the three are well but it is not connected well. ARMs come in a way that is very structured</i>	yes	yes	yes
<i>Actually almost all...I normally tried to use group work and involve my students and get them to participate in my teaching and learning activities. I did model some sessions</i>	yes	not specified	yes
<i>We have some modelling but it is more on we demonstrate and sometimes the students carry out the activities. We have action but the reflecting part, we do more on reflection nowadays</i>	yes	yes	yes (some)
<i>I have practised being reflective in your teaching. After every session I would ask my students what we have learnt today and I also have active learning</i>	yes	yes	not specified
<i>Unconsciously we have modelling but it was not given a specific name...We used it but not with the label. Reflection is used all the time...We have this active learning</i>	yes	yes (all the time)	yes
<i>More or less we have been doing the same thing (three components)</i>	yes	yes	yes
<i>Using it all the time when teaching...Do activities, reflect on them and create new activities in groups, pairs, sharing</i>	yes	yes	yes

Some of the lecturers' extended responses to the interview question about using the different aspects of the ARM approach before the BEd degree are given below.

'There was modelling to a certain extent. Some active participation. I use it in a very unstructured way, but not so much on reflection. Modelling would be especially for content subjects – linear algebra, calculus, solving questions. It's more limited in that area but I like the use of cartoons so maybe in pedagogy I taught my students how to draw cartoons and use it in their lessons.'

Lecturer – Malaysia

'I have practised being reflective in your teaching. After every session I would ask my students what we have learnt today and I also have active learning... we have this perception that you need to be interactive. Lecturer role is facilitator, mediator. Something I have been practising all these years. I am a great believer of reflection...'

Lecturer – Malaysia

'Using it all the time when teaching... Do activities, reflect on them and create new activities in groups, pairs, sharing. Closure will be discussion, reflection and for their future teaching.'

Lecturer – Malaysia

'Actually almost all. The difference is the last time we are free to use any approach so all the while I was trying to let my students enjoy. I normally tried to use group work and involve my students and get them to participate in my teaching and learning activities. I did model some sessions so that my students would be able to understand the concept in the teaching and learning situation – what we normally do in the micro-teaching as well...'

Lecturer – Malaysia

'We have some modelling but it is more on we demonstrate and sometimes the students carry out the activities. We have action but the reflecting part, we do more on reflection nowadays. The way I teach my student now is different now, more active, more student participation. When we plan the weekly plan we make sure we have the three elements for every lecture.'

Lecturer – Malaysia

'More or less we have been doing the same thing (three components)... Before we catered for different groups of students, for example, older students, students coming into a degree. Students here are fresh from school so they are a bit young. So that the teaching has to come in approaches dependent on the students.'

Lecturer – Malaysia

'Unconsciously we have modelling but it was not given a specific name. When I was teaching a post-graduate course...we have occasion of modelling because I have to show them how things could be done in the classroom. I model how to go about writing. Also showed how things are done from the video...We used it but not with the label. Reflection is used all the time. Also proposed to be carried out in our teachers' training programme. We have this active learning – we give lectures and then we discuss and then I show them how to go about doing things (model) and then I ask them to recap the session, something like giving a reflection. Now we are very aware of what we doing – the ARM approach.'

Lecturer – Malaysia

C Learning and teaching using ARM

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

How do you teach using ARM? Could you give me an actual example of how you have taught using ARM?

The lecturers were asked if they could give an example of how they had taught using ARM and also how they had taught ARM to the student teachers. Table 14 includes extracts from the responses to these two questions.

All eight interviewees gave an actual example of how they had taught using ARM. Four of these examples are given here. The lecturers described the approaches they had used. For example, the lecturers showed teaching resources, explained, modelled, carried out a simulation/role play and performed. In each of these examples the student teachers worked in groups and in one or more they read curriculum specifications, constructed teaching aids, presented, gave and received feedback and carried out activities. All four examples featured reflection by student teachers; action and modelling were carried out by the lecturer and/or the student teachers.

'Teaching pedagogy...I would give them a list of skills for a particular year group based on a certain topic...I would pick a skill and show the resources needed to teach that topic. The participants are now free to read up on the curriculum specifications for that topic and they will have a session where they construct the teaching aids in class, after which there will be a presentation by each group. They get feedback from their friends using the three stars and a wish model. Each group will do a reflection on the process at the end of the presentation and on how to make improvements.'

Lecturer – Malaysia

'To carry out an activity...a brief explanation of how to carry out the activities. So I model how to carry out the activities then the students do the activities on their own in small groups. After the activity I ask them to reflect on the activity and ask them how they will use the same game for higher level or lower level students – how are we going to teach. So they have to reflect and then they give suggestions.'

Lecturer – Malaysia

'...I started as the one in front doing the [activity]. After that they had to discuss about presenting one [activity]. I divided them into six groups...so each group had to come up with [an activity], sit down and discuss and find music and after about a week come up with a performance...So based on modelling I was the one performing...Based on that in most of the reflection for the assignment they [were] saying they were happy to cooperate among themselves to perform the [activity].'

Lecturer – Malaysia

'We talk about shared reading. First I have the students looking at the video/DVD re shared reading. Then I make them reflect what are the good elements. Then I make them do the action in small groups. Then I make them reflect on what they have gained in viewing. Then in another session I would model and do a simulation/role play (child/teacher). Then I let them try out the shared reading in their own group. Then they reflect on the activity. It goes in cycles. Sometimes a leader from each group would go to another group (changing the station). I guess that would be more effective because they are more involved.'

Lecturer – Malaysia

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

How do you teach ARM to your students? Again, could you give me an actual example of how you have taught ARM to your students?

Table 14 shows some extracts from the responses interviewees gave to the questions about 'teaching using ARM' and 'teaching ARM'. These extracts have been taken from the complete set of responses to this question. Some of the interviewees referred back to their responses to the previous question when they explained how they had taught ARM to their students.

Table 14 Lecturer interviews: extracts from responses to the questions 'How do you teach using ARM?' and 'How do you teach ARM to your students?'

How do you teach using ARM?	How do you teach ARM to your students?
The ARM approach	
<ul style="list-style-type: none"> I have the students looking at the video/DVD re shared reading. Then I make them reflect what are the good elements. Then I make them do the action in small groups. Then I make them reflect on what they have gained in viewing. Then in another session I would model and do a simulation/role play (child/teacher). Then I let them try out the shared reading in their own group. Then they reflect on the activity. It goes in cycles 	<ul style="list-style-type: none"> I ask them to prepare an activity and ask where is the action, the reflection and the modelling part after the session we do the whole class reflection and they get to know what the whole ARM looks like. Also sometimes they do some micro-teaching and we discuss about the implementation of ARM in that session I ask them to find out about ARM themselves...Then I ask them to reflect on that and the modelling that I did – so we do it ourselves. What they find about ARM themselves and compare what they have found out about it with what we have done during my core teaching they have sequence, for example, student practice, closure etc...I think it is ARM. I think we are using ARM almost all the time
The ARM approach: Action	
<ul style="list-style-type: none"> they construct the teaching aids in class...there will be a presentation by each group start with a game/investigation activity...give the activities To carry out an activity...a brief explanation of how to carry out the activities. So I model how to carry out the activities then the students do the activities on their own in small groups I divided them into six groups...so each group had to come up with [an activity] sit down and discuss and find music and after about a week come up with a performance During the activities...let them practice and take part... Then in groups they share and discuss, then given a chance to practice that skill 	<ul style="list-style-type: none"> got all the students active participation...them doing/constructing the teaching aids on their own we did this activity whereby they do the activity in pairs what I am doing is discovery learning also last semester...We did a lot of activities – action packed.

How do you teach using ARM?	How do you teach ARM to your students?
The ARM approach: Reflection	
<ul style="list-style-type: none"> • they get feedback from their friends...Each group will do a reflection on the process...and on how to make improvements • ask them to reflect on what they have learnt from the games. Ask them to reflect the maths knowledge from the games • we share in the whole class what they have learnt so they are doing some kind of reflection now. Between I and the students we are doing a reflection on my modelling session just now • I ask them to reflect on the activity and ask them how they will use the same game for higher level or lower level students...they have to reflect and then they give suggestions • in most of the reflection for the assignment they [were] saying they were happy to cooperate among themselves to perform the [activity] • when we finish activities...give feedback on what they have learnt, brainstorming and reflection on what they have done. Give them tasks and problem solving...When they are back from activities they have written reflection and project report 	<ul style="list-style-type: none"> • reflection – they were asked to reflect on how to improve their teaching aids • we do some reflection on the best way of communication • we tell them how you can do this in your classroom. This is where reflection comes in • reflecting on what they are doing • there is always a reflective question and answer session at the end about the activities done
The ARM approach: Modelling	
<ul style="list-style-type: none"> • I would pick a skill and show the resources needed to teach that topic • they model themselves and I facilitate the modelling. Action and modelling go together • I model how to carry out the activities • I give the lecture first...after that we give samples and after that we model • I started as the one in front doing the [activity]...So based on modelling I was the one performing 	<ul style="list-style-type: none"> • modelling would be I have already given instruction based on a certain skill • we model the importance of talking. We emphasise this is two-way communication. So we model this is two-way communication • sometimes they are struggling with language so model the questions • the lecturers were the ones showing them what had to be done

All eight interviewees gave an actual example of how they had taught ARM. One lecturer reported 'They seem to know ARM'. Some of the issues raised by the lecturers in the examples given below are the same as those noted by student teachers during the surveys at the end of their first and final placements. For example, two interviewees referred to the challenge of teaching and learning using the English language. Another lecturer described an activity designed to encourage 'pupil voice', explaining 'In Malaysia the primary school children don't want to talk so we try to teach that – they are quite shy to give their opinion.'

'...I ask them to prepare an activity and ask where is the action, the reflection and the modelling part. It happens in all topics we discuss with them throughout the session.'

Lecturer – Malaysia

[Refer to the previous question].
'After the session we do the whole class reflection and they get to know what the whole ARM looks like. Also sometimes they do some micro-teaching and we discuss about the implementation of ARM in that session.'

Lecturer – Malaysia

'After this [the previous question] we tell them how you can do this in your classroom. This is where reflection comes in. What I am doing is discovery learning also. What are the teaching points – they are recapitulating the first parts of the lesson. It becomes habitualised. It becomes natural in them, this ARM approach...'

Lecturer – Malaysia

'When we do in importance of talk. We did this activity whereby they do the activity in pairs. We give three activities – the first person talk, the other person just listen. Then we do the second part, the first person talk and the second person can answer "yes" or "no" (close ended questions). Part 3 the second person can interrupt whenever they like. Then we do some reflection on the best way of communication. The first is one-way, the third is two-way. So we model the importance of talking. We emphasise this is two-way communication. So we model this is two-way communication. This helps to know what the children are thinking. In Malaysia the primary school children don't want to talk so we try to teach that – they are quite shy to give their opinion. So hopefully the future teachers can change that.'

Lecturer – Malaysia

'When I am teaching [subject] I have adopted what they have already known. When they do a workshop that is where they are doing it. They seem to know ARM.

'...Sometimes they are struggling with language so model the questions, reflecting on what they are doing. Because the English is rather weak I suggest they write the questions so they don't ask questions that are not correctly structured...'

Lecturer – Malaysia

'During my core teaching they have sequence, for example, student practice, closure etc. Most of the students know the procedures for teaching [subject]. I think it is ARM. I think we are using ARM almost all the time.'

Lecturer – Malaysia

'It's a mixture of theory and practical aspects. As much as possible we try to inculcate the practical aspect. For the theory as much as possible I ask them to find out about ARM themselves – library, internet etc. Then I ask them to reflect on that and the modelling that I did – so we do it ourselves. What they find about ARM themselves and compare what they have found out about it with what we have done.

'Last semester...We did a lot of activities – action packed. The lecturers were the ones showing them what had to be done. There is always a reflective question and answer session at the end about the activities done...This time it was more difficult because everything was done in English. Something different for them and also for the lecturers. The important thing is they must be happy, have fun. They gain knowledge from that.'

Lecturer – Malaysia

The views of student teachers

Question from the questionnaire: 2007 – year 2 (Semester 4) end of first placement

How did you use ARM on your placement?

Question from the questionnaire: 2009 – year 4 (Semester 7) end of final placement

How did you use ARM on your final placement?

One hundred and ten student teachers (92 per cent of the complete cohort) responded to the survey at the end of their first placement. All of the respondents answered this question. Some described their use of ARM in terms of the overall pedagogical approach and others described it in terms of each of the three components: Action – Reflection – Modelling.

Tables 15 to 18 provide some extracts from the responses. Extracts that refer to the components of ARM, are further categorised according to whether they apply to student teachers only, to student teachers and pupils, to pupils only or to other groups such as peers and mentors. Responses that describe the way the student teachers modelled are sub-divided according to whether the modelling was used

to explain, show or increase understanding or whether it was used to show attitude, good behaviour or good example. This second form of modelling is very culturally informed by Malaysian national values. These themes all emerged from the data.

The student teachers' responses to this question provide a 'window' into the impact of ARM, illustrating the way in which they used ARM in the classroom. Classroom based examples are given, which allow the student teachers, the pupils and the activities to be visualised. At this stage, the student teachers were working towards an understanding of ARM. Many of the student teachers referred to specific learning and teaching strategies and objectives and some relevant extracts from these responses are provided in Section 5.3.

Table 15 Student teacher questionnaires (first placement): extracts from responses to the question 'How did you use ARM on your placement?'

The ARM approach
<ul style="list-style-type: none"> • During my placement, I used ARM in proceeding my lesson plan. Start with Action, I did my teaching to pupils. I modelling first what pupils to do before run activities. Lastly, I did some reflections with them to make some enjoy and differents in my lesson. Actually, it was hard to model to the pupils because sometimes I forget about pupils level.
<ul style="list-style-type: none"> • I used ARM model as a main issue in every teaching and learning session that I conduct.
<ul style="list-style-type: none"> • During the teaching and learning process in order to achieve the goals.
<ul style="list-style-type: none"> • The concept of ARM is based on action, reflection and modelling. I had practiced some of the method during my placement. Based on action concept, I had used several approached to enable pupils grasped the understanding. I had emphasized teaching skills on explaining, questioning, assessing and pupils involvement towards achieving the learning objective of the lesson. I also did reflection and modelling that I thought it was important to make pupils know their achievement through the appropriate approached.
<ul style="list-style-type: none"> • During my placement, I will concern about ARM in order to create an effective learning and teaching in a class.
<ul style="list-style-type: none"> • During my placement, I have used ARM models in many times. I am teaching year 4 for mathematic and at this level the pupil are rough enough to control. Using ARM models help me a lot in conducting the class.
<ul style="list-style-type: none"> • During my placement, I will use ARM in every lesson that I conduct.
<ul style="list-style-type: none"> • By planning a good lesson plan, it provide/help me to use the strategies in teaching especially for lower learner. Action (while teaching), Reflection (comment), Modelling (show the examples).
<ul style="list-style-type: none"> • I use ARM in my placement as the teaching guide.
<ul style="list-style-type: none"> • During the placement, I used lot of materials to help me to demonstrate the concept that I want to teach on that day. Sometimes, I have to bring a concrete materials such as fruits, marbles and candy in order to make my pupils understand better. For Physical and Education subject, I demonstrated the activity first so that they can follow and do the activity smoothly. At the end of each lesson, I wrote a reflection on my Planning Book. Mostly, I wrote the reflection focus on the problems occurred and how to solve the problem.
<ul style="list-style-type: none"> • During my placement, I have practice the theory that I have learnt including the ARM. As what I learn, A is for action, R is reflection and M is modelling. I have use it a lot in my teaching.
<ul style="list-style-type: none"> • On my placement, I found that my pupils are quite slow to get and understand the knowledge well. So I have to use the ARM concept. In order to develop their understanding, I have used a lot of approaches to make the learning session become more effectively. For example, I have used rhyming, playing, role play and other move. I found that, using those activities it really help my pupils to give better understanding. For the reflection, at the end of the lesson I will ask them about what they have learnt for that day lesson. Lastly, for modelling I always apply it for each classes. I believe that using modelling my pupils are able to see and understand well.
<ul style="list-style-type: none"> • During my placement, ARM is important part in my teaching. First is action, means the steps that I have done during the teaching process. Then, reflection to enables me to know either my pupils can follow the lesson or not. Next is modelling. I used modelling to give better understanding on what they are learnt. Here pupils will experience something from my modelling.
<ul style="list-style-type: none"> • Based on my placement, I found that ARM is very essential in build and influence pupils' success. During my teaching, I always using this model especially when I was planning a lesson. I also emphasized this model in the class by encourage the pupils actively participate in the activities, recall back their previous and current knowledges and I as a teacher shows a good modelling to the pupils. In other words, demonstrate the concepts or skill in the lesson clearly.
<ul style="list-style-type: none"> • During my placement I did use ARM everyday.
<ul style="list-style-type: none"> • When teaching, the Action will be taken when explaining about the topic. Then, let the pupils reflect about what we teach them. After that, teacher will be a Model when doing the activity for pupils to be followed.
<ul style="list-style-type: none"> • On my placement, I had used ARM while teaching. For example, I had produce an activity that can involve all my pupils such as group work. From here they can move around. I also ask feedback from my pupils at last of my lesson. So that I can know my pupils understanding. For Modelling, I had show a good example to my pupils so that it will help them to understand.
<ul style="list-style-type: none"> • I make sure my lesson involve active learning. I used to make my students to involve actively through group works and hands-on activities. Doing daily and weekly reflection also helps me to identify my areas of development and improve on it. I also try my best to show good modelling to my students.
<ul style="list-style-type: none"> • Almost all of my teaching are based on ARM. ICT are the main sources to implement ARM.
<ul style="list-style-type: none"> • I used ARM in the lesson plan. Action – I planned and prepared well to teach. Reflection – I get the product learning outcomes from the pupils through exercises. Modelling – I will do my best infront of the class and try to monitor the class well.

	<ul style="list-style-type: none"> I used ARM in every my lesson plan and activities which are made my pupils enjoyed.
	<ul style="list-style-type: none"> Designed activities that involved pupils actively in the lesson. Drew questions to pupils in order to provoke them to think.
	<ul style="list-style-type: none"> I used ARM when teaching and when doing reflection. I prepared active learning activities for my students. I used it to evaluate my strengths & area for development.
	<ul style="list-style-type: none"> I be active in conducting the lessons. I encourage groupworks and pair activities to create active learning environment. I always do reflection on my teaching to find areas to be developed. I be a good role model to my students. I model the problems and questions to students.
	<ul style="list-style-type: none"> I tried to apply ARM in my teaching and learning activity during my practicum. I need to ensure that every pupils were involved in the activity. I gave the instruction very well so that they can do the activity and give some reflection on that. Before I let them to do the activity, I show them how to do it. They can understand and do the activity very well.
	<ul style="list-style-type: none"> On my placement, I get the pupils to move around in the classroom during the activities. I ask the pupils what they have learnt for the lesson. I give more instruction for the activities.
	<ul style="list-style-type: none"> I used ARM when teach math to my students. I will always let my students to involve actively in my activity. Then, I asked them to reflect on their learning whether they understand the lesson or not. I played a role as a model to my students before let them to do the activity. So that they can understand my instruction clearly.
	<ul style="list-style-type: none"> I use ARM in doing my reflection on active learning and modelling in my classroom. This is for me to find my strength and weaknesses.
	<ul style="list-style-type: none"> I try to create an environment which they feel relaxed and comfortable with. I bring a lot of joy in my teaching, whereby they are interest in learning something from my teaching. I treated the child friendly and appreciate their opinions. After each lesson, I will reflect on what I can do to improve my teaching in future.
	<ul style="list-style-type: none"> Active learning by students – give more games/activity; quizzes. Reflection on learning by students – ask questions at the end of the lesson. Modelling of good practice by teacher – give more explanation; demonstrate how to do the questions.
	<ul style="list-style-type: none"> I had applied active learning in my lesson. I divided the students into groups and gave them hand-on activities so that every student can participate and responsible for their own learning. Besides I did reflection at the end of every lesson by asking the students what they have learnt and what area they should improve. Before giving them any tasks to do, I'll explain and demonstrate the way to conduct the task.
	<ul style="list-style-type: none"> I try to be more active & make my students included in each class activity. I let them thinking & try to stimulate their interest to give active respond to the learning & teaching activity. I also show good & clear examples to the students by using the concrete materials & real life things. At the end of the lesson, I will make sure students know what they have learnt.
	<ul style="list-style-type: none"> 1) Reflection is done in my placement so that I can identified my strengths and areas for development. 2) In my lesson, I organised an active learning with lots of students involvement. 3) I used modelling in my lesson in order to increase my pupils' understanding on the subject matter.
	<ul style="list-style-type: none"> I tried to plan the lesson with interesting activities inserted to engage active learning in children. After their active learning, I guided them to recall on their previous knowledge and reflected on their strengths and weaknesses on their learning. I display materials & teaching resources that attract children attention in class to sustain their active learning.
	<ul style="list-style-type: none"> R – I will ask my pupils' opinion about my teaching. A – I will get ideas from them and plan an effective lesson plan to let the pupils to be active learning. M – I will display concrete objects and some examples to ensure my pupils understand my lesson.
	<ul style="list-style-type: none"> A – While I am doing my lesson plan, I tried to plan for interesting activities to make my pupils engage in learning. R – I made to my pupils to recall what they had learnt throughout the lesson and raise up their doubts. M – I display examples to make my pupils understand the topic better.
	<ul style="list-style-type: none"> I asked my pupils to be actively engaged in all class activities – especially group activities. Once they finish their work, I will always ask them to give feedback about that days' lesson as there would be two way interaction between teacher and students. Pupils are always required to present their product.
	<ul style="list-style-type: none"> My pupils involve in active learning during my lesson. After each lesson, I get feedback from my pupils. It help me to reflect my teaching and improve myself. I make my lesson more to student-centered.
	<ul style="list-style-type: none"> I have planned my lesson well. It made me to feel more confident while conducting my lesson. I have made sure that I have asked my pupils daily life experience that related to the lesson. ARM – I wanted my pupils to experience Active Learning as well. Then, I have asked them to reflect on their learning, at the end of each of my lesson. I have modelled a good practice for them during my each lesson.

Table 16 Student teacher questionnaires (first placement): extracts from responses to the question 'How did you use ARM on your placement?'

The ARM approach: Action
Action by student teachers
<ul style="list-style-type: none"> Action: the process of delivering the content by using a few approach or activity. For example, role play, explaining or questioning. Action: Take act on different/variety of teaching strategies to fulfil pupils' needs. Action – I use it during my teaching & learning activities, such as explaining, demonstrating, questioning to my pupils. A – (Action) – I manage my classroom activities according to their ability – grouping; class rules. Action. I teach my class according to the lesson plan that I did. From that, it helps me to teach smoothly. Active learning. Provide a Questioning and Answering session. Encourage pupils' participation in learning. A = Action. I did an Action during my placement while I was teaching my pupils. All the activities that I have done during the lesson was my action. Action: In Physical Education I use a lot of action. Active learning connection models - use pictures + concrete materials; simple language. I created a suitable learning environment for the pupils and communicate well with them.
Action by student teachers and pupils
<ul style="list-style-type: none"> Action – I use action to make the learning environment become active and well organized. I always do pupils centered activity where pupils do lots of activity by themselves and I always ask them to come in front. Action: I had apply this in my teaching especially during activity section. During the activity, I always help my pupils and guide them to finish their task and my activity was student centered. It mean that most of the things during the activity are doing by pupils. Action – I have used ARM to demonstrate the activity for my pupils. Encourage pupils involve actively in the activity. Create the creative resources, the creative learning environment. Contribute the good assessment that can my pupils enhance their learning. During the lesson, I always ask questions so that they will always give a full attention. In order to make it to be a active learning my class always in pupil's centred whereby during the teaching activity they will do the work among them and I am just like a facilitator that help them if they have a problem. Action: I use action normally while introducing new topic. Eg. how to read the scale of weighing scale therefore I do some actions on reading the scale then let pupils do later. Active learning – 1) Create an interesting set induction in every lesson to gain pupils attention and interest. 2) Create more activity that can be participate and involving many pupils, so that they'll work together. Action speaks louder than words. I always act and finish my job without sitting there and talk nonsense. I will make sure my pupils to learn actively and have good relationship with them. I've created an active learning environment by promoting groupwork or pair activities.
Action by pupils
<ul style="list-style-type: none"> Active learning – I try to design a session that include all pupils participant. Not just only hear what I'm say but pupils required to take an action. Every lesson plan that I did, I make a mini activity that related to the topic that I teach. (A) I have used active learning in teaching and learning activities such as group works or work. For example, I have conduct the group works in teaching 'Time'. I have asked them to discuss in group the different ways to write time such as 'nine fifteen, a quarter past nine'. A – Action. During groupwork activities or reinforcement activities. I would like all my pupils participate during learning. I gave opportunities to pupils to talk and clarify their ideas as a response to my teaching. (A) I applied active learning in my placement by organising the group work. I am sure when pupils work in group, they will learn better. It is because, they will try to do the task in their group, make discussion to get the final answer and here, I can see that they are actually in learning process. During I'm teaching Mathematics with the topic of 'time', to create the active learning in the classroom. I have done several interesting activities such divide pupils into groups and asked them to discuss to solve problems given. Thus, I distributes some resources that I've created to each group and let them used it by their own as they can touch and feel it. The resources are such as clock, flashcards and so on.

<ul style="list-style-type: none"> • A – Active learning by students. My pupils actively participate in all activities that I did in the classroom. I also make them work in group but I did not separate them based on their abilities. As the result, some of brilliant pupils conquer the activity and the weak pupils just stay quiet and did not fully involve in the session. However, when I asked them to answer questions or give opinion, my pupils were eager to answer and share their ideas.
<ul style="list-style-type: none"> • A – Action – Active learning – Distribute some challenging activities for children to solve.
<ul style="list-style-type: none"> • A = Active learning – create different activity that are interesting and involve all student to stimulate their interest in learning.
<ul style="list-style-type: none"> • I will prepare a joy learning environment for my pupils to involve actively.
<ul style="list-style-type: none"> • I applied discover and interactive method in my lesson. Therefore, children can be learnt much during that lesson. Of course, active learning indeed arouse children eagerness in learning.
<ul style="list-style-type: none"> • Active – I used group work activities to enhance learning, develop communication skills.

Table 17 Student teacher questionnaires (first placement): extracts from responses to the question 'How did you use ARM on your placement?'

The ARM approach: Reflection
Reflection by student teachers
<ul style="list-style-type: none"> • Reflection: Reflect on teaching and learning process for any improvement that should/could be taken in future teaching.
<ul style="list-style-type: none"> • Reflection: I always use the reflection at the end of my lesson. By doing this, I can identify what my pupils can learn by the end of my teaching. I also make a reflection on my teaching at the end of each lesson and week to reflect back my weaknesses in my teaching.
<ul style="list-style-type: none"> • Reflection: Write the reflection after teaching. Change the teaching skills if it not suitable for pupils. Improve the teaching skills.
<ul style="list-style-type: none"> • Reflection – reflection on learners' needs; reflect & improvement of the lesson; reflect the ability of students.
<ul style="list-style-type: none"> • Then, after the teaching session was done, I made my own reflection about the strengths and weaknesses of my previous lesson.
<ul style="list-style-type: none"> • After every end of the lesson, I will revise back whether they have got the knowledge that I've taught. For myself, I will do the reflections on my own teaching, whether it was success or fail to reach the target. From that, I can improve myself as the undergraduate teacher.
<ul style="list-style-type: none"> • I always do a reflection after each lesson and try to improve my weaknesses on the next lesson to make an effective teaching and learning activity.
<ul style="list-style-type: none"> • Reflection – I gave 'mini test' to evaluate student's performance gave questions.
Reflection by student teachers and pupils
<ul style="list-style-type: none"> • Reflection: teacher – to improve the teaching strategy so that the pupils' need is met; pupils – to identify the point to improve base on the feedback given by the teacher; to identify the weaknesses of the lesson, to help the teacher to improve his/her teaching.
<ul style="list-style-type: none"> • Reflection: I use it on the plenary session, where I asked the pupils about the topic we learnt. Other than that, I encourage them to give idea about the lesson, so that I can know their understanding during my lesson. I also wrote a journal every week to identify my weaknesses and strength of my teaching skills during my placement.
<ul style="list-style-type: none"> • On the reflection, is including both teacher and pupils reflection. On my every day lesson plan, I alway make a reflection for each of the lesson. My pupils also need to do reflection. I always make some activities at the end of the lesson so that, without realising the pupils were reflecting back what they have learnt on that day.
<ul style="list-style-type: none"> • Besides, after the class session, to know how the activities going smoothly, I have reflected and assess pupils by asking questions such as, 'What do you understand about this topic?', 'How many minutes in an hour?'
<ul style="list-style-type: none"> • Reflection – design the lesson plan; reflect after each lesson; Q&A session in the class; feedback from pupils; pupils' homework.
Reflection by pupils (including between pupils)
<ul style="list-style-type: none"> • Besides that, at the end of the lesson I will make a reflection by asking them randomly what they have learnt on that day. They will recall back in order to answer my question. Sometime, I will make a reflection during the induction set.
<ul style="list-style-type: none"> • Reflection – At the end of every lesson, I will enhance the pupils to reflect back on what they learn during the lesson.
<ul style="list-style-type: none"> • Reflection – Students draw conclusion for every subject learned.
<ul style="list-style-type: none"> • Reflection – Pupils give response to the question in verbal and non-verbal.

<ul style="list-style-type: none"> • (R) At the plenary part, I asked pupils to reflect again what they have learned and review the main point in the lesson. Moreover, the reflection occurred in the induction set to recall back what they have learned before this.
<ul style="list-style-type: none"> • Reflection – pupils do self-reflection after the lesson; feedback after the lesson.
<ul style="list-style-type: none"> • (R) About twenty minutes before the lesson ends, I distributed the worksheet to the pupils as I can see how much they have learned. Then, I asked the pupils to mark their works in pair or in group. Simultaneously, they will reflect on their mistakes, why do they got uncorrect answer and tried to understand their mistakes.
<ul style="list-style-type: none"> • R – Reflecting on learning by students. I always asked my pupils to recall what they have learned during the previous lesson of my subject. Sometimes, a few of them able to recall and say out anything that they could remember but most of them couldn't. So, I needed to give clues for them and eventually they able to recall it. I also made them recall what has been learned for the lesson on that day at the end of the session. I called any volunteer to make conclusion and give their opinion about the subject matter learned.
<ul style="list-style-type: none"> • Reflection: Give the worksheet to the pupils.
<ul style="list-style-type: none"> • R – I get feedback from the pupils by asking them which method of doing division is easier for them.
<ul style="list-style-type: none"> • I always get some feedback from children no matter in the verbal, non-verbal and expression manner. Reflection developed my lesson becoming better and interesting such as learning through playing and visiting.
<p>Reflection by student teachers, pupils, peers and mentors</p>
<ul style="list-style-type: none"> • Reflection – I write my journal for every weeks and also do my daily reflection on every lesson. I also get advises and opinion from my mentor and from my lecturer.
<ul style="list-style-type: none"> • R = Reflection. I did a reflection after finished each lessons during my placement. I have reflected back what I have done during the lessons and wrote in the lesson plan book. I also did the reflection by asking my partner to look my teaching and then, after the class, he will tell me my weaknesses and strengths.
<ul style="list-style-type: none"> • I asked feedback from pupils and also from teacher and lecturers who observed me so that I knew my weaknesses and strengths of the teaching.

Table 18 Student teacher questionnaires (first placement): extracts from responses to the question 'How did you use ARM on your placement?'

<p>The ARM approach: Modelling</p>
<p>Modelling by student teachers (to explain, show, increase understanding)</p>
<ul style="list-style-type: none"> • I modelling first what pupils to do before run activities...Actually, it was hard to model to the pupils because sometimes I forget about pupils level.
<ul style="list-style-type: none"> • Modelling: teacher gives a clear picture about the content, so that the pupils will be able to assess the content and have a better understanding on it.
<ul style="list-style-type: none"> • Model them teaching point using modelling to increase understanding.
<ul style="list-style-type: none"> • Modelling – I use modelling to explain something to my pupils. I show ways to do something to them. As for example, in topic of length I show them how to use rule.
<ul style="list-style-type: none"> • I had used ARM when I was teaching and after I had taught my pupils in classroom. I had used Action and Modelling to give explanations and demonstrations about how my pupils going to solve the questions.
<ul style="list-style-type: none"> • Action and modelling are related to each other. So when teaching process happen, I had modelling first and then I had asked my pupils to do it as action. For example when I teach my pupils about addition, first I need to explain and modelling what exactly is addition. I give a lot of example to them to show that is addition. Then after they look like understand or see it I ask them to answer the question on the worksheet or whiteboard based on the way that I had showed to them.
<ul style="list-style-type: none"> • Modelling will take part during the teaching activity. I will model to them first before they do by their own. So, then can imitate what I have done in order to avoid them making a mistake.
<ul style="list-style-type: none"> • While I am teaching, I always demonstrate a good action in front of the class. I always tell them in words first, and then followed by the picture and an example.
<ul style="list-style-type: none"> • First of all, I will use action when teaching in progress as well as the modelling in order to stimulate more interest and understanding to my pupils.
<ul style="list-style-type: none"> • Model – I try to modelling when I'm explain something to the pupils so that they can see & understand clearly.

<ul style="list-style-type: none"> • Every time I explain, I will model to my pupils so that they get picturise in their mind. Eg: when teaching 3-D shapes I let them explore the characteristic of 3-D model.
<ul style="list-style-type: none"> • Modelling – Demonstrating any task to give the students example and generate their ideas.
<ul style="list-style-type: none"> • (M) As a teacher, I have model the subject matter by give clear explanation with appropriate resources. For example, I have give a short explanation about what they are going to do in the classroom by paste the exemplar on the whiteboard.
<ul style="list-style-type: none"> • M – (Modelling) – I showed something (resources) – word cards; picture cards; ICT; concrete materials.
<ul style="list-style-type: none"> • Modelling: Normally during group activity. Eg build 3-D shape. Therefore before let them doing in groups, I did it first the 3-D shape to show to them.
<ul style="list-style-type: none"> • M – Modelling: I have modelled to pupils in doing activities to let the pupils have a clearence. For example, during PE lesson, I have monitor and model the pupils in doing a skills. I used teaching aids to help me modelling pupils in learning eg model, picture card, ICT resource, etc.
<ul style="list-style-type: none"> • M – modelling = I show the example to pupils. For example, I teach how to read time. I show how to read to pupils and pupils try it on their own.
<ul style="list-style-type: none"> • Modelling. When I am teaching, I usually model to my pupils how to do things, so that they can get the understanding. Example: I teach the topic of money. I show the real notes to my pupils and at the same time tell them how to pronounce the amount of money correctly.
<ul style="list-style-type: none"> • During the placement, I used lot of materials to help me to demonstrate the concept that I want to teach on that day. Sometimes, I have to bring a concrete materials such as fruits, marbles and candy in order to make my pupils understand better.
<ul style="list-style-type: none"> • Modelling is the important part in my teaching. Each of the new thing I taught them, I need to modelling it first. For the example, in Physical Education, in topic coordination I taught them how to bring a small ball on a spoon, so I need to model it first.
<ul style="list-style-type: none"> • Using modelling, I modelled to the pupils about how to move the time correctly and they will follow the methods.
<ul style="list-style-type: none"> • Modelling: I show some modelling in front the pupils so that they can understand what I try to say.
<ul style="list-style-type: none"> • I try to be the best model among my pupils & try my best on demonstrating.
<ul style="list-style-type: none"> • I used modelling to teach my pupils in the classroom by using teaching aids (ICT and concrete materials).
<ul style="list-style-type: none"> • M – I explained the topic on the blackboard. I list down the solution step to step.
<p>Modelling by student teachers (to show attitude, good behaviour, good example)</p>
<ul style="list-style-type: none"> • Modelling: teacher as a good model to show the best attitude to be followed by the pupils.
<ul style="list-style-type: none"> • Modelling: Model to pupils good personality as a teacher.
<ul style="list-style-type: none"> • Modelling: I show a good example to my class, always keep in my mind to use appropriate language and avoid to use vulgar language.
<ul style="list-style-type: none"> • Modelling: I show to my pupils a good personally in every second during I was in class and school. It is because pupils will imitate what teacher do and we must show them a good example.
<ul style="list-style-type: none"> • Modelling – show good attitudes for pupils.
<ul style="list-style-type: none"> • Modelling – show the good behaviour for the pupils.
<ul style="list-style-type: none"> • I tried my best to be a good model for children’s learning.
<ul style="list-style-type: none"> • I try to be the best model among my pupils & try my best on demonstrating.
<ul style="list-style-type: none"> • For the modelling part, I try to show good manner or attitude for every aspects.
<ul style="list-style-type: none"> • I talked in a polite way to my children in order to serve a role model to children emulate.
<p>Modelling by student teachers and pupils</p>
<ul style="list-style-type: none"> • While modelling is appropriate when my pupils get stuck and need helps. One way to get them understand is by modelling, not only teacher’s model but pupils also can modelling on what they’ve learn.

The following complete responses from student teachers at the end of their first placement demonstrate the richness of the data.

'I have applied ARM concept as much as I can in all subjects I've taught. When planning a lesson, I had consider ARM to appropriate activities. For each lesson I tried to involve an actions, reflections and modelling (ARM). For instance, I've asked to act as I acted like claps, steps, laugh, cry, angry and so on for English subject. Meanwhile for Maths lesson, I've done an action activities for measuring length, mass and volume. It is more actions involve during teaching PHE when my pupils have to catch and pass the ball, do running, galloping, skipping and many more. For reflection, it is must before I've end the session by pupils' presentation. My pupils reflected on what they've learnt during that session in order for me to make them get clear success criteria. While modelling is appropriate when my pupils get stuck and need helps. One way to get them understand is by modelling, not only teacher's model but pupils also can modelling on what they've learn.'

Student teacher – Malaysia

'I had used ARM that are action, reflection and modelling when I was and after teaching process. While I was teaching I had took all the action that I had planned to give my pupils' knowledge. Action and modelling are related to each other. So when teaching process happen, I had modelling first and then I had asked my pupils to do it as action. For example when I teach my pupils about addition, first I need to explain and modelling what exactly is addition. I give a lot of example to them to show that is addition. Then after they look like understand or see it I ask them to answer the question on the worksheet or whiteboard based on the way that I had showed to them. After teaching process done, I had make reflection on my teaching and pupils. What is weaknesses and strengths that I have and learning outcomes that have achieved.'

Student teacher – Malaysia

'I use ARM on my placement:

'(a) Planning lesson. I have made lesson plan before start my lesson in order to make my lesson successfully. I have stated the learning objectives, the content of the lesson, the technique that I want to use, and the material. From that, I can make my pupil interested and they are active in learning.

'(b) Activities. I have created some activities in groups, pair or individually. From that, my pupils can learn by their own and their peers. In addition, I made interesting activities in order to avoid them bored and encourage them to learn.

'(c) Improvement. After I have taught my pupils, I identified the strength, and the weaknesses. I also list down the improvement that I can use for next time. For example, I change the techniques or activities if it not suitable for that topic.

'(d) Teaching skills. I have used varieties of teaching skills such as questioning, explaining, demonstrating, role play, story telling and listening. Those skills helps my pupils understand clearly the topic that I have taught to them.'

Student teacher – Malaysia

'I used the three elements of ARM namely action, reflection, modelling in daily teaching. For example, I acted as a listener who paid attention to the pupils' explanations, sometimes as a guide who helped them to identify and solve their problems. After each lesson, I reflected on my strengths and areas of development. Also, I tried to find improvement and made efforts to realise it in my following lessons. Regarding modelling, I used different types of teaching aids based on the learning objectives which I have set. I would show and asked open questions whenever I used a particular teaching aid. Wait time was given so that the pupils were able to think and learn through the teaching aids provided.'

Student teacher – Malaysia

'I try to create an environment which they feel relaxed and comfortable with. I bring a lot of joy in my teaching, whereby they are interest in learning something from my teaching. I treated the child friendly and appreciate their opinions. After each lesson, I will reflect on what I can do to improve my teaching in future.'

Student teacher – Malaysia

'What I read and learnt from the module, I try to apply it in placement, like using multiple intelligence in teaching. If it doesn't work out, I will reflect on it. And I will try to use another alternative. I try to be a good model among students.'

Student teacher – Malaysia

'I have applied ARM on my placement. To promote active learning. I have carried out many activities as I know children learn better through playing. As they play, they are enjoy within the learning environment. Yet, I have tried out a game but have been criticise...during my practicum. [S/he] said that my lesson is like a gameshow. It might be true but I still believe that that is a starting point of promoting active learning. However, ARM have teach me to adapt with the situation.'

Student teacher – Malaysia

Student teachers were asked the question 'How did you use ARM on your final placement?' during the second survey at the end of their final placement. Once again, some respondents described their use of ARM in terms of the overall pedagogical approach and others described the way they used ARM in terms of each of the three components. Some examples of their responses are provided below. In their responses to the questions in the second survey, many of the student teachers noted the increase in pupil understanding, which they associated with using the ARM approach. They referred to pupils applying knowledge, solving problems and explaining/supporting peers.

'I engaged my students in learning frequently by giving more chances to students to answer and voice out opinion, creating own questions and work in pair and group. I did reflection everytime I finished a lesson and thought deeply on how to improve my teaching. I also discussed with my partner on how to overcome problem occurred. I also modelled to replace any explanation to help my students get better understanding.'

Student teacher – Malaysia

'I made use of ARM at most of the time during the lesson. Eg

'A – I always implement active learning approaches during the teaching so that I can see more actions from pupils.

'R – At the end of the lesson, I always ask students to review what they have learnt, what are their feelings. I also made reflections at the end of the lesson.

'M – Always modelling to pupils especially during the Physical and Health Edu. subject.'

Student teacher – Malaysia

'Action: Before, during and after the lesson.

'Reflection: After each lesson, I reflect upon myself to find the weaknesses, strengths and solution.

'Modelling: During the lesson (using oral, visual, kinaesthetics).'

Student teacher – Malaysia

'A – I used several resources including ICT to make my class active/promote active learning.

'R – reflect own teaching and let the students to reflect on their own for learning.

'M – being a good model to my pupils.'

Student teacher – Malaysia

'Action: I used various strategies which I have learnt from this course and also tried out some new strategies/activities both in the classroom and in the field. For example, incorporated dance in the PE lesson, conducted "Formation of Fractions" with the pupils.

'Reflection: I did reflection in the end of every lesson. This had greatly helped me to understand my strengths and areas for development. In addition, I had discussion with my mentor and lecturer in order to get deeper insights on my teaching.

'Modelling: I demonstrated some skills such as collaborating with each other in my teaching. For instance, I assigned some pupils as the "ambassadors" to help their peers in other groups with my monitoring.'

Student teacher – Malaysia

'I had used active learning in my placement by include game, group work and so on. In closure, I asked my pupils to do reflection on what they have learn in the lesson. Before giving task, I had demonstrated what they need to do.'

Student teacher – Malaysia

'I try to involves all the students in the teaching & learning activity. I model to the students on how to do the works/tasks given. I asked my students to reflect what they have learn.'

Student teacher – Malaysia

*'A – active involvement by the students.
'R – I did reflection at the end of the lesson and identify the strengths/weaknesses.*

'M – I modelled the skills such as let the students to see the clear image of the lesson.'

Student teacher – Malaysia

'Active learning – I did a lot of group activities and hands-on activities to engage the students in the learning.

'Reflection – Reflection helps me to identify my areas for development and take actions.

'Modelling – I had model good learning style where I demonstrate each time I conduct my lesson.'

Student teacher – Malaysia

'I used all the ARM important elements in this final placement of mine. I have improved a lot from my previous placement and things have got more challenging. I was happy that I often reflected, modelled and did active learning for my pupils.'

Student teacher – Malaysia

'Encourage active learning. Students always being given their own space in learning to construct their own knowledge. Teacher work as the facilitator.'

Student teacher – Malaysia

'A – I used a lot of group activities as it promoted pupils' talk. I also assigned some "little teachers". They helped me a lot in handling the weak pupils. I also can evaluate their understanding through their explanation.

'R – After each lesson, I did reflection on my area of development in teaching and children's learning. When the pupils seem not understand the day's lesson, another same L.O lesson will be carried out but in different way.

'M – Each and every "new" knowledge need to be modelled to the pupils. This always came with "examples". Besides content knowledge, I did also model good behaviour.'

Student teacher – Malaysia

'A target of my teaching goals is that my pupils should at least achieve the minimal level of the learning objectives planned in my lesson. After every lesson, I would do reflection based on the lesson carried out and state-out the weaknesses of myself so that I can make improvement on it in planning the next lesson. I prefer pupils-centred of learning rather than just I am talking in front and the pupils follow the instruction given.'

Student teacher – Malaysia

'I used ARM during the lesson. I made the pupils to create their own song for a topic called percentage. The pupils were very happy as they worked in groups to create the song. Then the pupils would have to reflect on the effectiveness of the song and how much do they understand about the topic. Finally I had guide the pupils to sing the song in the whole classroom.'

Student teacher – Malaysia

Question from the questionnaire: 2007 – year 2 (Semester 4) end of first placement

Question from the questionnaire: 2009 – year 4 (Semester 7) end of final placement

What have you learned from using ARM that will influence your practice as a teacher?

All 110 student teachers who responded to the survey at the end of their first placement answered this question about what they had learned from using ARM that would influence their practice as a teacher. Tables 19 to 22 include some extracts from the full set of responses. These extracts have been categorised using the following main themes: learning and teaching; assessment and feedback; planning; and professional attributes. In some cases extracts could have been listed under more than one heading. Some extracts are repeated under different sub-themes. In many of the extracts, the student teachers noted learning about their practice of teaching and then focused on the pupils. For example, they

referred to active learning and modelling by pupils, pupils' confidence, feedback, needs, thinking and understanding and using pupil-centred approaches.

Many of the student teachers described what they had learned from the components of ARM and some used terms such as concept, guide, model or theory to describe ARM. One respondent suggested: *'From my experience, I think the practice of ARM concept can stimulate the interest, generate the ideas for both parties, pupils and teacher...'* Examples of these terms and the ways in which the student teachers used them are shown in Table 23 at the end of this section of the report.

Table 19 Student teacher questionnaires (first placement): extracts from responses to the question 'What have you learned from using ARM that will influence your practice as a teacher?'

Theme 1: Learning and teaching
1a Learning and teaching environment
<ul style="list-style-type: none"> • Create productive learning environment as I can make improve according to pupils' needs. • I also learned that ARM gives lots of benefits to the teacher and pupils that can create a good learning environment. • Be an effective teacher; creative in teaching by create activity, environment. • As a teacher, we should provide the learning environment in order to make pupils involve in learning session.
1b Learning and teaching strategies
<ul style="list-style-type: none"> • What I have learned is as a teacher, I have to teach my pupils in many ways and different strategy. • So by doing Actions, I can use my own ideas and resources to teach my pupils and using the Modelling, I can guide my pupils by using verbal or demonstration so that they can get the idea of how to solve their problems. • The main part is, using ARM models will give me an opportunity to model a good practise for my pupils. • From my experience, I think the practice of ARM concept can stimulate the interest, generate the ideas for both parties, pupils and teacher. I strongly recommended the usage of ARM concept for all teachers around the world. • Assist in my teaching and it's more easy to make my pupils understand what I'm going to explain to them. • I have to do more research especially how to prepare the lesson because it will help me to encourage my teaching strategies. • Teacher need to develop the skill of encouraging learning by questioning, explaining and etc.

<ul style="list-style-type: none"> • I realised that using ARM on the lesson will help a lot in improving my teaching styles. I also can see that pupils will learn better when using modelling and showing actions.
<ul style="list-style-type: none"> • I have learned many things by using ARM. I learned about creativity to design the resource, to plan the teaching strategies so that my pupils get the success criteria.
<ul style="list-style-type: none"> • When I model to them the strategies. I need to ensure that all of them could follow me.
<ul style="list-style-type: none"> • It can help me to improve my teaching in order to give clear explanation to the pupils.
<ul style="list-style-type: none"> • Active learning by students, modelling by students & the reflection actually helps to achieve the L.O. in the lesson.
<ul style="list-style-type: none"> • ARM helps me lots because through ARM, my pupils can understand very well especially when I modelling.
<ul style="list-style-type: none"> • It will be a good tool to help me as a future teacher.
<ul style="list-style-type: none"> • I think I will be more careful when choosing better and effective teaching approach after reflection on my own teaching and pupils' learning.
<ul style="list-style-type: none"> • Find out various strategies to teach the students; the ways to approach the students.
<ul style="list-style-type: none"> • I have learned that teacher's actions can vary instead of teaching and marking pupils' works in conducting a lesson. Moreover, adjustment can be made when a particular action did not work for engaging pupils in the lesson.
<ul style="list-style-type: none"> • I will model good practice for them.
<ul style="list-style-type: none"> • I like ARM. Simple and effective. I teach, I identify what learner's know, I reflect, set the future actions and try it in my next lesson, show good demonstration and modelling them.
<ul style="list-style-type: none"> • I learnt that I should always use modelling during my teaching.
<ul style="list-style-type: none"> • I know many technique that I can use in teaching.
<ul style="list-style-type: none"> • I can know many technique of teaching.
<ul style="list-style-type: none"> • Reflection can help me to identify my strength and weakness. If the teaching strategy which I have been used not suitable, I can change another strategy for the next lesson.
<ul style="list-style-type: none"> • I learned that management of time was very important and I also need to be prepared every time.
<ul style="list-style-type: none"> • Modelling can help pupils learn better.
<ul style="list-style-type: none"> • By using ARM I know that my teaching and learning process will be more interesting and meaning full to me.
<ul style="list-style-type: none"> • I realise that active learning will be practised well when reflection and enhancing modelling are done by the teacher.
<ul style="list-style-type: none"> • It can improve my teaching strategies and consider their needs.
<ul style="list-style-type: none"> • They will learn well which good and suitable teaching strategies applied.
<p>1c Learning and teaching objectives</p>
<ul style="list-style-type: none"> • Through using ARM, it had influenced my teaching practice to be more objective towards achieving the learning intentions.
<ul style="list-style-type: none"> • I had influenced my teaching practice to be more objective towards achieving my teaching on pupils.
<ul style="list-style-type: none"> • Assist in my teaching and it's more easy to make my pupils understand what I'm going to explain to them.
<ul style="list-style-type: none"> • As a teacher, we should take note about our pupils. It is important to make sure that our pupils achieved on what we have set for them.
<ul style="list-style-type: none"> • After using ARM in my teaching, I learnt that to give understanding to my pupils is not easier.
<ul style="list-style-type: none"> • ARM is very effective approaches that can be applied in order to develop creative thinking among pupils, promote active learning and enhance their knowledge and skills.
<ul style="list-style-type: none"> • ARM is very useful in teaching especially to make pupils better understanding.
<ul style="list-style-type: none"> • Active learning by students, modelling by students & the reflection actually helps to achieve the L.O. in the lesson.
<ul style="list-style-type: none"> • ARM helps me lots because through ARM, my pupils can understand very well especially when I modelling.
<ul style="list-style-type: none"> • I will ensure that my pupils can understand and help me to achieve the learning objectives.
<ul style="list-style-type: none"> • Once I reflect, I am able to see my strengths and weaknesses clearly. I learned to judge myself honestly so that I am able to improve myself and my teaching in order to approach my pupils' needs and achieve my target and also teaching objectives.
<p>1d Active learning</p>
<ul style="list-style-type: none"> • ARM is the effective approach to create active, lively learning to sharpen pupils thinking and develop social skills.
<ul style="list-style-type: none"> • Besides that, as a teacher I need to be more flexible and encourage the active learning in the class. I will provide better activities and materials in order my pupils will get well knowledges and increase their ability in the lesson.
<ul style="list-style-type: none"> • As I applied ARM into my teaching practise, I have learnt that is effective to teachers and pupils. As the effort to create active learning, I need to consider on the pupils' ability to follow it especially the activities done.

<ul style="list-style-type: none"> Helps my teaching. It helps my teaching successfully. I have to create active learning, reflect for my teaching and modelling.
<ul style="list-style-type: none"> ARM is very effective approaches that can be applied in order to develop creative thinking among pupils, promote active learning and enhance their knowledge and skills.
<ul style="list-style-type: none"> Active learning by students, modelling by students & the reflection actually helps to achieve the L.O. in the lesson.
<ul style="list-style-type: none"> Besides, I will try to create an active learning atmosphere which different from the traditional ones.
<ul style="list-style-type: none"> I will always wants to make sure that my students experience active learning...
<ul style="list-style-type: none"> ARM will help me to develop into a good teacher. This will make my lesson more interactive to the students to attract their attention and will develop them into a good nation citizen.
<ul style="list-style-type: none"> The active learning is very useful to pupils as it suits to Learning Styles and Multiple Intelligences.
<ul style="list-style-type: none"> I realise that active learning will be practised well when reflection and enhancing modelling are done by the teacher.
1e Creative teaching
<ul style="list-style-type: none"> Be an effective teacher; creative in teaching by create activity, environment.
<ul style="list-style-type: none"> Besides, it is actually helps me in learning to think creatively in order to bring up new approaches.
<ul style="list-style-type: none"> To be a creative teacher.
<ul style="list-style-type: none"> It develop the creativity to design various teaching and learning activities to cater with pupils' need.
<ul style="list-style-type: none"> Creative. I have to be creative to think the activities that I want to use in my class.
1f Classroom management
<ul style="list-style-type: none"> I learned a lot by using this ARM. It gives me a lot of experience in how to manage the lesson in the class.
<ul style="list-style-type: none"> I learned that management in every part are important.
<ul style="list-style-type: none"> I learned to be well-organised, best teacher in my future.
<ul style="list-style-type: none"> Class management became very effective when I used ARM for my placement.
1g Behaviour management
<ul style="list-style-type: none"> Know how to tackle pupils' behaviour.
<ul style="list-style-type: none"> There are many factors and theories we need to consider and refer to when we are dealing with the children. We have to know why they behave so in the class.
1h Teaching aids and ICT
<ul style="list-style-type: none"> Besides, resources should be used to help me in explaining and help children to get better understanding.
<ul style="list-style-type: none"> I will provide better activities and materials in order my pupils will get well knowledges and increase their ability in the lesson.
<ul style="list-style-type: none"> I have learned many things by using ARM. I learned about creativity to design the resource, to plan the teaching strategies so that my pupils get the success criteria.
<ul style="list-style-type: none"> I can use variety of teaching aids or resource that can help my pupils' learning according to their needs.
1j Learning theory
<ul style="list-style-type: none"> By using ARM models, I think that as the teacher we need to use every approaches to guide our pupils in their learning as we know that every children had their own multiple intelligences.
<ul style="list-style-type: none"> ARM outlined the guideline which can be the simple checklist of my teaching. I can reflect my teaching whether I have fulfilled these three criteria.
<ul style="list-style-type: none"> I will use ARM as a guide for my future teaching.
<ul style="list-style-type: none"> When I had applied the ARM theory in classroom, it will influence my style of teaching, increase teaching skills, and I can improve my teaching in next few years. INSYALLAH...
<ul style="list-style-type: none"> For me, by using ARM, teacher's can make it as the guidance when planning the lesson.
<ul style="list-style-type: none"> ARM is a complete progress in T&L process because it benefits teacher & students.
<ul style="list-style-type: none"> Using ARM as the guideline is good to me as I can develop myself to be a quality teacher.
<ul style="list-style-type: none"> A simple guideline for me to follow, to conduct the lesson.
<ul style="list-style-type: none"> The active learning is very useful to pupils as it suits to Learning Styles and Multiple Intelligences.
<ul style="list-style-type: none"> It acts as a tool to motivate me to think & plan effective teaching & learning approaches.
<ul style="list-style-type: none"> There are many factors and theories we need to consider and refer to when we are dealing with the children. We have to know why they behave so in the class. I become more observant towards their learning needs and pay more attention at their weakness.
<ul style="list-style-type: none"> To be an excellent teacher, ARM is not only a guidance. A teacher should improve and upgrade himself with others elements. I hope that ARM is not just a theory but a actual way to become a good teacher.

1k Pupil learning
<ul style="list-style-type: none"> From using ARM, I have learn how to prepare a good teaching and help children to get better understanding. Besides, resources should be used to help me in explaining and help children to get better understanding. I also can see that pupils will learn better when using modelling and showing actions. I can use variety of teaching aids or resource that can help my pupils' learning according to their needs. In my opinion, I learned how to carry out an interesting and effective teaching/lesson which is help my pupils learning. I think I will be more careful when choosing better and effective teaching approach after reflection on my own teaching and pupils' learning. ARM will help me to be a good teacher. This is because I can use ARM to improve my teaching from reflection on learning by my pupils. Applying ARM in the classroom will make my teaching more effective and makes the learning more meaningful.
1l Fun learning
<ul style="list-style-type: none"> Besides, I also can promote pupils-centered while teaching so that they can enjoy the learning and activity session. It was a good experience for me. I have known how to make an effective and interesting lesson so that the pupils enjoy and like the lesson.
1m Pupil attributes
<ul style="list-style-type: none"> ARM is the effective approach to create active, lively learning to sharpen pupils thinking and develop social skills. ARM will help me to develop into a good teacher. This will make my lesson more interactive to the students to attract their attention and will develop them into a good nation citizen. I have built my pupils' confidence to talk/speak up in front of the class.

Table 20 Student teacher questionnaires (first placement): extracts from responses to the question 'What have you learned from using ARM that will influence your practice as a teacher?'

Theme 2: Assessment and feedback
2a Assessment
<ul style="list-style-type: none"> We can use a Reflection as a tool to assess pupils' strength and weakness and we will use it to identify the level of pupils. The most valuable things that I've learned is reflection. Each time when the teaching & learning session finish, I will ask the pupils to provide feedback and then explain to them again if they not understand. As I reflect them, the questions must be simple and clear. I like ARM. Simple and effective. I teach, I identify what learner's know, I reflect, set the future actions and try it in my next lesson, show good demonstration and modelling them.
2b Feedback (from teacher and pupils)
<ul style="list-style-type: none"> I'll got respond/feedback from pupils. From that, I'll know their behaviour. I will got feedback from pupils. Listen to their ideas. The most valuable things that I've learned is reflection. Each time when the teaching & learning session finish, I will ask the pupils to provide feedback and then explain to them again if they not understand. I also can get feedback from my pupils and from here I can improve myself.
2c Reflection in practice (no extracts)
2d Reflection by pupils (including for improvement)
<ul style="list-style-type: none"> Active learning by students, modelling by students & the reflection actually helps to achieve the L.O. in the lesson. I will always wants to make sure that my students experience active learning, to reflect on their learning and I will model good practice for them. I know that pupils' reflections are vital as I can understand the obstacles that they faced. From there, I can modify my lesson which totally suit their 'styles'.

Table 21 Student teacher questionnaires (first placement): extracts from responses to the question 'What have you learned from using ARM that will influence your practice as a teacher?'

Theme 3: Planning
3a Lesson planning
<ul style="list-style-type: none"> I have to change the plan in teaching if the step in my lesson plan blocked. Help teacher in preparing the good lesson plan. I have to do more research especially how to prepare the lesson because it will help me to encourage my teaching strategies. For me, by using ARM, teacher's can make it as the guidance when planning the lesson. I have to view my overall lesson plan that enables me to do action, do reflection, and model. I have learned the useful ways of ARM because ARM helps me to plan well in my lessons. After every lesson, I can make some changes on my lesson plan to improve my teaching. I've learned by using ARM, I can be an organised teacher in planning my lesson very well. I will be well-managed in planning my lesson.
3b Activities
<ul style="list-style-type: none"> It also teach me how to create an activity that can give a lot of benefits both to pupils and also teacher. It develop the creativity to design various teaching and learning activities to cater with pupils' need. Besides that, as a teacher I need to be more flexible and encourage the active learning in the class. I will provide better activities and materials in order my pupils will get well knowledges and increase their ability in the lesson. As I applied ARM into my teaching practise, I have learnt that is effective to teachers and pupils. As the effort to create active learning, I need to consider on the pupils' ability to follow it especially the activities done. Creative. I have to be creative to think the activities that I want to use in my class. I try to think and organise the interesting activity. I also need to consider the pupils' ability. So that I can carry my activity successful. Activity can attract the pupils attention. Then, they wouldn't feel bore or sleepy during my teaching.
3c Curriculum (no extracts)

Table 22 Student teacher questionnaires (first placement): extracts from responses to the question 'What have you learned from using ARM that will influence your practice as a teacher?'

Theme 4: Professional attributes
4a Pupil focused/pupil centred (building relationships)
<ul style="list-style-type: none"> How ARM influence my teaching in future...Be able to adapt myself to meet with pupils' need. As for example, to modify my teaching to meet with pupils' need. Create productive learning environment as I can make improve according to pupils' needs. From using ARM, I was realized that I was important to us as a teacher to know better about my pupils. We can make my teaching become more effective and I can know the needed and the weaknesses of my pupils by doing a reflection. Be an effective teacher...understand the pupils' need; closed relationship with pupils. Close relationship between pupils and teacher. ARM will provide me time to communicate and to recognise the pupils well. Prepared many ways of teaching to attract the pupils because each ability of pupils are different. I can provide a pupils-centered situation. It develop the creativity to design various teaching and learning activities to cater with pupils' need. I will not only spoon-fed but also can provide a pupils-centred situation. As a teacher, we should provide the learning environment in order to make pupils involve in learning session. We can use a Reflection as a tool to assess pupils' strength and weakness and we will use it to identify the level of pupils. As I applied ARM into my teaching practise, I have learnt that is effective to teachers and pupils. As the effort to create active learning, I need to consider on the pupils' ability to follow it especially the activities done...When I model to them the strategies. I need to ensure that all of them could follow me. I can use variety of teaching aids or resource that can help my pupils' learning according to their needs. Besides, I also can promote pupils-centered while teaching so that they can enjoy the learning and activity session. I must know the way to attract my students to learn. I found that ARM promotes close interaction between teacher and children in the class. It influences me to further my teaching by encouraging reflection on children's learning.

<ul style="list-style-type: none"> • ARM enables me to pay more attention on pupils' different learning needs and their learning abilities.
<ul style="list-style-type: none"> • I know that pupils' reflections are vital as I can understand the obstacles that they faced. From there, I can modify my lesson which totally suit their 'styles'.
<ul style="list-style-type: none"> • I try to think and organise the interesting activity. I also need to consider the pupils' ability. So that I can carry my activity successful. Activity can attract the pupils attention. Then, they wouldn't feel bore or sleepy during my teaching.
<ul style="list-style-type: none"> • Once I reflect, I am able to see my strengths and weaknesses clearly. I learned to judge myself honestly so that I am able to improve myself and my teaching in order to approach my pupils' needs and achieve my target and also teaching objectives.
<ul style="list-style-type: none"> • ARM influence me to eager becoming an effective teacher. I observed that how much I sacrifice to children, and how much rewards will get. Yet I do not mind the rewards, I mind about their learning ways and feeling.
<ul style="list-style-type: none"> • It can improve my teaching strategies and consider their needs.
4b Confidence
<ul style="list-style-type: none"> • It increases my self-confident to speak, and present my lesson smoothly.
<ul style="list-style-type: none"> • I can improve my self-motivate in teaching pupils. Before I did not have confident but now I can improve my self a little bit.
<ul style="list-style-type: none"> • Lastly, I have confident in front of class and while modelling through what have I learned from using ARM.
<ul style="list-style-type: none"> • As a becoming teacher, I myself should instill ARM in myself before I use it to my students. I have to be used with ARM. Through ARM, I found that I have improve myself. I feel more confident to give respond & involved in class activity. It made me more active learners now, because I know what we do know, we will get it soon, from my future students.
4c Commitment
<ul style="list-style-type: none"> • How ARM influence my teaching in future...Enable me to become a systematic person/teacher where everything is set out before the teaching & learning activity take place.
<ul style="list-style-type: none"> • During my placement, I realized that my pupils are quite slow. So, as a teacher I need to give more effort and strengthen my knowledges to improve the learning.
<ul style="list-style-type: none"> • I will be more systematic and know what am I going to do for the next steps in my teaching.
<ul style="list-style-type: none"> • I learned that management of time was very important and I also need to be prepared every time. I learnt a lot of things and I realized I love them so much!
4d Reflection on practice (including for improvement)
<ul style="list-style-type: none"> • I should do reflection on my own to enhance and improve my teaching.
<ul style="list-style-type: none"> • I had learned that teacher have to be aware of many aspects whether before, in the middle or after the class end.
<ul style="list-style-type: none"> • From using ARM, I was realized that I was important to us as a teacher to know better about my pupils. We can make my teaching become more effective and I can know the needed and the weaknesses of my pupils by doing a reflection.
<ul style="list-style-type: none"> • Lastly, by doing reflection, the teacher can overcome their weaknesses and improves their strengths by identifying the critical events that happened in their previous lessons.
<ul style="list-style-type: none"> • I've got to learn from past experience to improve my weaknesses. In doing this, I must analyze all my lesson to make sure that I will improve my teaching style.
<ul style="list-style-type: none"> • From ARM, I noticed that reflection is very important to help me improve my teaching skills.
<ul style="list-style-type: none"> • I also learned the way of reflecting my own strengths and areas of development.
<ul style="list-style-type: none"> • I will be able to reflect on my strengths and areas to be developed. So, I can improve myself for future.
<ul style="list-style-type: none"> • Become more reflective.
<ul style="list-style-type: none"> • Reflection also helps lot of areas of development that I need to done in my teaching.
<ul style="list-style-type: none"> • I think that I manage to improve my teaching after I do reflection. Thus I think that reflection is effective to be practice.
<ul style="list-style-type: none"> • Be a Reflective teacher.
<ul style="list-style-type: none"> • I think I will be more careful when choosing better and effective teaching approach after reflection on my own teaching and pupils' learning.
<ul style="list-style-type: none"> • In addition, I believe writing reflection serves as a personal record which helps me to improve my teaching in the future.
<ul style="list-style-type: none"> • ARM will help me to be a good teacher. This is because I can use ARM to improve my teaching from reflection on learning by my pupils.
<ul style="list-style-type: none"> • Reflection is very important for teachers in order to improve my teaching skills.
<ul style="list-style-type: none"> • I like ARM. Simple and effective. I teach, I identify what learner's know, I reflect, set the future actions and try it in my next lesson, show good demonstration and modelling them.

<ul style="list-style-type: none"> • <i>By using ARM, I can reflect my lesson to detect and identify the areas of development that I must take into consideration.</i>
<ul style="list-style-type: none"> • <i>More over, I can improve my weaknesses from time to time through the reflection that I have done.</i>
<ul style="list-style-type: none"> • <i>By using ARM, I'm able to analyze my strength & weakness. I keep my strength & modify my lessons to be more effective for my pupils. I've found that I'm improving step-by-step toward the best.</i>
<ul style="list-style-type: none"> • <i>I learned that to make a better teaching in teaching and learning process, we need to reflect on each teaching we did. From this, we can improve our teaching and can teach much more better.</i>
<ul style="list-style-type: none"> • <i>Reflection make me think; to think how to organise perfect lesson, to think how to communicate with students, to think how to collaborate with teachers, staff, headmaster and parents. Through practicum, I had chance to apply and try out what I learnt from the module.</i>
<ul style="list-style-type: none"> • <i>Reflection can help me to identify my strength and weakness. If the teaching strategy which I have been used not suitable, I can change another strategy for the next lesson.</i>
<ul style="list-style-type: none"> • <i>Reflection of the teaching can help me to improve myself in order to become an effective teacher.</i>
<ul style="list-style-type: none"> • <i>I have also learn that reflection on the mistakes are important in order to improve my self and help the pupils to become excellent pupils in the future.</i>
<ul style="list-style-type: none"> • <i>It influences me to further my teaching by encouraging reflection on children's learning. I realise that active learning will be practised well when reflection and enhancing modelling are done by the teacher.</i>
<ul style="list-style-type: none"> • <i>ARM practice made the whole reflection session complete and more successful.</i>
<ul style="list-style-type: none"> • <i>Once I reflect, I am able to see my strengths and weaknesses clearly. I learned to judge myself honestly so that I am able to improve myself and my teaching in order to approach my pupils' needs and achieve my target and also teaching objectives.</i>
<p>4e English language (and communication) (no extracts)</p>
<p>4f Professional development</p>
<ul style="list-style-type: none"> • <i>Make my teaching experience more meaningful. Develop and improve my teaching skills by times.</i>
<ul style="list-style-type: none"> • <i>I learned that ARM is important, where my teaching skills is increase from time to time.</i>
<ul style="list-style-type: none"> • <i>ARM will provide me time to communicate and to recognise the pupils well. From that, I can create or improve my teaching and learning progression.</i>
<ul style="list-style-type: none"> • <i>I will improve my teaching and learning session for my next placement.</i>
<ul style="list-style-type: none"> • <i>It increases my self-evolution to improve myself to be a creative and critical thinker.</i>
<ul style="list-style-type: none"> • <i>I can improve my self-motivate in teaching pupils. Before I did not have confident but now I can improve my self a little bit.</i>
<ul style="list-style-type: none"> • <i>When I had applied the ARM theory in classroom, it will influence my style of teaching, increase teaching skills, and I can improve my teaching in next few years. INSYALLAH.....</i>
<ul style="list-style-type: none"> • <i>I also can get feedback from my pupils and from here I can improve myself.</i>
<ul style="list-style-type: none"> • <i>It is a process to improve our teaching skills. To suit the class learning.</i>
<ul style="list-style-type: none"> • <i>Using ARM as the guideline is good to me as I can develop myself to be a quality teacher.</i>
<ul style="list-style-type: none"> • <i>After the practicum, I gained some priceless experience of teaching and I know how to improve my teaching in future.</i>
<ul style="list-style-type: none"> • <i>I also can improve myself as a teacher.</i>
<ul style="list-style-type: none"> • <i>I also can improve myself in order to become a good teacher.</i>
<ul style="list-style-type: none"> • <i>I believe that ARM is able to assist me in future, for my teaching profession.</i>
<p>4g Effective teaching (including flexibility)</p>
<ul style="list-style-type: none"> • <i>As a teacher, using ARM will influence me to be an effective teacher.</i>
<ul style="list-style-type: none"> • <i>To be an effective teacher, I should practice ARM during my teaching session because it's give us a lot of advantages.</i>
<ul style="list-style-type: none"> • <i>When I become a teacher soon, I had realized teaching is only giving the information, but there are alot of other thing to be done. This ARM had teach me to make my teaching become effective and always be improved.</i>
<ul style="list-style-type: none"> • <i>Besides that, I found that as a teacher, I have to be flexible with the situation in the class. When a teacher is flexible, they are easy to adapt and apply with any situation.</i>
<ul style="list-style-type: none"> • <i>But when I using ARM it will make my teaching better. Meanwhile, I need to learn and practice more how to use ARM in future.</i>
<ul style="list-style-type: none"> • <i>It also helps me to become more flexible and make me able to adapt with many situation.</i>
<ul style="list-style-type: none"> • <i>The way to be an effective teachers.</i>
<ul style="list-style-type: none"> • <i>It is a good tool for new teacher to experience more on how to become good teacher.</i>
<ul style="list-style-type: none"> • <i>ARM is an effective way to be applied in classroom to make sure that teaching and learning process really effective and efficient.</i>

<ul style="list-style-type: none"> • <i>Be a Perfect teacher. ARM is the tool.</i>
<ul style="list-style-type: none"> • <i>It can help me to become a effective teacher indeed.</i>
<ul style="list-style-type: none"> • <i>I become more effective teacher.</i>
<ul style="list-style-type: none"> • <i>In my opinion, I learned how to carry out an interesting and effective teaching/lesson which is help my pupils learning.</i>
<ul style="list-style-type: none"> • <i>ARM has helped and support effective learning and teaching.</i>
<ul style="list-style-type: none"> • <i>ARM helps to create an effective teacher. Applying ARM in the classroom will make my teaching more effective and makes the learning more meaningful.</i>
<ul style="list-style-type: none"> • <i>To improve my teaching and learning. Helping me to make an effective teaching and learning.</i>
<ul style="list-style-type: none"> • <i>It is useful to improve the quality of teaching.</i>
<ul style="list-style-type: none"> • <i>ARM enables me to pay more attention on pupils' different learning needs and their learning abilities. It acts as a tool to motivate me to think & plan effective teaching & learning approaches.</i>
<ul style="list-style-type: none"> • <i>I learned it to improve my lesson so that I can be effectiness teacher</i>
<ul style="list-style-type: none"> • <i>ARM influence me to eager becoming an effective teacher. I observed that how much I sacrifice to children, and how much rewards will get. Yet I do not mind the rewards, I mind about their learning ways and feeling.</i>
<ul style="list-style-type: none"> • <i>It was a good experience for me. I have known how to make an effective and interesting lesson so that the pupils enjoy and like the lesson. They will learn well which good and suitable teaching strategies applied.</i>
<ul style="list-style-type: none"> • <i>It should be conducted and applied in the class as this would be a good approach to the pupils.</i>
<ul style="list-style-type: none"> • <i>ARM is an effective way.</i>

Some examples of complete responses from student teachers to the question **'What have you learned from using ARM that will influence your practice as a teacher?'** are provided below. These examples, from the end of their first placement, illustrate the richness of the responses.

'As a teacher, using ARM will influence me to be an effective teacher. Besides, it is actually helps me in learning to think creatively in order to bring up new approaches.'

Student teacher – Malaysia

'By using ARM models, I think that as the teacher we need to use every approaches to guide our pupils in their learning as we know that every children had their own multiple intelligences. So by doing Actions, I can use my own ideas and resources to teach my pupils and using the Modelling, I can guide my pupils by using verbal or demonstration so that they can get the idea of how to solve their problems. Lastly, by doing reflection, the teacher can overcome their weaknesses and improves their strengths by identifying the critical events that happened in their previous lessons.'

Student teacher – Malaysia

'From my experience, I think the practice of ARM concept can stimulate the interest, generate the ideas for both parties, pupils and teacher. I strongly recommended the usage of ARM concept for all teachers around the world.'

Student teacher – Malaysia

'1) ARM is the effective approach to create active, lively learning to sharpen pupils thinking and develop social skills.

'2) Teacher need to develop the skill of encouraging learning by questioning, explaining and etc.

'3) It develop the creativity to design various teaching and learning activities to cater with pupils' need.'

Student teacher – Malaysia

'It increases my self-confident to speak, and present my lesson smoothly. It increases my self-evolution to improve myself to be a creative and critical thinker.'

Student teacher – Malaysia

'During my placement, I realized that my pupils are quite slow. So, as a teacher I need to give more effort and strengthen my knowledges to improve the learning. Besides that, as a teacher I need to be more flexible and encourage the active learning in the class. I will provide better activities and materials in order my pupils will get well knowledges and increase their ability in the lesson.'

Student teacher – Malaysia

'The most valuable things that I've learned is reflection. Each time when the teaching & learning session finish, I will ask the pupils to provide feedback and then explain to them again if they not understand. It also helps me to become more flexible and make me able to adapt with many situation.'

Student teacher – Malaysia

'As I applied ARM into my teaching practise, I have learnt that is effective to teachers and pupils. As the effort to create active learning, I need to consider on the pupils' ability to follow it especially the activities done. As I reflect them, the questions must be simple and clear. When I model to them the strategies. I need to ensure that all of them could follow me.'

Student teacher – Malaysia

'ARM is very effective approaches that can be applied in order to develop creative thinking among pupils, promote active learning and enhance their knowledge and skills.'

Student teacher – Malaysia

'Be an effective teacher; creative in teaching by create activity, environment; understand the pupils' need; closed relationship with pupils.'

Student teacher – Malaysia

'I can use variety of teaching aids or resource that can help my pupils' learning according to their needs. Besides, I also can promote pupils-centered while teaching so that they can enjoy the learning and activity session. I also can get feedback from my pupils and from here I can improve myself. Lastly, I have confident in front of class and while modelling through what have I learned from using ARM.'

Student teacher – Malaysia

'In my opinion, I learned how to carry out an interesting and effective teaching/lesson which is help my pupils learning. I also learned the way of reflecting my own strengths and areas of development.'

Student teacher – Malaysia

'I think I will be more careful when choosing better and effective teaching approach after reflection on my own teaching and pupils' learning. Besides, I will try to create an active learning atmosphere which different from the traditional ones.'

Student teacher – Malaysia

'I have learned that teacher's actions can vary instead of teaching and marking pupils' works in conducting a lesson. Moreover, adjustment can be made when a particular action did not work for engaging pupils in the lesson. In addition, I believe writing reflection serves as a personal record which helps me to improve my teaching in the future.'

Student teacher – Malaysia

'ARM has helped and support effective learning and teaching. I will always wants to make sure that my students experience active learning, to reflect on their learning and I will model good practice for them.'

Student teacher – Malaysia

'I like ARM. Simple and effective. I teach, I identify what learner's know, I reflect, set the future actions and try it in my next lesson, show good demonstration and modelling them.'

Student teacher – Malaysia

'Through using ARM, I think being a good teacher is actually not easy. Besides having to master ARM, there is still a lot more to take into account. An entirely perfect teacher is one who can stand on his own in each and every aspect.'

Student teacher – Malaysia

'ARM will help me to develop into a good teacher. This will make my lesson more interactive to the students to attract their attention and will develop them into a good nation citizen. More over, I can improve my weaknesses from time to time through the reflection that I have done.'

Student teacher – Malaysia

'Reflection make me think; to think how to organise perfect lesson, to think how to communicate with students, to think how to collaborate with teachers, staff, headmaster and parents. Through practicum, I had chance to apply and try out what I learnt from the module.'

Student teacher – Malaysia

'The active learning is very useful to pupils as it suits to Learning Styles and Multiple Intelligences. Reflection of the teaching can help me to improve myself in order to become an effective teacher. Modelling can help pupils learn better.'

Student teacher – Malaysia

'By using ARM I know that my teaching and learning process will be more interesting and meaning full to me. I have also learn that reflection on the mistakes are important in order to improve my self and help the pupils to become excellent pupils in the future.'

Student teacher – Malaysia

'I found that ARM promotes close interaction between teacher and children in the class. It influences me to further my teaching by encouraging reflection on children's learning. I realise that active learning will be practised well when reflection and enhancing modelling are done by the teacher.'

Student teacher – Malaysia

'I know that pupils' reflections are vital as I can understand the obstacles that they faced. From there, I can modify my lesson which totally suit their 'styles.'

Student teacher – Malaysia

'There are many factors and theories we need to consider and refer to when we are dealing with the children. We have to know why they behave so in the class. I become more observant towards their learning needs and pay more attention at their weakness. ARM practice made the whole reflection session complete and more successful.'

Student teacher – Malaysia

At the end of their final placement student teachers were asked again **'What have you learned from using ARM that will influence your practice as a teacher?'** Some examples of the learning described by the student teachers are provided below.

'In a future, I will practice ARM during my teaching. This is because, it will give an impact to me as a teacher and pupils as learners.'

Student teacher – Malaysia

'As a future teacher, I will practice using ARM. Because it give positive impact on teaching and learning in Maths. I will stress more on pupils hands-on experience. It will secure their understanding.'

Student teacher – Malaysia

'From the model, I do believe that pupils will love a lesson which has practical work and active participation. Therefore, these element should be included in every lesson.'

Student teacher – Malaysia

'It gives benefits for both teacher and pupils. It makes the lesson easy & pupils able to understand the lesson easily. It helps teacher to using the teaching style.'

Student teacher – Malaysia

'A class with more actions – class would be enjoyable and pupils would be attracted.'

'Reflections from pupils – teacher – improve the teaching and learning session (for the next session).'

'Modelling – more understanding about one particular process.'

Student teacher – Malaysia

'When pupils reflect, I know what pupils learnt through my lesson.'

Student teacher – Malaysia

'ARM helps me a lot in making sure my learning outcome of that day is achievable.'

'ARM helps pupils to get better understanding on the topic taught.'

'ARM helps teacher to catch pupils interest to learn.'

Student teacher – Malaysia

'I have learned that combining both pupils-centred approach with teacher's role is really important and helpful in teaching.'

Student teacher – Malaysia

'Reflection is very helpful as I can get students' feedback & try to suit my teaching style with students' needs. And of course the modelling is important as it can extend their understanding.'

Student teacher – Malaysia

'How to be a creative teacher. Learn to overcome problems in teaching.'

Student teacher – Malaysia

'Give opportunity to pupils to construct their own knowledge. Make my lesson become more meaningful.'

Student teacher – Malaysia

'Applying ARM helps me to conduct an effective teaching & learning. Helped me to take the role of facilitator instead of making the lesson merely teacher centred.'

Student teacher – Malaysia

'Teacher's role is versatile role. As a teacher, I become a complete teacher with the ARM.'

Student teacher – Malaysia

'Use activity to motivate children to learn on their own.'

Student teacher – Malaysia

'I learnt that, teacher should give students chances to explore learning by themselves.'

Student teacher – Malaysia

'Bearing ARM in mind had made me a different teacher compare to others teachers in school. I am able to use correct pedagogy and do teaching more effectively.'

Student teacher – Malaysia

'Active learning is an important things that I must remember. Reflection is to improve our quality of teaching. Modelling is to show the proper way of doing something. It is simple but do make me remember easily. I even design my own principle "LEG" to match and strengthen my principles. L – Love – an element that almost all of us forget. E – Enthusiasm – the spirit and energy we should have. G – Go for it! – Go for everything that you think is good for your pupils' learning, I hope I am able to be an excellent teacher!'

Student teacher – Malaysia

Table 23 shows some examples of the terms student teachers used to describe ARM in their responses to the surveys at the end of their first and final placements.

Table 23 Student teacher questionnaires: extracts from responses to show some examples of the terms used to describe ARM

ARM concept
End of first placement
<ul style="list-style-type: none"> I have applied ARM concept as much as I can in all subjects I've taught The concept of ARM is based on action, reflection and modelling In my teaching I used the ARM concept to give better understanding to my pupils I think the practice of ARM concept can stimulate the interest, generate the ideas for both parties, pupils and teacher
End of final placement
<ul style="list-style-type: none"> I have designed my activities based on the concept of ARM I didn't understand the full concept of the model
ARM element
End of first placement
<ul style="list-style-type: none"> My pupils will acquire a quality and effective learning after I implement the ARM element
End of final placement
<ul style="list-style-type: none"> I used all the ARM important elements in this final placement of mine I always ensuring my lesson plans have the element of ARM
ARM formula
End of first placement
<ul style="list-style-type: none"> The ARM is very useful formula in being a teacher
ARM guide/guidance/guideline
End of first placement
<ul style="list-style-type: none"> I used ARM as the guidance to plan for my lesson

<ul style="list-style-type: none"> • I will use ARM as a guide for my future teaching
<ul style="list-style-type: none"> • Using ARM as the guideline is good to me as I can develop myself to be a quality teacher
<ul style="list-style-type: none"> • I use ARM in order to guide me in my action toward my teaching
<ul style="list-style-type: none"> • A simple guideline for me to follow, to conduct the lesson
<ul style="list-style-type: none"> • To be an excellent teacher, ARM is not only a guidance. A teacher should improve and upgrade himself with others elements
End of final placement
<ul style="list-style-type: none"> • It make me teach better because ARM be as my 'guidances' when teach in class
<ul style="list-style-type: none"> • I become more systematic in my teaching and made ARM as my guidance
<ul style="list-style-type: none"> • It has become my guideline in planning my teaching.
<ul style="list-style-type: none"> • ARM – an effective guideline for me in planning the lesson in future.
<ul style="list-style-type: none"> • Guide and enhance me in my learning.
ARM model
End of first placement
<ul style="list-style-type: none"> • I used ARM model as a main issue in every teaching and learning session that I conduct
<ul style="list-style-type: none"> • Using ARM models help me a lot in conducting the class
<ul style="list-style-type: none"> • I feel quite confident in using ARM model...ARM model also can enhance my teaching style
<ul style="list-style-type: none"> • The ARM model benefits me a lot in improving my teaching
<ul style="list-style-type: none"> • By using ARM model, the pupils is more understand the lessons
<ul style="list-style-type: none"> • By using ARM models, I think that as the teacher we need to use every approaches to guide our pupils in their learning as we know that every children had their own multiple intelligences
End of final placement
<ul style="list-style-type: none"> • I have use ARM model integrating in the lesson.
<ul style="list-style-type: none"> • The ARM model really help me in my teaching and also help the pupils to learn better
<ul style="list-style-type: none"> • By using ARM model, I can manage my lesson in meaningful way
<ul style="list-style-type: none"> • Through out the ARM model, I can assess my pupils and my teaching either it was effective or not from my pupils' reflection
<ul style="list-style-type: none"> • It really help me to teach better, when I used the ARM model
<ul style="list-style-type: none"> • Apply the ARM model in future teaching.
ARM theory
End of first placement
<ul style="list-style-type: none"> • I becoming more skillfull teacher because I manipulate the ARM theory in classroom
<ul style="list-style-type: none"> • I hope that ARM is not just a theory but a actual way to become a good teacher
ARM tool/toolkit
End of first placement
<ul style="list-style-type: none"> • ARM is the tool
<ul style="list-style-type: none"> • It will be a good tool to help me a future teacher
<ul style="list-style-type: none"> • When I stuck what to do in my lesson, ARM can be as my 'next step' toolkits
<ul style="list-style-type: none"> • ARM...acts as a tool to motivate me to think & plan effective teaching & learning approaches
End of final placement
<ul style="list-style-type: none"> • I believe that ARM will be able a helpful tool to teacher.
<ul style="list-style-type: none"> • In addition it could be one of the tool for me to teach the pupils.
<ul style="list-style-type: none"> • ARM have acted as a tool to improve my teaching and also my students' learning

One student teacher described ARM in the following way at the end of their final placement.

'It has become my guideline in planning my teaching. Moreover, it has equip myself with a professional tools – thinking skills. By referring to ARM, I am able to illustrate and plan my teaching easily and effectively.'

Student teacher – Malaysia

D Benefits of using ARM

The views of student teachers

Question from the questionnaire: 2007 – year 2 (Semester 4) end of first placement
Question from the questionnaire: 2009 – year 4 (Semester 7) end of final placement

How did it benefit you?
How did it benefit your pupils?

All of the student teachers identified benefits for themselves and for their pupils of using ARM during their first placement. Tables 24 to 27 include some extracts from the full set of responses. These extracts have been categorised using the following main themes used previously in this report: learning and teaching; assessment and feedback; planning; and professional attributes. Some extracts are repeated under different sub-themes. Extracts from the responses to these two questions are shown in sequence beneath the sub-theme headings.

In response to the first question, many of the student teachers referred to the way in which ARM helped them, enabled them and guided them. Student teachers were aware of the learning environment and the effect this had on the pupils. There are glimpses of 'lively and attractive' classes in which 'pupils enjoy and feel comfortable to learn' and 'are eager to answer my questions'. One student teacher suggested '*Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting.*'

In their descriptions of the benefits of ARM, the student teachers used words such as achieve, adapt, apply, choose,

communicate, confident, consider, create, deliver, develop, detect, discover, effective, emphasise, encourage, enjoy, enthusiastic, evaluate, identify, implement, improve, improvise, maximise, monitor, notice, observe, organise, prepare, provide, recognise, redesign, review, support, systematic and understand.

The student teachers expressed their views of the benefits to pupils of the ARM approach in terms of the environment. For example, they described a 'good learning environment', 'positive classroom climate' and 'enjoyable and relaxable environment'. Student teachers suggested that the pupils 'give full attention on the learning, are eager to answer my questions, more understand about the message, develop good moral values, can generate ideas and understanding, cooperate with each other, understand the mathematics concept easily, share ideas among themselves, be an active learner, explore their own learning, practice using their critical thinking, gained the valuable knowledges, indulge in the learning process, engaged in the learning activities, experience it by themselves, learn through playing, constructed their own knowledge, becomes good problem solvers, enjoy learning in my class, gain confident and self-esteem, reflect on their learning, feel safe and valued'.

Table 24 Student teacher questionnaires (first placement): extracts from responses to two questions about using the ARM approach - 'How did it benefit you? How did it benefit your pupils?'

Theme 1: Learning and teaching	
1a Learning and teaching environment	
Benefits to student teachers	
•	<i>It help me to deliver the knowledge to pupils in a easy way that make pupils enjoy and feel comfortable to learn in my class.</i>
•	<i>ARM help me to make sure that my teaching is effective and attractive.</i>
•	<i>To provide a good learning environment.</i>
•	<i>Besides that, during made a lesson plan, I emphasized this concepts by providing well planning and make sure my class lively and attractive.</i>
•	<i>It offer a better learning environment (actively).</i>
•	<i>ARM have beneficial me in my teaching. I know how to create a better learning environment.</i>
•	<i>Help me in improving my teaching. It create an active learning environment in my classroom which let the students to communicate well each other and grasp their attention towards the lesson.</i>

Benefits to pupils
<ul style="list-style-type: none"> • Enable pupils to have a good learning environment. • Lastly, using ARM is one way in creating positive classroom climate for them. • My pupils enjoy the lesson. They understand more about my teaching using a good resource and good learning environment. • My students can learn with a learning environment, with different method of teaching style everyday. They will not be bored of the class and these can make them give full attention on the learning. • Teachers also can give student the best environment and strategies on teaching and learning process. • They feel free to have the lessons. For instance, they are eager to answer my questions under an enjoyable and relaxable environment.
1b Learning and teaching strategies
Benefits to student teachers
<ul style="list-style-type: none"> • ARM model also can enhance my teaching style and feel the lesson become quite systematic. When I stuck what to do in my lesson, ARM can be as my 'next step' toolkits. • Modelling: Be able to help the pupils to have a clear picture about the topic. • Other than that, I can improvise my teaching skills from time to time. • ARM gives lots of benefits for me. Action help me to do various activities in the classroom...I also can come out with many types of activities to tackle each level of pupils. • Improve my teaching skills. • In addition, I can deliver the input and appropriate knowledge using new approaches rather than traditional ways. • 1. It helps me to improve my teaching strategies. Strengths + weaknesses → improvement. 2. It provide variation of teaching strategies – individual/grouping. • It is very benefit to me. Using ARM, it encourage me to teach my pupils with the right skill or method. • These activities of using ARM are beneficial to me because it can help me to deliver the lesson well. • It is very effective way of teaching and learning because ARM make teacher learn and play our role in order to get excellent in education and improve our teaching performance. • It helps me to develop my planning skill and ability of changing strategies and generate more idea in teaching. • I was able to consider what kinds of learning activities are effective to develop pupils' learning. • I would when to carry out the suitable activities/teaching approaches while in the classroom teaching. • I also easily found out the difficulties of the pupils so that I could applied appropriate strategies to solve it. • The ARM elements help me to improve my teaching strategies for the next lesson.
Benefits to pupils
<ul style="list-style-type: none"> • In my observation, sometimes ARM can make clarify about the lesson. When I model it, they can more understand about the message that I want to send. Actually, ARM model are running parallel in the lesson. • It has helped my pupils a lot by: Modelling: Avoid them from making a mistake – since they had been modelled with the best example, showed by the teacher. • Action: Pupils have variety of learning approaches...Modelling: Easy for pupils to adopt the learning. Pupils can imitate teacher's good characteristics. Pupils develop good moral values. • Most of my student can understand in the class, except small number of students. So I give them more explanation from time to time. • Modelling – Pupils can generate ideas and understanding after see I model or do something in front. • Pupils also can see and follow a good example that had show by the teacher. • Develop pupils to cooperate with each other in group work. • Using new approaches of ARM avoid my pupils felt bored and uncomfortable. The use of ARM make the lessons become meaningful for them and they loved it I know, when some of them asked me to do ARM in next teaching and learning activities. • ARM has been useful to my pupils because they will learn more easier by having their teacher to guide them about what they supposed to do in learning activities...they still need to be guide by the teacher if they encountered some problems that has never been faced by them before. • For the pupils, the ARM concept had influenced in facilitated their learning process. • They can get guide from me from time to time. • The pupils also will understand more about the lesson because I always ask them the opened and closed questions. I will ensure they can answer the question by guiding and show an example to them. The pupils also will get a good attitude since their teachers show a good modelling.

<ul style="list-style-type: none"> For my pupils, it will be useful for them because they can understand the lesson better using the concept of ARM by using the action and modelling in the teaching progress and the reflection after end of the lesson. So that, the learning potential will increase.
<ul style="list-style-type: none"> Modelling – They got some ideas on how to carry out any activity and it can generate their ideas and creativity.
<ul style="list-style-type: none"> Modelling: As I show a model of 3-D shape, pupils are competitive with each other to get the best product.
<ul style="list-style-type: none"> The ARM also had help a lot in the process of learning. My pupils get enough information from my teaching since they can do the action, accept the explaining and saw by themselves the demonstrating by me.
<ul style="list-style-type: none"> As I modelled to them the strategies and they followed it, they would be more clearer to do tasks given.
<ul style="list-style-type: none"> Have a chance to communicate.
<ul style="list-style-type: none"> ARM actually helps the pupils to understand the lesson/input better. Teacher explain & students model their understanding through presentation.
<ul style="list-style-type: none"> Through modelling that I had done during the teaching helps my pupils to understand the concepts.
<ul style="list-style-type: none"> I think by using ARM, I did expose and demo to the pupils a new and more effective teaching style.
<ul style="list-style-type: none"> By using multiple actions such as questioning, explaining and helping them to solve problems, I could see that they were able to understand my lesson slowly. Sometimes, they were able to reason clearly after my introduction during the main teaching session.
<ul style="list-style-type: none"> They can follow the good practice that I have modelled.
<ul style="list-style-type: none"> My students can learn with a learning environment, with different method of teaching style everyday.
<ul style="list-style-type: none"> Teachers also can give student the best environment and strategies on teaching and learning process.
<ul style="list-style-type: none"> My pupils can understand the mathematics concept easily since I use modelling to teach them. Pupils may produce interest in learning maths after they are [exposed/explored?] to diverse teaching strategies.
<ul style="list-style-type: none"> Good modelling of the teacher make the pupils understand on the lesson.
<ul style="list-style-type: none"> ...then they imitated what I have displayed and shown during the lesson that enhanced their learning process.
<ul style="list-style-type: none"> Through the teacher's modelling, pupils can see clearly about the knowledge they learn.
<ul style="list-style-type: none"> They learn better as their teacher (me) is able to show a good attitude of learning and teaching to them.
<ul style="list-style-type: none"> Besides this, the appropriate teaching strategies would be created to help them who did not understand the lesson.
<ul style="list-style-type: none"> By modelling, my pupils will get clear view of the main teaching objectives. They also can share ideas among themselves.
<ul style="list-style-type: none"> The pupils could perform very well when I do modelling in class.
1c Learning and teaching objectives
Benefits to student teachers
<ul style="list-style-type: none"> Action: Enable me to deliver the content in an effective way.
<ul style="list-style-type: none"> My teaching & learning session going smoothly, ...most of my learning objective was achieved.
<ul style="list-style-type: none"> Using ARM affect me in achieving clear learning intentions for pupils...Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting.
<ul style="list-style-type: none"> It guided me to choose appropriate learning objective to expose the pupils based on their ability.
<ul style="list-style-type: none"> By using the ARM, I can set up what the pupils and teacher should achieve and how can I improve my teaching.
<ul style="list-style-type: none"> It makes my lesson more effective and makes my teaching process becomes much more easier.
<ul style="list-style-type: none"> I can learn by the time I was teaching. Besides giving input to the pupils, I also have some input for myself. This helps me to have a clearer aims and objectives when planning the lesson plan to teach the pupils.
<ul style="list-style-type: none"> Easy for me to achieve my target or objective during the learning and teaching.
<ul style="list-style-type: none"> It helped me in teaching to make the students understand easily to my lesson so that my learning outcomes can be achieved.
<ul style="list-style-type: none"> It benefits me a lot in making sure my pupils understood on what they've been taught.
<ul style="list-style-type: none"> Help to get reflection by student's participation. Good involvement by teacher & pupils.
Benefits to pupils
<ul style="list-style-type: none"> When I model it, they can more understand about the message that I want to send. Actually, ARM model are running parallel in the lesson.
<ul style="list-style-type: none"> It has helped my pupils a lot by: Action: Able to understand the content in depth.
<ul style="list-style-type: none"> Most of my student can understand in the class, except small number of students. So I give them more explanation from time to time.
<ul style="list-style-type: none"> Modelling - Pupils can generate ideas and understanding after see I model or do something in front.
<ul style="list-style-type: none"> It help my pupils to be an active learner and easier to them to understand the lesson.
<ul style="list-style-type: none"> It benefits my pupils in getting clear about what they are going to learn during the sessions...Doing ARM build up their understanding from an exploration and experience learning themselves.
<ul style="list-style-type: none"> Although, it was good for the children to explore their own learning in order to generate their cognitive thinking...

<ul style="list-style-type: none"> • Pupils could grasped the aim of the lesson when able to see the link between the contents and the approached presented to them.
<ul style="list-style-type: none"> • My pupils easily to understand what I had teach them.
<ul style="list-style-type: none"> • By using this ARM, pupils can receive the knowledge easily.
<ul style="list-style-type: none"> • The pupils also will understand more about the lesson because I always ask them the opened and closed questions. I will ensure they can answer the question by guiding and show an example to them.
<ul style="list-style-type: none"> • For my pupils, it will be useful for them because they can understand the lesson better using the concept of ARM by using the action and modelling in the teaching progress and the reflection after end of the lesson. So that, the learning potential will increase.
<ul style="list-style-type: none"> • Its also can help to avoid misunderstanding among the pupils.
<ul style="list-style-type: none"> • By using ARM, my pupils practice using their critical thinking when I ask them to summarize about the topic, they also were able to follow my lesson and gain more understanding within the lesson.
<ul style="list-style-type: none"> • Moreover, teachers as facilitator and guider in the lesson. When, pupils fully engaged in the learning activities they have better understanding. When they have hands-on experience.
<ul style="list-style-type: none"> • Action: It helps pupils to get clear understanding about a particular topic.
<ul style="list-style-type: none"> • Reinforce understanding.
<ul style="list-style-type: none"> • It helped my pupils to learn progressively. That means pupils could learn from simpler topic to the more complex. Besides, pupils could learn better by having concrete materials. This will improve their understanding.
<ul style="list-style-type: none"> • Pupils can understand the concept better and they able to give some respond during the class. Pupils also able to recall what they have learnt before and they will memorize it for long term.
<ul style="list-style-type: none"> • It will increase pupil's level of understanding...
<ul style="list-style-type: none"> • The ARM also had help a lot in the process of learning. My pupils get enough information from my teaching since they can do the action, accept the explaining and saw by themselves the demonstrating by me.
<ul style="list-style-type: none"> • When I used ARM, my pupils will learn well and can follow the lesson. Beside that, pupils will easier to understand more on what they are learnt.
<ul style="list-style-type: none"> • By using ARM model, the pupils is more understand the lessons. It make easier for them to follow the lesson.
<ul style="list-style-type: none"> • The pupils will gained the valuable knowledges and ensure them to learn with a full of spirit. Besides that, it will be able to support effective learning in the class. Indirectly, the pupils will get diverse of information and acquire the better knowledges and understanding.
<ul style="list-style-type: none"> • Pupil's really learned and achieved the success criteria that required.
<ul style="list-style-type: none"> • Understand clearly. My pupils will understand clearly if I use a lot of teaching skills.
<ul style="list-style-type: none"> • Pupils will indulge in the learning process as they ask for knowledge during the lesson (Active learning) and able to make the subject matter still remain in their mind (Reflection).
<ul style="list-style-type: none"> • The pupils will easily to understand the lesson and made the class session interesting.
<ul style="list-style-type: none"> • Give them better understanding...improve their level of thinking.
<ul style="list-style-type: none"> • Pupils get better understanding from the teaching progress.
<ul style="list-style-type: none"> • ARM help my pupils a lot in understand my teaching.
<ul style="list-style-type: none"> • ARM actually helps the pupils to understand the lesson/input better. Teacher explain & students model their understanding through presentation.
<ul style="list-style-type: none"> • Through modelling that I had done during the teaching helps my pupils to understand the concepts.
<ul style="list-style-type: none"> • My pupils can understand the lesson well.
<ul style="list-style-type: none"> • My pupils will learnt more.
<ul style="list-style-type: none"> • By doing the activity, they also get the lesson and learning objectives will be achieved.
<ul style="list-style-type: none"> • My pupils will master the knowledge more as they use ARM in the learning.
<ul style="list-style-type: none"> • My method that has been adjust will help my students to understand more towards the subject.
<ul style="list-style-type: none"> • My pupils can understand the mathematics concept easily since I use modelling to teach them.
<ul style="list-style-type: none"> • Good modelling of the teacher make the pupils understand on the lesson.
<ul style="list-style-type: none"> • Through the teacher's modelling, pupils can see clearly about the knowledge they learn.
<ul style="list-style-type: none"> • By modelling, my pupils will get clear view of the main teaching objectives. They also can share ideas among themselves.
<ul style="list-style-type: none"> • Pupils enjoy the lesson and they get knowledge from my lesson. They show interest and felt happy in involving themselves in the activities.
<ul style="list-style-type: none"> • When I asked them to reflect on their learning, they could understand the lesson very well and make the others to understand.

1d Active learning**Benefits to student teachers**

- *By making own reflection, I had discovered that lots of my pupils need to be guided through their activities so they can do it more effectively and save more time to wait for them to complete it on their own. Besides that, I noticed that by using Modelling, I can teach my pupils about how to solve the questions more easier by guiding them to collect information and make their calculations.*
- *Besides that, it also help me to create an effective activity that give benefits to them.*
- *Action – Students gave their full involvement and cooperation.*
- *Teacher as facilitator. The teacher roles is to create the opportunities and chances for pupils to learn actively. My roles is to pose the questions to elicit pupils to think and briefly short instruction with simple language of what they are going to do.*
- *Modelling: It can show a good model/teaching aids so that pupils are eager to follow/do.*
- *Create activities. Pupils will enjoy if they are active in learning. So, I plan varieties activities during my class.*
- *Besides, I also can promote active learning in my class through groupwork where they are able to move around.*
- *Help me in improving my teaching. It create an active learning environment in my classroom which let the students to communicate well each other and grasp their attention towards the lesson.*
- *Working in group can gain the interest of my pupils on learning.*
- *The child are motivated to learn and are actively involved in my teaching.*
- *I can encourage my pupils to participate actively in the classroom. From there I can evaluate the level of each pupils and I can plan the teaching that suit with the pupils.*
- *I conduct the lesson more effectively when I carry out games. They actively involved and make them more interesting to learn.*
- *Nevertheless, they have shown their great active learning during my lessons.*
- *ARM help me to plan the well lesson plan. A remind me need to plan the interesting activity which can active the pupils' learning.*
- *Active learning help me to know what my pupils' thinking and understanding.*
- *Pupils were really actively involved in all activities because I used to give them different task every time. It stimulates their interest and it made them to be fully involve in all the activities.*

Benefits to pupils

- *It help my pupils to be an active learner and easier to them to understand the lesson.*
- *Pupils encourage to learn by interesting activity/resource.*
- *Pupils will attract to the lesson because ARM required the involvement of all pupils and active learning. Here, pupils will not bored during the lesson session.*
- *Moreover, teachers as facilitator and guider in the lesson. When, pupils fully engaged in the learning activities they have better understanding. When they have hands-on experience.*
- *When they are in active learning, they would feel comfortable, safe and included as all of them involved in the activities done.*
- *Pupils will indulge in the learning process as they ask for knowledge during the lesson (Active learning) and able to make the subject matter still remain in their mind (Reflection).*
- *Besides, it also promote long-term memory by experience it by themselves.*
- *Children get to play the role of a teacher when they presented a question. They explained the question and explained how to solve it.*
- *The pupils are encouraged to be actively involved in the class with more discussion and opinions sharing.*
- *By using ARM, my pupils should involved in every activity that I produced. They can understand the activity and involve in the activity.*
- *They have been provided with a lot of opportunities to have active learning process. They have the chances to stimulate their ideas & thinking during lessons.*
- *ARM benefits to my students because it enables them to involve actively during the lesson. Active learning is very important to them to ensure my students understood my lesson very well.*
- *Pupils will become more active in learning, having more interest in learning & able to learn by themselves.*
- *Active learning can give an opportunity for the pupils to develop the intrapersonal and interpersonal intelligences in the classroom.*
- *I usually ask them to act out something to let them have a better impression on what to be learned.*
- *Through 'ARM' pupils were actively involved in the lesson and constructed their own knowledge.*
- *It supported my pupils' learning. They constructed new knowledge by their own during the active learning.*
- *It can help the pupils to become active pupils especially in group activity to challenge the other pupils. For example, challenge to answer question.*
- *ARM provides opportunities for them...to engage in active learning; and to follow closely to the learning process.*

<ul style="list-style-type: none"> • They participated actively during my lesson especially having activities. They can feel and touch with the objects shown.
<ul style="list-style-type: none"> • When I use ARM to plan my lesson plan, pupils can learn with enjoyable. They learn through the activity and not feel bore or sleepy.
<ul style="list-style-type: none"> • My pupils are ensured to be involved actively in the learning. They participated the activities I prepared from them and they get input/knowledge from the activities.
<ul style="list-style-type: none"> • Active learning can train my pupils to think and speak.
<ul style="list-style-type: none"> • While the pupils participated actively in the lesson they accepted and understood the concepts easily.
<ul style="list-style-type: none"> • They were actively involve in all activities. They showed their own interest in learning as this approach was different for them. They found my activities were challenging and interesting as they show their full interest.
<ul style="list-style-type: none"> • When the pupils experience Active Learning in class, they felt more energetic.
1e Creative teaching
Benefits to student teachers
<ul style="list-style-type: none"> • Make me more creative.
<ul style="list-style-type: none"> • Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting.
<ul style="list-style-type: none"> • It helps me to develop my planning skill and ability of changing strategies and generate more idea in teaching.
<ul style="list-style-type: none"> • I can use different technique and way to teach the students.
<ul style="list-style-type: none"> • It helped me for making the lesson and class ethos became much better. Children were eager to attend mathematics class even they wanted and asked to mathematics in a whole day. From the feedback of children, I am getting confident and enthusiastic to design my lesson creative and effective.
Benefits to pupils
<ul style="list-style-type: none"> • My students could experience new type of learning compared to the traditional method. They enjoyed doing group activities and using connection model really helped me in my teaching. My pupils could understand my lesson better with the aid of connection model.
<ul style="list-style-type: none"> • My students can have interesting and meaningful learning session with me as I used a lot of creative and interesting learning activities.
1f Classroom management
Benefits to student teachers
<ul style="list-style-type: none"> • My teaching and learning session going smoothly.
<ul style="list-style-type: none"> • By using ARM in my teaching, it help me to make my teaching become easier and smoother.
<ul style="list-style-type: none"> • By using this ARM, the lesson in a class will running smoothly.
<ul style="list-style-type: none"> • From ARM, I was able to teach quite smoothly. I could teach from one point to the next point accordingly.
<ul style="list-style-type: none"> • Action and modelling are useful to ensure that the lesson could be done smoothly. It is because, my pupils easily understand what I want to teach them.
<ul style="list-style-type: none"> • Apart from that modelling approach cause teaching progress become smoothly.
<ul style="list-style-type: none"> • My teaching also become well organised and suitable for the pupils.
<ul style="list-style-type: none"> • It can help me to teach the pupils smoothly and successfully.
<ul style="list-style-type: none"> • From Modelling, I need to prepare myself before enter the class so that I can teach them smoothly by providing teaching aids.
<ul style="list-style-type: none"> • It helps lot in teaching where implement teaching without any trouble.
<ul style="list-style-type: none"> • It makes my lesson more effective and makes my teaching process becomes much more easier.
<ul style="list-style-type: none"> • I was able to carry out my lesson more effectively.
<ul style="list-style-type: none"> • Able to improve the teaching and learning lesson.
<ul style="list-style-type: none"> • It help me to improve the teaching process. It also help my lesson work smoothly.
<ul style="list-style-type: none"> • ARM helps teacher to carry out the lesson successfully during my practicum.
<ul style="list-style-type: none"> • By using ARM, I am able to organise and carry out my lesson more systematically.
<ul style="list-style-type: none"> • ARM gives me the early idea on how I should conduct or improve my next lesson. This will make me more prepared.
<ul style="list-style-type: none"> • I can develop their strengths & weaknesses and their performance in the classroom.
<ul style="list-style-type: none"> • Helping me to improve my skill or methods in my teaching and learning.
<ul style="list-style-type: none"> • It guides me to perform well during the placement.
<ul style="list-style-type: none"> • ARM made my classroom management improved by days. It made me to be more reflective and helpful in lesson planning. I would when to carry out the suitable activities/teaching approaches while in the classroom teaching.

- ARM is very beneficial as it helps me to improve myself and my teaching and let me to judge myself well as well as reminds me to do the best for my pupils.

- I felt like my lesson was effective when I applied ARM. I believe that it has supported effective learning and teaching during my placement.

1g Behaviour management

Benefits to student teachers

- ARM is one way to attract pupil's attention in the class...Variety style of teaching to avoid pupils from bored.
- It helps me to teach smoothly and know what the next steps to take.
- It do help in managing the class.
- I found that the ARM really benefitted me in a way which I know how to handle a class effectively.
- Pupils will pay attention if I've a good model or demonstration.
- Reflection help me become more matured and 'clever' in handling student's behaviours and class management/control. If this time fail, think what I can do to improve in next time. If this time the effect is good, how I can do it to maintain the effectiveness or improve it to better.
- At the same time, I was able to control my class.
- I felt enjoy to teach and easy to control them and make them to pay attention.

Benefits to pupils

- Therefore, my pupils can use all the time during my period benefitly. They can't play with each other because after one activity, I moved to another activity.

1h Teaching aids and ICT

Benefits to student teachers

- It also helped in providing relevant and sufficient teaching resources.
- Through modelling, it helped me in my teaching. I showed them with real object (resources) (eg notes, coins) to explain to the pupils.
- From Modelling, I need to prepare myself before enter the class so that I can teach them smoothly by providing teaching aids.
- It makes me become effective teacher who can use a lot of teaching aids than use voice only.
- After using ARM. I can plan a lesson by considering all learners. V: I show pictures & concrete objects; A: I explain in simple & succinct way; K: I let them to come forward to feel & touch.

Benefits to pupils

- Besides, pupils could learn better by having concrete materials. This will improve their understanding.
- I had made teaching aids that can help my pupils to use it and this will make them easy to understand.
- Students can learn through playing & use teaching aid so that they can more understand the learning.

1j Learning theory

Benefits to student teachers

- Understand pupils' needs, learning styles, MI.
- After using ARM. I can plan a lesson by considering all learners. V: I show pictures & concrete objects; A: I explain in simple & succinct way; K: I let them to come forward to feel & touch.
- As the guidance in teaching.
- The ARM is very useful formula in being a teacher.
- It also can be a guidance for me to provide a successful lesson to my students.
- In my teaching I used the ARM concept to give better understanding to my pupils.

Benefits to pupils

- Suit their learning styles, MI.
- Active learning can give an opportunity for the pupils to develop the intrapersonal and interpersonal intelligences in the classroom.
- Through 'ARM' pupils were actively involved in the lesson and constructed their own knowledge.
- It supported my pupils' learning. They constructed new knowledge by their own during the active learning.

1k Pupil learning

Benefits to student teachers

- Whereas Modelling can help me to tackle pupils' understanding where they can see and learn.
- Pupils understand my teaching.
- It benefits me a lot in making sure my pupils understood on what they've been taught.
- I find that if I just talking in front without giving something concrete, pupils will hard to get the information that I try to explain to them. But by apply ARM pupils being more easy to understand what I try to teach them.

<ul style="list-style-type: none"> • It also help my pupils in the learning process when I use ARM.
<ul style="list-style-type: none"> • Attract pupils interest in learning; enhance pupils understanding.
<ul style="list-style-type: none"> • Help the pupils to enhance the understanding.
<ul style="list-style-type: none"> • Action and modelling are useful to ensure that the lesson could be done smoothly. It is because, my pupils easily understand what I want to teach them.
<ul style="list-style-type: none"> • In my teaching I used the ARM concept to give better understanding to my pupils.
<ul style="list-style-type: none"> • It will help me a lot to give more understanding to pupils.
<ul style="list-style-type: none"> • I also can create an effective learning where pupils are able to understand my explanation well as they can follow when I modelled to them the methods of using the resource.
<ul style="list-style-type: none"> • It can help me to teach the pupils successfully.
<ul style="list-style-type: none"> • Besides, the pupils also accepted the concepts of the lesson easily and quickly.
<p>Benefits to pupils</p>
<ul style="list-style-type: none"> • Interested in learning.
<ul style="list-style-type: none"> • Pupil learn more effectively.
<ul style="list-style-type: none"> • Pupils able to learn effectively.
<ul style="list-style-type: none"> • Variety in teaching enhance pupils learning.
<ul style="list-style-type: none"> • Expand their learning.
<ul style="list-style-type: none"> • They have to do the reflection as well as what I have to do on they own. The pupils became very active and willing to share their thinking. This causes them became a critical and independent learners.
<ul style="list-style-type: none"> • My pupils becomes good problem solvers who able to create ideas, communicate effectively, reasoning logically, find appropriate strategies in tackling problems and have their own views and beliefs.
<ul style="list-style-type: none"> • My pupil's will learn effectively as I can use ARM in my teaching.
<ul style="list-style-type: none"> • They will know what they learn more clearly.
<ul style="list-style-type: none"> • The pupils were able to learn the presented knowledge successfully. They could use and apply what had been acquired.
<ul style="list-style-type: none"> • It enables my pupils to learn more effective in my class.
<ul style="list-style-type: none"> • They will not bored of the class and these can make them give full attention on the learning.
<ul style="list-style-type: none"> • It help my pupils to be more all-rounders person. They need to think by themselves before I explain to them. Besides that, they also can share their ideas during group discussion.
<ul style="list-style-type: none"> • The pupils feel more easy and interest in their learning process. They could recall back what they have learned.
<ul style="list-style-type: none"> • It supported my pupils' learning. They constructed new knowledge by their own during the active learning.
<ul style="list-style-type: none"> • They learnt to explore further to make their learning more significant.
<ul style="list-style-type: none"> • My pupils will acquire a quality and effective learning after I implement the ARM element.
<ul style="list-style-type: none"> • I planned well, therefore, pupils will get high qualities learning.
<ul style="list-style-type: none"> • ARM helps pupils to go involve in learning better.
<p>11 Fun learning</p>
<p>Benefits to student teachers</p>
<ul style="list-style-type: none"> • Students also enjoy the learning.
<ul style="list-style-type: none"> • Pupils enjoyed my teaching and fully pay attention and participate actively. All type of students involved actively in my teaching, I felt enjoy to teach and easy to control them and make them to pay attention.
<ul style="list-style-type: none"> • Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting.
<p>Benefits to pupils</p>
<ul style="list-style-type: none"> • My pupils enjoy the lesson. They understand more about my teaching using a good resource and good learning environment.
<ul style="list-style-type: none"> • Pupils enjoy the action part for example in Physical and Health Education.
<ul style="list-style-type: none"> • Pupils will enjoy the lesson and they will get more clear understanding.
<ul style="list-style-type: none"> • Besides getting better understanding, my pupils also feel enjoy with my lesson and prevent them from easily getting bored.
<ul style="list-style-type: none"> • Enjoy and not bored. My pupils will enjoy when I use varieties activities in my teaching.
<ul style="list-style-type: none"> • Besides, my pupils can enjoy learning in my class and can overcome bored in my class.
<ul style="list-style-type: none"> • They enjoy when the modelling process is implement.
<ul style="list-style-type: none"> • They feel fun because they have a lot of time to play and directly help them to learn the knowledge. After that they can share their thought with their friends.
<ul style="list-style-type: none"> • The lesson would become more interesting. They were able to enjoy themselves in the lesson.
<ul style="list-style-type: none"> • By doing reflection and alway improve my teaching, student get to learn effectively and in the fun environment.
<ul style="list-style-type: none"> • Students enjoy the learning and students can learn in different way and technique.
<ul style="list-style-type: none"> • I found that the students more enjoyable & feel more excitement during the lesson. Other than that, they have increase a little bit in giving good respond in the class. They show their excitement to try even if it's wrong or they are not sure.

- My pupils had fun and were able to follow what I was teaching. They also followed the way I dress which is neatly and play a active role in the class discussion.
- When I use ARM to plan my lesson plan, pupils can learn with enjoyable. They learn through the activity and not feel bore or sleepy.
- Pupils enjoy the lesson and they get knowledge from my lesson. They show interest and felt happy in involving theirselves in the activities.

1m Pupil attributes

Benefits to student teachers

- But when it comes to presentation, pupils were scared to produce their product as they were shy.

Benefits to pupils

- At the same time, pupils can develop their confident when involve in activities.
- Gain confident and self-esteem.
- It also increased self-esteem in pupils.

Table 25 Student teacher questionnaires (first placement): extracts from responses to two questions about using the ARM approach – ‘How did it benefit you? How did it benefit your pupils?’

Theme 2: Assessment and feedback	
2a Assessment	
Benefits to student teachers	
•	Reflection – I can measure students understanding for the subject taught.
•	Using ARM, I can realize that pupils have different level/ability. So that, it gives me the opportunity to make up my lesson very well.
•	I could evaluate their understanding or misconceptions directly.
•	Teacher also able to identify pupils’ ability and suitable strategies/approaches.
•	I can know well about pupils’ achievement and performance.
•	I can encourage my pupils to participate actively in the classroom. From there I can evaluate the level of each pupils and I can plan the teaching that suit with the pupils.
•	They give good response when I ask to reflect the whole lesson. From their reflection, I could identify their understanding of the lesson and the strength and weakness of my teaching process.
•	After applying ARM on my placement, I found that I have better understanding on my children’s learning progress...It helps me a lot to get closer to children’s progression.
•	I could know how far the pupils have learnt; what they already know; what they do not understand; and their learning needs.
•	Active learning help me to know what my pupils’ thinking and understanding.
•	I also easily found out the difficulties of the pupils so that I could applied appropriate strategies to solve it.
•	ARM helped me in planning my next lesson, knowing my pupils abilities and creating lots of activities which can attract pupils’ interests.
Benefits to pupils	
•	Identify pupils’ mistake.
•	When I reflected them by asking questions, they also would know the level of achievement in the learning session. Thus, in the same time they can take an initiative to improve themselves to be better.
•	I applied it to know my pupils understanding level and helped me to provide some constructive feedback to my pupils.
•	By using multiple actions such as questioning, explaining and helping them to solve problems, I could see that they were able to understand my lesson slowly. Sometimes, they were able to reason clearly after my introduction during the main teaching session.
•	I set a goal and some actions I should take for next lesson to help my pupils and then I identify the improvements or effect through their assessment.
•	While we appreciate their answers and they feel valued, they would speak out their ideas and we would know what they know & don’t know.
2b Feedback (from teacher and pupils)	
Benefits to student teachers	
•	It also help me to communicate with the pupils while I am asking them to get their reflection. ARM models also is a way to be an effective teachers. An effective teacher always care about their pupils understanding. I will always ask my pupils to get their reflect about my lesson. From that, I will get an opportunity to improve my teaching and learning soon.

<ul style="list-style-type: none"> • It help me to know my pupils feedback and try to improve my teaching strategies.
<ul style="list-style-type: none"> • Collect feedback from pupils.
<ul style="list-style-type: none"> • After teaching, I need give feedback from my pupils to check their understanding of my teaching.
<ul style="list-style-type: none"> • From the feedback of children, I am getting confident and enthusiastic to design my lesson creative and effective.
<ul style="list-style-type: none"> • I thought it is useful because I could know the pupils' feedback, thinking and understanding clearly.
Benefits to pupils
<ul style="list-style-type: none"> • It has helped my pupils a lot by: Reflection: Be able to improve themselves or correct their misunderstanding by considering the feedback given by the teacher.
<ul style="list-style-type: none"> • Reflection: Pupils are freely about giving feedback on teaching strategies that I used. Pupils can comments and ask for their needs.
<ul style="list-style-type: none"> • Reflection – Pupils can know their weaknesses after getting feedback from me.
<ul style="list-style-type: none"> • I applied it to know my pupils understanding level and helped me to provide some constructive feedback to my pupils.
2c Reflection in practice
Benefits to student teachers
<ul style="list-style-type: none"> • It's give me the better way...to adapt with the class situation and to tackle the habit of the pupils.
2d Reflection by pupils (including for improvement)
Benefits to student teachers
<ul style="list-style-type: none"> • They give good response when I ask to reflect the whole lesson. From their reflection, I could identify their understanding of the lesson and the strength and weakness of my teaching process.
Benefits to pupils
<ul style="list-style-type: none"> • It has helped my pupils a lot by: Reflection: Be able to improve themselves or correct their misunderstanding by considering the feedback given by the teacher.
<ul style="list-style-type: none"> • Reflection: Pupils are freely about giving feedback on teaching strategies that I used. Pupils can comments and ask for their needs.
<ul style="list-style-type: none"> • It also help them reflect what they had learn and know their weaknesses.
<ul style="list-style-type: none"> • Then, it can help them to improve their thinking skill when teacher ask them to make a reflection about the lesson.
<ul style="list-style-type: none"> • By reflection, its help the pupils to improve on their critical thinking.
<ul style="list-style-type: none"> • In the end of the class pupils will successfully reflect on their needs.
<ul style="list-style-type: none"> • The pupils also can learn in many different ways since the teacher always take the reflection from them and try to improve her teaching.
<ul style="list-style-type: none"> • They have to do the reflection as well as what I have to do on they own. The pupils became very active and willing to share their thinking. This causes them became a critical and independent learners.
<ul style="list-style-type: none"> • Then, my students also able to reflect and think back on their learning.
<ul style="list-style-type: none"> • My pupils also can use this methods of reflection on their learning.
<ul style="list-style-type: none"> • They were able to reflect on their own learning and develop a better understanding of the concepts.
<ul style="list-style-type: none"> • The reflection can connect their previous knowledge to the new one.
<ul style="list-style-type: none"> • ARM benefitted my children with the opportunities provided for them to reflect on their learning. They reflected on their strengths & weaknesses...
<ul style="list-style-type: none"> • ARM provides opportunities for them to reflect what they have learnt.
<ul style="list-style-type: none"> • Reflection helps them to know their weakness well.
<ul style="list-style-type: none"> • When I asked them to reflect on their learning, they could understand the lesson very well and make the others to understand.

Table 26 Student teacher questionnaires (first placement): extracts from responses to two questions about using the ARM approach – ‘How did it benefit you? How did it benefit your pupils?’

Theme 3: Planning	
3a Lesson planning	
Benefits to student teachers	
<ul style="list-style-type: none"> • It also help me in teaching progression because by using ARM, I know what should I teach 	
<ul style="list-style-type: none"> • The ARM model benefits me a lot in improving my teaching. I can prepare a good lesson plan in using it. 	
<ul style="list-style-type: none"> • The ARM concept benefit me on planning the lesson work. 	
<ul style="list-style-type: none"> • Reflection: It improves my teaching and lesson planning as I make improvement if my lesson planning and teaching is not successful. 	
<ul style="list-style-type: none"> • It really helps me in my teaching and also for my planning...On the other hand, for my planning it becomes easier to use the activity which is suit with my pupils' ability. 	
<ul style="list-style-type: none"> • Besides that, during made a lesson plan, I emphasized this concepts by providing well planning and make sure my class lively and attractive. 	
<ul style="list-style-type: none"> • It's give me the better way to plan the lesson... 	
<ul style="list-style-type: none"> • I used ARM as the guidance to plan for my lesson. 	
<ul style="list-style-type: none"> • It helped in preparing a good lesson... 	
<ul style="list-style-type: none"> • It enabled me to plan a complete lesson plan that included teacher to student and student to student interaction. 	
<ul style="list-style-type: none"> • Plan a more suitable lesson for pupils. 	
<ul style="list-style-type: none"> • I can plan better if I couldn't carry out my lesson well on that day. 	
<ul style="list-style-type: none"> • It helps me to develop my planning skill.. 	
<ul style="list-style-type: none"> • Besides giving input to the pupils, I also have some input for myself. This helps me to have a clearer aims and objectives when planning the lesson plan to teach the pupils. 	
<ul style="list-style-type: none"> • ARM did guide me to be more systematic on what am I going to do. 	
<ul style="list-style-type: none"> • All my lessons were all well planned and organised. 	
<ul style="list-style-type: none"> • I can recognize my lesson plan systematically and try to used other method during the teaching lesson. Other than that, I can realized my strength and my weaknesses in conducting the class. 	
<ul style="list-style-type: none"> • I can encourage my pupils to participate actively in the classroom. From there I can evaluate the level of each pupils and I can plan the teaching that suit with the pupils. 	
<ul style="list-style-type: none"> • I could plan my lesson well and redesign the activities when its necessary based on my students' progress. 	
<ul style="list-style-type: none"> • The reflection really did benefit me because it reflected pupils' learning and it helped me a lot in planning my next lesson. 	
<ul style="list-style-type: none"> • After using ARM. I can plan a lesson by considering all learners. 	
<ul style="list-style-type: none"> • ARM help me to plan the well lesson plan. A remind me need to plan the interesting activity which can active the pupils' learning. 	
<ul style="list-style-type: none"> • It made me to be more reflective and helpful in lesson planning. I would when to carry out the suitable activities/teaching approaches while in the classroom teaching. 	
<ul style="list-style-type: none"> • ARM helps me in planning daily lesson plan. 	
Benefits to pupils	
<ul style="list-style-type: none"> • I set a goal and some actions I should take for next lesson to help my pupils... 	
<ul style="list-style-type: none"> • I planned well, therefore, pupils will get high qualities learning. 	
<ul style="list-style-type: none"> • When I use ARM to plan my lesson plan, pupils can learn with enjoyable. 	
3b Activities	
Benefits to student teachers	
<ul style="list-style-type: none"> • Create activities. Pupils will enjoy if they are active in learning. So, I plan varieties activities during my class. 	
<ul style="list-style-type: none"> • ARM helped me in planning my next lesson, knowing my pupils abilities and creating lots of activities which can attract pupils' interests. 	
Benefits to pupils	
<ul style="list-style-type: none"> • Action – pupils can involve in the activities that I prepared and do lots of activities whether individually, pairs or groups. 	
<ul style="list-style-type: none"> • At the same time, pupils can develop their confident when involve in activities. 	

<ul style="list-style-type: none"> Therefore, my pupils can use all the time during my period benefitly. They can't play with each other because after one activity, I moved to another activity.
<ul style="list-style-type: none"> They enjoyed doing group activities and using connection model really helped me in my teaching.
<ul style="list-style-type: none"> By using ARM, my pupils should involved in every activity that I produced. They can understand the activity and involve in the activity.
<ul style="list-style-type: none"> My students can have interesting and meaningful learning session with me as I used a lot of creative and interesting learning activities.
<ul style="list-style-type: none"> They participated actively during my lesson especially having activities.
<ul style="list-style-type: none"> My pupils are ensured to be involved actively in the learning. They participated the activities I prepared from them and they get input/knowledge from the activities.
<ul style="list-style-type: none"> Even the slow learner children were tried to complete some exercises that I had given.
<ul style="list-style-type: none"> They were actively involve in all activities. They showed their own interest in learning as this approach was different for them. They found my activities were challenging and interesting as they show their full interest.
<ul style="list-style-type: none"> They show interest and felt happy in involving theirselves in the activities.
3c Curriculum [no extracts]

Table 27 Student teacher questionnaires (first placement): extracts from responses to two questions about using the ARM approach – 'How did it benefit you? How did it benefit your pupils?'

Theme 4: Professional attributes
4a Pupil focused/pupil centred (building relationships)
Benefits to student teachers
<ul style="list-style-type: none"> I can get involvement from all my pupils.
<ul style="list-style-type: none"> Students closed with me.
<ul style="list-style-type: none"> Furthermore, it bring up an active learning and I've two-way communications within teacher and pupils.
<ul style="list-style-type: none"> The usage of ARM help me a lot. It promote the student-centred learning and I'm just act as a facilitator. When pupils get stuck, in their group activity, then I will help them. I let them to work on the task first, and I observed them. By applying ARM in my teaching, I have much time to observe my pupils' progress.
<ul style="list-style-type: none"> I could know my students ability individually and prepare myself better to help them in their learning.
<ul style="list-style-type: none"> Understand pupils' needs, learning styles, MI; ...view my pupil as an individual.
<ul style="list-style-type: none"> Help me in improving my teaching. It create an active learning environment in my classroom which let the students to communicate well each other and grasp their attention towards the lesson.
<ul style="list-style-type: none"> The child are motivated to learn and are actively involved in my teaching. They felt comfortable and interesting in my lessons.
<ul style="list-style-type: none"> I could plan my lesson well and redesign the activities when its necessary based on my students' progress.
<ul style="list-style-type: none"> After using ARM. I can plan a lesson by considering all learners.
<ul style="list-style-type: none"> ARM is very beneficial as it helps me to improve myself and my teaching and let me to judge myself well as well as reminds me to do the best for my pupils.
Benefits to pupils
<ul style="list-style-type: none"> Reflection: Pupils are freely about giving feedback on teaching strategies that I used. Pupils can comments and ask for their needs.
<ul style="list-style-type: none"> It also cultivate positive attitude to them, where they are more confident and less afraid to response my question.
<ul style="list-style-type: none"> Pupils feel safe and valued with my responsibilities.
<ul style="list-style-type: none"> It also help them to be independent when teacher always make the activity in pupil's centered.
<ul style="list-style-type: none"> The pupils will feel valued and included when they see their teacher always demonstrate an effective learning and teaching progress.
<ul style="list-style-type: none"> Pupil-centered. The usage of ARM in learning and teaching is useful to create the pupil-centered environment.
<ul style="list-style-type: none"> 1 – pupils interested to learn; 2 – not boring; 3 – easy to grasp understanding; 4 – lively learning.
<ul style="list-style-type: none"> Making close relationship among them.
<ul style="list-style-type: none"> It will increase pupil's level of understanding and at the same time pupils free to express their opinion.
<ul style="list-style-type: none"> ARM is actually promote the student-centred learning.
<ul style="list-style-type: none"> When they are in active learning, they would feel comfortable, safe and included as all of them involved in the activities done.
<ul style="list-style-type: none"> I recognised their needs and requirements through the reflection that I made during the end of the lesson.

<ul style="list-style-type: none"> • They can experience a more interesting lesson.
<ul style="list-style-type: none"> • They feel free to have the lessons. For instance, they are eager to answer my questions under an enjoyable and relaxable environment. While we appreciate their answers and they feel valued...
<ul style="list-style-type: none"> • Pupils will feel safe and more eager to learn.
<ul style="list-style-type: none"> • I noticed that children were eager to attend mathematic class than previous...Positive encouragement persisted giving to build up their confident in doing mathematics without giving up easily.
<ul style="list-style-type: none"> • After gone through reflection, I am able to redesign my lesson and choose appropriate activities to suit different children.
<ul style="list-style-type: none"> • Besides this, the appropriate teaching strategies would be created to help them who did not understand the lesson.
4b Confidence
Benefits to student teachers
<ul style="list-style-type: none"> • Modelling – I feel confident of showing them good attitudes. Easy for me to deliver the teaching points.
<ul style="list-style-type: none"> • I can change any of my teaching styles.
<ul style="list-style-type: none"> • ...by doing a reflection, I can know what I can do to increase my ability to deliver my knowledges.
<ul style="list-style-type: none"> • The benefit of using ARM is, it can maximise the potential of yourself as the teacher. That is because, we constantly do the reflection on ourself, and that is the important part of the life.
<ul style="list-style-type: none"> • Increase my confidence level as a practical teacher.
<ul style="list-style-type: none"> • Action: I felt satisfied if I able to do the actions successfully.
<ul style="list-style-type: none"> • I becoming more skillfull teacher because I manipulate the ARM theory in classroom.
<ul style="list-style-type: none"> • By using ARM, I also had improve my skill in teaching.
<ul style="list-style-type: none"> • For me, when I used ARM in my teaching, it will encourage me to be a good teacher and improve my teaching skill day by day.
<ul style="list-style-type: none"> • I feel more confidence & full of joy to teach the students.
<ul style="list-style-type: none"> • From the feedback of children, I am getting confident and enthusiastic to design my lesson creative and effective.
<ul style="list-style-type: none"> • Applying ARM in class have made me to be more confident.
4c Commitment
Benefits to pupils
<ul style="list-style-type: none"> • I have to attire as neat as possible and I always care about my image/appearance in front of my pupils.
<ul style="list-style-type: none"> • Modelling let pupils see my behaviour, style, attitude, appearance, moral, mood. From positive aspects, they learn something good from me and I can use my life to influence them.
4d Reflection on practice (including for improvement)
Benefits to student teachers
<ul style="list-style-type: none"> • Reflection: Be able to identify point for improvement and able to improve my teaching to meet with pupils' need.
<ul style="list-style-type: none"> • Action – enable me to identify the weaknesses and strengths of teaching strategies used. Reflection – Enable me to get feedback on my teaching strategies used during the lesson. I can identify and improve my teaching skills.
<ul style="list-style-type: none"> • Reflection can help me to improve myself as a teacher.
<ul style="list-style-type: none"> • I can reflect back about my teaching in the class. I can find out the strengths and weaknesses on the teaching and the learning outcomes that have achieved.
<ul style="list-style-type: none"> • From ARM, I manage to identify my weaknesses and how to improve my teaching style.
<ul style="list-style-type: none"> • Reflection: It improves my teaching and lesson planning as I make improvement if my lesson planning and teaching is not successful.
<ul style="list-style-type: none"> • By doing the reflection, I can monitor, review and detect my mistakes from my previous teaching. This help me to improve in the next lesson.
<ul style="list-style-type: none"> • Reflection that I did is help a lot to identify the weakness and strength for each lesson. So that I can improve on my next teaching.
<ul style="list-style-type: none"> • Reflection on my teaching help me to track my weaknesses and figure out how to overcome it.
<ul style="list-style-type: none"> • As I do reflection, a little bit I know how to improve myself to be the professional and effective teacher for future practice.
<ul style="list-style-type: none"> • It...helped me alot to reflect my own strengths and areas of development.
<ul style="list-style-type: none"> • It actually helps me to improve my next lesson because after every lesson, I'm doing the reflection on my teaching.
<ul style="list-style-type: none"> • From my reflection after teaching, it helps me to improve my weaknesses (areas of development).
<ul style="list-style-type: none"> • After did reflection I will know my areas for development and to improve it. So, I will be more prepared for the next lesson.
<ul style="list-style-type: none"> • I can always reflect on my own weaknesses and strengths. Keep the good and kick the bad.

<ul style="list-style-type: none"> It helped me to be more reflective and analytical.
<ul style="list-style-type: none"> ARM has helped me to look on my weakness and strengths in teaching & learning. I have improved on my teaching skills by using ARM to be better teacher future.
<ul style="list-style-type: none"> Reflect on my teaching. Improve my teaching skills. Strengthen my teaching skills.
<ul style="list-style-type: none"> Reflection and modelling are very important because I can find out my weaknesses and overcome it.
<ul style="list-style-type: none"> Through doing reflection, it help me a lot to do improvement of myself.
<ul style="list-style-type: none"> ARM benefits to me because it enables me to detect the areas of weaknesses during my teaching.
<ul style="list-style-type: none"> It also help me to prepare my self to be a qualified teacher. I always reflect on my own teaching about my weaknesses and strengths.
<ul style="list-style-type: none"> I can encounter my weaknesses and strengths through ARM. Hence I can do something to improve my teaching in future.
<ul style="list-style-type: none"> Reflection help me become more matured and 'clever' in handling student's behaviours and class management/control. If this time fail, think what I can do to improve in next time. If this time the effect is good, how I can do it to maintain the effectiveness or improve it to better.
<ul style="list-style-type: none"> It was giving benefit to me because I needed to be prepared before teaching and the reflection may helped me to improve my skill in teaching.
<ul style="list-style-type: none"> It also make me reflect myself & set me thinking what should I improve in my teaching to make my class life and enjoy during the lesson. So that my pupils will happy to study & don't feel stress.
<ul style="list-style-type: none"> The reflection really did benefit me because it reflected pupils' learning and it helped me a lot in planning my next lesson.
<ul style="list-style-type: none"> Through reflective writing, I can identify my strength and area of development. Therefore, I can develop the quality of teaching in my future teaching.
<ul style="list-style-type: none"> I did the reflection after my lesson to identify my performance in teaching.
<ul style="list-style-type: none"> It benefited me by giving me the rough idea on what to be done or improve on the next session.
<ul style="list-style-type: none"> Throughout Reflection, I know that a teacher with great power, comes great responsibility.
<ul style="list-style-type: none"> Reflection help me in looking my area of development and the strength that I need to keep on developing.
Benefits to pupils
<ul style="list-style-type: none"> Reflection: When I'm improving my teaching, pupils are able to get enough information of what they have to know.
<ul style="list-style-type: none"> By doing reflection and always improve my teaching, student get to learn effectively and in the fun environment.
<ul style="list-style-type: none"> I am able to reflect my pupils responses and performance as I reflect the successfully of teaching and learning session.
<ul style="list-style-type: none"> I recognised their needs and requirements through the reflection that I made during the end of the lesson.
<ul style="list-style-type: none"> After gone through reflection, I am able to redesign my lesson and choose appropriate activities to suit different children.
4e English language (and communication)
Benefits to student teachers
<ul style="list-style-type: none"> ARM were benefit to me when to give clear explanations and instructions to my pupils. It is because almost of my pupils were lacked in their English proficiency so I had to use my body language to minimise the use of native language (Malay language) in my classroom. So, indirectly my pupils understand what has been told to them by seeing my actions and not listening to the translations in Malay language.
4f Professional development
Benefits to student teachers
<ul style="list-style-type: none"> All these 3 elements assist me to improve myself better.
<ul style="list-style-type: none"> ARM can help me to make my teaching session was successful. This is because, I applied all the three elements of ARM. By using ARM, I can improve my teaching because I know which parts of weaknesses of my teaching.
<ul style="list-style-type: none"> ARM has helped me to look on my weakness and strengths in teaching & learning. I have improved on my teaching skills by using ARM to be better teacher future.
<ul style="list-style-type: none"> Reflect on my teaching. Improve my teaching skills. Strengthen my teaching skills.
<ul style="list-style-type: none"> Modelling from my mentor and lecturer do give me a good role model and references in my teaching.
4g Effective teaching (including flexibility)
Benefits to student teachers
<ul style="list-style-type: none"> ARM help me to make sure that my teaching is effective and attractive.
<ul style="list-style-type: none"> The ARM models help me to make an effective learning and teaching...ARM models also is a way to be an effective teachers. An effective teacher always care about their pupils understanding. I will always ask my pupils to get their reflect about my lesson.

<ul style="list-style-type: none"> By using ARM, I can support an effective teaching and learning. My teaching become more effective and flexible. Its also make my teaching become easier.
<ul style="list-style-type: none"> This ARM will make my teaching more effectively.
<ul style="list-style-type: none"> It is very effective way of teaching and learning because ARM make teacher learn and play our role in order to get excellent in education and improve our teaching performance.
<ul style="list-style-type: none"> It makes my lesson more effective and makes my teaching process becomes much more easier.
<ul style="list-style-type: none"> It makes me become effective teacher who can use a lot of teaching aids than use voice only.
<ul style="list-style-type: none"> I conduct the lesson more effectively when I carry out games. They actively involved and make them more interesting to learn.
<ul style="list-style-type: none"> It helped me for making the lesson and class ethos became much better. Children were eager to attend mathematics class even they wanted and asked to mathematics in a whole day. From the feedback of children, I am getting confident and enthusiastic to design my lesson creative and effective.
<ul style="list-style-type: none"> I was able to carry out my lesson more effectively.
<ul style="list-style-type: none"> I felt like my lesson was effective when I applied ARM. I believe that it has supported effective learning and teaching during my placement.
<ul style="list-style-type: none"> Create me to be an effective teacher.
<ul style="list-style-type: none"> As I do reflection, a little bit I know how to improve myself to be the professional and effective teacher for future practice.
<p>Benefits to pupils</p>
<ul style="list-style-type: none"> I think by using ARM, I did expose and demo to the pupils a new and more effective teaching style.
<ul style="list-style-type: none"> The pupils will feel valued and included when they see their teacher always demonstrate an effective learning and teaching progress.

Some examples of complete responses from student teachers at the end of their first placement to the question ‘**How did it benefit you?**’ are provided below.

‘I feel quite confident in using ARM model. The reason is I have a guidance to follow. ARM model also can enhance my teaching style and feel the lesson become quite systematic. When I stuck what to do in my lesson, ARM can be as my “next step” toolkits.’

Student teacher – Malaysia

‘ARM gives lots of benefits for me. Action help me to do various activities in the classroom. I can get involvement from all my pupils. Reflection can help me to improve myself as a teacher. I can change any of my teaching styles. I also can come out with many types of activities to tackle each level of pupils. Whereas Modelling can help me to tackle pupils’ understanding where they can see and learn.’

Student teacher – Malaysia

‘It benefits me a lot in making sure my pupils understood on what they’ve been taught. Using ARM affect me in achieving clear learning intentions for pupils. In addition, I can deliver the input and appropriate knowledge using new approaches rather than traditional ways. Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting. Furthermore, it bring up an active learning and I’ve two-way communications within teacher and pupils.’

Student teacher – Malaysia

‘I can know well about pupils’ achievement and performance. It also help me to prepare my self to be a qualified teacher. I always reflect on my own teaching about my weaknesses and strengths.’

Student teacher – Malaysia

‘ARM were benefit to me when to give clear explanations and instructions to my pupils. It is because almost of my pupils were lacked in their English proficiency so I had to use my body language to minimise the use of native language (Malay language) in my classroom. So, indirectly my pupils understand what has been told to them by seeing my actions and not listening to the translations in Malay language. By making own reflection, I had discovered that lots of my pupils need to be guided through their activities so they can do it more effectively and save more time to wait for them to complete it on their own. Besides that, I noticed that by using Modelling, I can teach my pupils about how to solve the questions more easier by guiding them to collect information and make their calculations.’

Student teacher – Malaysia

“The ARM models help me to make an effective learning and teaching. It also help me to communicate with the pupils while I am asking them to get their reflection. ARM models also is a way to be an effective teachers. An effective teacher always care about their pupils understanding. I will always ask my pupils to get their reflect about my lesson. From that, I will get an opportunity to improve my teaching and learning soon.”

Student teacher – Malaysia

‘From ARM, I was able to teach quite smoothly. I could teach from one point to the next point accordingly. By doing the reflection, I can monitor, review and detect my mistakes from my previous teaching. This help me to improve in the next lesson. Through modelling, it helped me in my teaching. I showed them with real object (resources) (eg notes, coins) to explain to the pupils.’

Student teacher – Malaysia

‘It helps me to teach smoothly and know what the next steps to take.’

Student teacher – Malaysia

‘The usage of ARM help me a lot. It promote the student-centred learning and I’m just act as a facilitator. When pupils get stuck, in their group activity, then I will help them. I let them to work on the task first, and I observed them. By applying ARM in my teaching, I have much time to observe my pupils’ progress.’

Student teacher – Malaysia

‘It helped me to be more reflective and analytical. By using ARM, I am able to organise and carry out my lesson more systematically. Sometimes, I felt glad to see my pupils were able to demonstrate their understandings by giving relevant examples and suggestions based on my modelling.’

Student teacher – Malaysia

‘I found that the ARM really benefitted me in a way which I know how to handle a class effectively. I learned that I had been adopting ARM subconsciously throughout my placement. All my lessons were all well planned and organised.’

Student teacher – Malaysia

‘Reflection help me become more matured and “clever” in handling student’s behaviours and class management/control. If this time fail, think what I can do to improve in next time. If this time the effect is good, how I can do it to maintain the effectiveness or improve it to better.’

Student teacher – Malaysia

‘It benefit me from many aspects. I can encourage my pupils to participate actively in the classroom. From there I can evaluate the level of each pupils and I can plan the teaching that suit with the pupils.’

Student teacher – Malaysia

‘I conduct the lesson more effectively when I carry out games. They actively involved and make them more interesting to learn. They give good response when I ask to reflect the whole lesson. From their reflection, I could identify their understanding of the lesson and the strength and weakness of my teaching process.’

Student teacher – Malaysia

‘I feel more confidence & full of joy to teach the students. It also make me reflect myself & set me thinking what should I improve in my teaching to make my class life and enjoy during the lesson. So that my pupils will happy to study & don’t feel stress.’

Student teacher – Malaysia

‘After applying ARM on my placement, I found that I have better understanding on my children’s learning progress. Nevertheless, they have shown their great active learning during my lessons. It helps me a lot to get closer to children’s progression.’

Student teacher – Malaysia

‘It helped me for making the lesson and class ethos became much better. Children were eager to attend mathematics class even they wanted and asked to mathematics in a whole day. From the feedback of children, I am getting confident and enthusiastic to design my lesson creative and effective. Throughout Reflection, I know that a teacher with great power, comes great responsibility.’

Student teacher – Malaysia

‘ARM have beneficial me in my teaching. I know how to create a better learning environment. Reflection help me in looking my area of development and the strength that I need to keep on developing. Modelling from my mentor and lecturer do give me a good role model and references in my teaching.’

Student teacher – Malaysia

‘I thought it is useful because I could know the pupils’ feedback, thinking and understanding clearly. Besides, the pupils also accepted the concepts of the lesson easily and quickly. I also easily found out the difficulties of the pupils so that I could applied appropriate strategies to solve it.’

Student teacher – Malaysia

‘Pupils were really actively involved in all activities because I used to give them different task every time. It stimulates their interest and it made them to be fully involve in all the activities. But when it comes to presentation, pupils were scared to produce their product as they were shy. At the same time, I was able to control my class.’

Student teacher – Malaysia

‘Applying ARM in class have made me to be more confident. I felt like my lesson was effective when I applied ARM. I believe that it has supported effective learning and teaching during my placement.’

Student teacher – Malaysia

Some examples of complete responses from student teachers at the end of their first placement to the question 'How did it benefit your pupils?' are provided below.

'I know my pupils did not know about ARM model. But, I always try to establish ARM in the lesson. In my observation, sometimes ARM can make clarify about the lesson. When I model it, they can more understand about the message that I want to send. Actually, ARM model are running parallel in the lesson.'

Student teacher – Malaysia

'It benefits my pupils in getting clear about what they are going to learn during the sessions. Using new approaches of ARM avoid my pupils felt bored and uncomfortable. The use of ARM make the lessons become meaningful for them and they loved it I know, when some of them asked me to do ARM in next teaching and learning activities. Doing ARM build up their understanding from an exploration and experience learning themselves. Lastly, using ARM is one way in creating positive classroom climate for them.'

Student teacher – Malaysia

'ARM has been useful to my pupils because they will learn more easier by having their teacher to guide them about what they supposed to do in learning activities. Although, it was good for the children to explore their own learning in order to generate their cognitive thinking, they still need to be guide by the teacher if they encountered some problems that has never been faced by them before.'

Student teacher – Malaysia

'For my pupils, it will be useful for them because they can understand the lesson better using the concept of ARM by using the action and modelling in the teaching progress and the reflection after end of the lesson. So that, the learning potential will increase.'

Student teacher – Malaysia

'I recognised their needs and requirements through the reflection that I made during the end of the lesson.'

Student teacher – Malaysia

'Children get to play the role of a teacher when they presented a question. They explained the question and explained how to solve it.'

Student teacher – Malaysia

'The pupils remain the same attitude although ARM was used in the lesson. They are mostly not willing to involve themselves in the lesson.'

Student teacher – Malaysia

'There have been long time that the teachers in the school are using the same traditional or old methods to teach the pupils. I think by using ARM, I did expose and demo to the pupils a new and more effective teaching style. The pupils are encouraged to be actively involved in the class with more discussion and opinions sharing. They have to do the reflection as well as what I have to do on they own. The pupils became very active and willing to share their thinking. This causes them became a critical and independent learners.'

Student teacher – Malaysia

'My pupils becomes good problem solvers who able to create ideas, communicate effectively, reasoning logically, find appropriate strategies in tackling problems and have their own views and beliefs.'

Student teacher – Malaysia

'Pupils will become more active in learning, having more interest in learning & able to learn by themselves.'

Student teacher – Malaysia

'My pupils can understand the mathematics concept easily since I use modelling to teach them. Pupils may produce interest in learning maths after they are [exposed/explored?] to diverse teaching strategies. Active learning can give an opportunity for the pupils to develop the intrapersonal and interpersonal intelligences in the classroom.'

Student teacher – Malaysia

'They feel free to have the lessons. For instance, they are eager to answer my questions under an enjoyable and relaxable environment while we appreciate their answers and they feel valued, they would speak out their ideas and we would know what they know & don't know. I usually ask them to act out something to let them have a better impression on what to be learned. I have to attire as neat as possible and I always care about my image/appearance in front of my pupils.'

Student teacher – Malaysia

'I found that the students more enjoyable & feel more excitement during the lesson. Other than that, they have increase a little bit in giving good respond in the class. They show their excitement to try even if it's wrong or they are not sure.'

Student teacher – Malaysia

'It supported my pupils' learning. They constructed new knowledge by their own during the active learning. The reflection can connect their previous knowledge to the new one...'

Student teacher – Malaysia

'I noticed that children were eager to attend mathematic class than previous. Even the slow learner children were tried to complete some exercises that I had given. Positive encouragement persisted giving to build up their confident in doing mathematics without giving up easily.'

Student teacher – Malaysia

'When the pupils experience Active Learning in class, they felt more energetic. When I asked them to reflect on their learning, they could understand the lesson very well and make the others to understand. The pupils could perform very well when I do modelling in class.'

Student teacher – Malaysia

Student teachers were asked the question about the benefit of using ARM ('How did it benefit you?') during the second survey at the end of their final placement. Some examples of their responses are provided below.

'Through out the ARM model, I can assess my pupils and my teaching either it was effective or not from my pupils' reflection. Therefore, I can plan for the next steps to improve the weaknesses.'

Student teacher – Malaysia

'1. Learning objectives usually achieved.

2. I could develop my teaching skills based on comments I got from my partner in an attempt to reach effective teaching and learning session.

3. It help to build my confidence as a teacher.

4. I could see the strengths and weaknesses of my teaching.'

Student teacher – Malaysia

'I can identify pupil's problem through Reflection part. Pupils will pay more attention, if I demonstrate the activity rather than just give explanation & instruction.'

Student teacher – Malaysia

'I could deliver the content in a short time. I have more time to help weaker pupils. I could assess and improve pupils' mistakes directly.'

Student teacher – Malaysia

'My lesson became more structured. I could be a reflective teacher. I could improve my teaching styles.'

Student teacher – Malaysia

'It help my pupils to understand the lesson taught. It help me to reflect what have I done in my lesson.'

Student teacher – Malaysia

'It helped me to realise my strengths in teaching and more importantly, I was able to learn that things are not always going as what I had expected. Thus, I learn to be accepting for some unexpected situations and always be ready for any circumstance occur in my lesson.'

Student teacher – Malaysia

'Let me to understand the pupils' need better. More interaction between teacher and pupils.'

Student teacher – Malaysia

'Through the students' reflection, I can/able to improve my teaching.'

Student teacher – Malaysia

'ARM has helped me to engage the students actively in the lesson & makes them to evaluate their own learning. I could carry out an effective learning.'

Student teacher – Malaysia

'Help me to understand pupils in their learning, and there be good understanding between my pupils and I.'

Student teacher – Malaysia

'Build up my confidence as a teacher. Lighten my work lot, make me think that "teaching" is not a burden. Become a reflective + an effective teacher.'

Student teacher – Malaysia

'ARM helps me a lot during my school placement. I was able to notice the pupils' learning styles and the way they apply knowledge to solve problems. They fulfilled the elements in Multiple Intelligences as I stated in my lesson notes. Nevertheless, it helps me to plan my future lessons by referring to pupils' interest and learning abilities to ensure the lessons suit every level of pupils in the class.'

Student teacher – Malaysia

'I was able to establish a lively learning atmosphere for pupils. I managed to improve my teaching and learning strategies. I could help pupils to build up their knowledge easier through modelling.'

Student teacher – Malaysia

Some examples of complete responses from student teachers at the end of their final placement to the question 'How did it benefit your pupils?' are provided below.

'Active learning – pupils enjoy my teaching.

'Reflection: Pupils know the level of their understanding.

'Modelling: Pupils can understand the topic clearly.'

Student teacher – Malaysia

'My pupils were excited and surprised with some of the strategies used. They showed great enthusiasm and made efforts to learn as well as to help their peers.'

Student teacher – Malaysia

'Pupils actively participated in the lesson, understand better and can master the skills for entire lesson well.'

Student teacher – Malaysia

'When, I do modelling in my teaching, the pupils really understand the topic that I taught them. They could do the given activities well. They are encouraged to ask some questions to wider their knowledge.'

Student teacher – Malaysia

'They enjoy the class and understand better.'

Student teacher – Malaysia

'I can say that my pupils enjoy the lesson since they are keenly and actively involve during the teaching and learning activity. However, there are still a few pupils cannot go along with the process. Thus, I will do kind of reflection to create different activity for those pupils.'

Student teacher – Malaysia

'It helps my pupils have better understanding rather than normal way.'

Student teacher – Malaysia

'They were able to try out the new teaching strategy which I had employed. Lessons were more interesting for them. They got to have expectations of teaching resources I would bring in with me.'

Student teacher – Malaysia

'Pupils were having better understanding, able to make connections.'

Student teacher – Malaysia

'My students can learn easily because I try to suit my teaching styles with their learning styles.'

Student teacher – Malaysia

'As one of the element is active learning. Pupils feel excited and are engaged in learning in my lesson as they delighted with the activities I planned. For example, pupils like "Shopping Activities" where they will buy their favourite things with their friends. It makes the learning of money fun and interesting!'

Student teacher – Malaysia

'They experienced a different style/ types of teaching & learning of the subjects. This train them to be a thinker instead of a blind follower.'

Student teacher – Malaysia

'Pupils might found that they are independent and they are able to learn new things by themselves without totally depend on their teachers. Teachers just guide the pupils to learn and they are not spoon feed the pupils. Besides, pupils are given freedom to share their opinions among friends and they would learn from mistakes if others are able to scaffold their peers on the spot.'

Student teacher – Malaysia

E Challenges of using ARM

The views of student teachers

Question from the questionnaire: 2007 – year 2 (Semester 4) end of first placement

What challenges did you experience using ARM?

Question from the questionnaire: 2009 – year 4 (Semester 7) end of final placement

a) What challenges did you experience using ARM?

b) If applicable, please describe how you overcame these challenges.

Most of the student teachers identified challenges they had experienced using ARM during their first placement. Tables 28 to 31 include some extracts from the full set of responses and provide examples. These extracts have been categorised using the main themes and sub-themes used previously in this report. In some cases extracts could have been listed under more than one heading. A small number are repeated under different headings.

The responses to this question provide further valuable insights into the ways in which the student teachers engaged in their first experience of teaching in school. They were learning how to implement ARM, finding ways of practising the principles, engaging pupils in active learning and reflection and encouraging 'shy pupils' to take part and use their voice. Some of the student teachers referred to the newness of the experience for them. For example, two student teachers commented:

'I have a problem to do some modelling because I have lack of practise on it. So that, I have to ask my friends how to do it properly.'

'It is difficult to do action and modelling in teaching progress because this is a new thing for me.'

In addition to the newness of the experience of classroom teaching, the student teachers were introducing a different approach to working with the children, which involved active participation by pupils and learning by doing in place of rote learning. Some student teachers noted challenges with the school culture and the novelty of the pedagogical approach for the pupils. As two student teachers expressed it:

'I think we might be the first group of teachers who are using ARM in our teaching progression in Malaysia schools. At first, it was quite hard to make the pupils involve themselves actively in the class, especially when asking them to do the discussion and share their ideas/opinions.'

'Since, students were used to the memory based learning, where they were spoonfed all the time, it was quite hard for me to foster active learning in the classroom.'

However, in some cases once the pupils had engaged, classroom management and behaviour management were challenged as the following quotations suggest.

'I think classroom management is still a main problem though I use ARM...When I asked to move around and do some exploration during the main teaching, they are overwhelmed. This made they lose control.'

'While doing the action, pupils are very excited to observe me and then it came out to be very noisy. Sometimes, I won't be able to control my class.'

Some of the student teachers referred to class size, often forty or more pupils.

Time management and the time taken to prepare for each lesson were seen as challenges by some student teachers. Teaching mathematics in English was also highlighted by several of the student teachers and some of them translated into the Malay language so that the pupils could understand.

Two student teachers explained this challenge in the following way:

'The others problem is language. As we know, their skill and knowledges in English is quite slow and it give a lot of problems to me as a teacher. So, I need to translate the language into Malay so that they can acquire the knowledges well.'

'Also, my pupils can't understand English because it wasn't our mother tongue language but they showed me improvement when they brave to speak in mix language.'

Similar challenges were identified during the second survey. At the end of their final placement however, the student teachers were invited to describe how they overcame any challenges. Some examples of their responses are provided later in this section of the report.

Table 28 Student teacher questionnaires (first placement): extracts from responses to the question 'What challenges did you experience using ARM?'

Theme 1: Learning and teaching
1a Learning and teaching environment
<ul style="list-style-type: none"> • School culture. • Teachers also have challenges on inculcate this cultures in Malaysian pupils. • The problem I face is the culture of the... It is hard to change pupil's attitude as what I have teach will not effective if the ethos or culture of the school and their family is not good. They will not change if there is no cooperation from the school and family.
1b Learning and teaching strategies
<ul style="list-style-type: none"> • The challenge is sometime I can not be model to my pupils. Maybe it is not suitable or approximate for pupils ability or level. Pupils also feel uncomfortable to achieve with what I want to teach. • Modelling: Lack of teaching and learning resources at school influenced the progression. • When I teach the slow learner, where the ARM cannot be done effectively. • At the beginning, it hard to get a co-operation from my pupils because they don't familiar with ARM. • Using ARM, challenges me on making appropriate activity for different learning styles and development disabilities. • As the trainee teacher, I was still slow in making my lesson activity become very effective for my pupils and I had to teach the same topic for 2 or 3 times to make sure that my pupils have grasp the idea of solving the questions related to the topic. • The challenge that I face during using this ARM when in a first time I ask to do something by their own, they cannot do that. They always ask me how to [do] this, how to do that. They also have a problem when I ask them 'how' and 'why' question. So, I have to prompt them to answer the question. • I also have problem to find my pupil's problems when they refuse to answer my question, they also have not been encouraged to give reason about their answer. • It is hard to do the modelling part because we have do it again until pupils can understand. • I have a problem to do some modelling because I have lack of practise on it. So that, I have to ask my friends how to do it properly. • Sometimes verbal explanation not always a good teaching approach. • While using ARM in my teaching, I noticed that when the class is mix ability, not all my pupils can follow the lesson. I think my experience on using ARM still lack need more improvement. Sometimes, there have some pupils not participant in my teaching. • Other than that, sometime as I reflect them via asking questions, mostly all of them didn't know how to answer it. • I need to adjust my teaching strategies according to pupil's ability. • I cannot use ARM very well because this was my first placement, so it become difficult for me. • It is difficult to do action and modelling in teaching progress because this is a new thing for me. • I also need to think other strategies that I can use to enhance my pupils understanding.

<ul style="list-style-type: none"> I faced difficulties in modelling. At the first time, I do not know how to apply the modelling in my teaching.
<ul style="list-style-type: none"> It was too difficult for me to control in the class because sometimes pupils are really interest to learn, especially when doing group activity.
<ul style="list-style-type: none"> Pupils participation – still can co-operate during the group activities.
<ul style="list-style-type: none"> Pupil's participation.
<ul style="list-style-type: none"> I think we might be the first group of teachers who are using ARM in our teaching progression in Malaysia schools. At first, it was quite hard to make the pupils involve themselves actively in the class, especially when asking them to do the discussion and share their ideas/opinions.
<ul style="list-style-type: none"> Creating task for the children to solve.
<ul style="list-style-type: none"> The most challenge which I encountered was thinking of the appropriate actions for teaching each lesson. I needed to lower the order of my thinking so that I would be able to prepare simple questions and activities which suit the primary pupils' levels of understanding.
<ul style="list-style-type: none"> Sometimes, I did not play my part of modelling too well.
<ul style="list-style-type: none"> During my practicum, I realizes that as a teacher we must be a good model for the students in order to deliver the lesson effectively.
<ul style="list-style-type: none"> On how to various my teaching method. It's hard to create different type of teaching everyday.
<ul style="list-style-type: none"> Sometimes, I did not really use it because of time constrain...
<ul style="list-style-type: none"> Due to the time limitation, not all the pupils in the classroom can absorb what I have taught.
<ul style="list-style-type: none"> The low proficiency level of pupils not involved much in the active learning process.
<ul style="list-style-type: none"> As I teach primary school students, so as a teacher I have to guide & give more examples as a good role model for them. I have to prepared a lot of things to empowerment student's understanding.
<ul style="list-style-type: none"> The challenges that I experience was, that we as teacher need to be the model for the pupils and they will follow what ever that we do.
<ul style="list-style-type: none"> It is difficult to think the interesting activity.
<ul style="list-style-type: none"> Pupils are not adapt to new teaching strategies I displayed.
<ul style="list-style-type: none"> It is hard to model certain aspects especially when the abstract knowledge is required. Sometimes it lets me to comes with a variety of approaches in order to be a good modelling for the pupils since there are many level of pupils in classroom.
<ul style="list-style-type: none"> I found that my pupils had difficulties in adapting to my new teaching strategies, for example they did not understand very well.
<ul style="list-style-type: none"> Pupils were not really interested in doing presentation.
<ul style="list-style-type: none"> When I modelled a situation. I realised that I modelled it in such a way that it was difficult for them to understand. This was because I explained in a higher thinking standard.
1c Learning and teaching objectives
<ul style="list-style-type: none"> They also have a problem when I ask them 'how' and 'why' question. So, I have to prompt them to answer the question.
<ul style="list-style-type: none"> Sometimes they can't carry out any conclusion by their own. It showed that they cannot understand the topic and I need to identify the weakness of my teaching and try to improve in the next lesson.
<ul style="list-style-type: none"> The challenges I faced are, my pupils' ability and level of understanding are quite slow. So, I have to put more effort in order to make them clear about what they learnt.
<ul style="list-style-type: none"> Firstly, my pupils are quite slow in learning. When I used this concepts in the class, it's not success to deliver to my pupils. So, I need to give more effort and encourage my pupils to participate actively in the class.
<ul style="list-style-type: none"> Learning objective. Some learning objective that I have planned can not be achieved.
<ul style="list-style-type: none"> The challenges when I can't budget the time duration and the learning objective more than two.
<ul style="list-style-type: none"> When I modelled a situation. I realised that I modelled it in such a way that it was difficult for them to understand. This was because I explained in a higher thinking standard.
1d Active learning
<ul style="list-style-type: none"> Active learning is quite difficult to be applied in my classroom where most of my students are less able students. They actively engaged in my main teaching but less co-operative when it comes to group activity.
<ul style="list-style-type: none"> I faced small difficulties to plan active learning and teaching at the early period during placement.
<ul style="list-style-type: none"> Since, students were used to the memory based learning, where they were spoonfed all the time, it was quite hard for me to foster active learning in the classroom.
<ul style="list-style-type: none"> To create the active learning is not an easy job. I have to prepare a lot of resources like worksheet in order to support the lesson.
<ul style="list-style-type: none"> Sometimes, it was tough for me to engage children's active learning, especially during the last period before they went back. Perhaps there were external & internal distractions that disturbed the process of ARM.
<ul style="list-style-type: none"> When I asked to move around and do some exploration during the main teaching, they are overwhelmed. This made they lose control. However, after I made active learning as classroom routine, the problem overcomed.
<ul style="list-style-type: none"> In order to achieve active learning, I had tried bring them out to the class to have the lesson.

<ul style="list-style-type: none"> • <i>I faced problem in active learning. My pupils was really very naughty and active doing other things (some pupils).</i> • <i>It is difficult to carry out active learning because, sometime the pupils make noise.</i>
1e Creative teaching
<ul style="list-style-type: none"> • <i>In making the ARM purposeful to my pupils, it challenges me to think creatively which I've to consider the subject domains, individual and communities, wider social and culture context and so forth.</i> • <i>No challenges. Just need some more creative suggestions and ideas.</i>
1f Classroom management
<ul style="list-style-type: none"> • <i>Unclear instruction. As a beginner teacher, I have problem in giving short and clear instruction in order to manage the classroom activities.</i> • <i>Too many pupils in the classroom – crowded.</i> • <i>I faced a difficulties when letting my students to involve actively in my activity because the young children tend to be hyperactive and would not listen to my instructions. Therefore, I always have to be serious to them.</i> • <i>Class management is a big challenges for me. This is because ARM is just suitable used in the high achievers and intermediate achievers classes. For the low achievers, they cannot concentrate in the lessons. And some passive learners or slow learners cannot catch up the lesson.</i> • <i>To provide an enjoyable environment is something good, but being too friendly with them will causing them to make noise in the lesson. Hence, I can't overlook the relationship between me and my pupils whereas it can be a 'tool' to control my pupils too. Class management is important for me in future teaching.</i> • <i>To manage the classroom.</i> • <i>I think classroom management is still a main problem though I use ARM...When I asked to move around and do some exploration during the main teaching, they are overwhelmed. This made they lose control.</i>
1g Behaviour management
<ul style="list-style-type: none"> • <i>Besides, I've faced problem in controlling the class when I've applied ARM.</i> • <i>Class control; understanding pupils' behaviour.</i> • <i>The most challenge is that always burden me is to get cooperation from the naughty pupils. I always spend a lot of times just only to control them. They cannot get any benefit of this ARM models.</i> • <i>While doing the action, pupils are very excited to observe me and then it came out to be very noisy. Sometimes, I won't be able to control my class.</i> • <i>I have encountered with many pupils in a class – difficult to control.</i> • <i>Too many pupils in the classroom – caused lack of class control.</i> • <i>Sometimes, the pupils did not cooperate well. The pupils did not know what I've asked to do.</i> • <i>Student behaviour: they quarrel each other.</i> • <i>The challenges that I had faced was the language. My class consists of mixed ability students where some of them understood what I taught and some did not. Hence, I need to explain again to these students which was time consuming and the more abled students started to make noise.</i> • <i>It was too difficult for me to control in the class because sometimes pupils are really interest to learn, especially when doing group activity.</i> • <i>I noticed that when I enter the class, I failed to control the class and cannot practice ARM well but I improved it for the next lesson.</i> • <i>Pupils' participation and they would not co-operate during the lessons.</i> • <i>Some of the pupils do not want to co-operate during the activity. Some of them having problems understanding the instruction.</i> • <i>It is difficult to carry out active learning because, sometime the pupils make noise.</i> • <i>They are overexcited when doing activities. I lost control when they move around. Then, I come out an idea on controlling them by praising the group who sit down & keep silent at first.</i> • <i>I faced problem in active learning. My pupils was really very naughty and active doing other things (some pupils).</i>
1h Teaching aids and ICT
<ul style="list-style-type: none"> • <i>Modelling: Lack of teaching and learning resources at school influenced the progression.</i> • <i>I think, the challenges opposed in using the ARM concept were depend to the school facilities...School with lack of facilities, set the barrier to teachers implemented the practiced.</i> • <i>The challenge of using ARM is, sometimes I don't have enough time to practice all the concept due to limited time and teaching aids.</i> • <i>Planning a lesson session and providing a teaching resources.</i> • <i>Making a nice teaching tools.</i> • <i>I need to prepare a good resource to use when I'm teaching...It took time to provide the teaching materials.</i>

<ul style="list-style-type: none"> • Took time to provide a teaching material for each lesson.
<ul style="list-style-type: none"> • Resource is not enough and some of them are not in good condition.
<ul style="list-style-type: none"> • Some resources were not enough and broken.
<ul style="list-style-type: none"> • A good teaching aid doesn't mean appropriate with pupil's level of ability overall.
<ul style="list-style-type: none"> • Teacher (I) couldn't find suitable resources as I am not well creative.
<ul style="list-style-type: none"> • Challenges that I experience while using ARM are I need to prepare my teaching aids & resource early because it use plenty of time to finish it.
<ul style="list-style-type: none"> • How to make teaching aid for effective learning.
<ul style="list-style-type: none"> • To create the active learning is not an easy job. I have to prepare a lot of resources like worksheet in order to support the lesson.
<ul style="list-style-type: none"> • The teaching aids are limited and sometime, it is difficult to carry out in the classroom.
1j Learning theory
<ul style="list-style-type: none"> • Quite hard to practice because the theory and the practical is quite different.
<ul style="list-style-type: none"> • I admit that ARM is good to apply in learning & teaching progress. However it doesn't mean it work on every pupils. To make it can be use on each pupils, other elements should be embedded such as multiple intelligence & learning styles.
<ul style="list-style-type: none"> • It is challenging when I was trying to satisfy the pupils' learning abilities & needs as it is quite difficult to plan activities that suit all pupils learning styles.
<ul style="list-style-type: none"> • Using ARM, challenges me on making appropriate activity for different learning styles and development disabilities.
1k Pupil learning
<ul style="list-style-type: none"> • Promote long term memory.
<ul style="list-style-type: none"> • Pupil previous knowledge always become the barrier to implement the ARM.
<ul style="list-style-type: none"> • When I modelled a situation. I realised that I modelled it in such a way that it was difficult for them to understand. This was because I explained in a higher thinking standard.
<ul style="list-style-type: none"> • It was too difficult for me to control in the class because sometimes pupils are really interest to learn, especially when doing group activity.
<ul style="list-style-type: none"> • The level of the students.
1l Fun learning (no extracts)
1m Pupil attributes
<ul style="list-style-type: none"> • I found that sometimes it is difficult to get individually responses from the children. They often to give chorus answer than giving individual answer.
<ul style="list-style-type: none"> • The pupils should be encourage so that they familiar with the ARM model.
<ul style="list-style-type: none"> • I think, the challenges opposed in using the ARM concept were depend to the school facilities and the feedback from the pupils... Less commitment from the pupils also make the practiced useless and not work efficiently although the teacher had positive motivation towards the teaching.
<ul style="list-style-type: none"> • Pupil's inability to express their perception and fail to recall back what they had learn.
<ul style="list-style-type: none"> • There are some shy pupils who do not participate in lesson.
<ul style="list-style-type: none"> • Actually, many challenges that I have faced in using ARM. The pupils are not ever exposed that kind of teaching practice before. It is difficult to me to organise the group work, to ask them present their answer, to ask them sharing the idea and their resources. The pupils were not very confident and not motivated to experience the ARM.
<ul style="list-style-type: none"> • A few shy and weak pupils refused to participate in the activities.
<ul style="list-style-type: none"> • Pupils' attitude.

Table 29 Student teacher questionnaires (first placement): extracts from responses to the question 'What challenges did you experience using ARM?'

Theme 2: Assessment and feedback
2a Assessment
<ul style="list-style-type: none"> Once it comes to reflection part, they didn't show their interest to recall back the lesson. This discourage me as sometimes I was not able to know the pupils understanding.
<ul style="list-style-type: none"> Some pupils did not show their response, so that I didn't know whether they understand about my lesson or not.
<ul style="list-style-type: none"> Limited time to really know my pupils' ability and performance.
2b Feedback (from teacher and pupils)
<ul style="list-style-type: none"> Sometimes, students not give feedback and can answer question.
<ul style="list-style-type: none"> It is also hard to get student's reflection about our teaching at the beginning. I still have to find a good way to get more feedback from students.
<ul style="list-style-type: none"> The pupils do not give feedback during group discussion.
<ul style="list-style-type: none"> I also have to prepare questions in order to reflect their learning.
<ul style="list-style-type: none"> Reflection: Hard to get a feedback from the pupils, since they had ever done it before.
<ul style="list-style-type: none"> Reflection: Difficult to get feedback from pupils especially for those silence pupils.
<ul style="list-style-type: none"> I think, the challenges opposed in using the ARM concept were depend to the school facilities and the feedback from the pupils.
2c Reflection in practice
<ul style="list-style-type: none"> Sometimes, what I planned could not fulfill successfully, Therefore, I need to change my strategies spontaneously.
2d Reflection by pupils (including for improvement)
<ul style="list-style-type: none"> The pupils in the school also not really familiar with reflection. It is hard for me to train them with these things.
<ul style="list-style-type: none"> From my practicum experience, I notice that my pupils did not use to do reflection on their lesson.
<ul style="list-style-type: none"> For the pupils, they have a problem to do a self-reflection since it is unfamiliar with them.
<ul style="list-style-type: none"> I discovered that it requires some techniques to ask pupils to reflect.
<ul style="list-style-type: none"> It is also hard to get student's reflection about our teaching at the beginning. I still have to find a good way to get more feedback from students.
<ul style="list-style-type: none"> I was the first to practise ARM on children, so I was challenged to guide them to reflect on their learning.
<ul style="list-style-type: none"> Once it comes to reflection part, they didn't show their interest to recall back the lesson. This discourage me as sometimes I was not able to know the pupils understanding.
<ul style="list-style-type: none"> I felt very difficult to manage the time for the 'Reflect' part...Pupils also faced difficulties to reflect the lesson in English.

Table 30 Student teacher questionnaires (first placement): extracts from responses to the question 'What challenges did you experience using ARM?'

Theme 3: Planning
3a Lesson planning
<ul style="list-style-type: none"> Planning a lesson session and providing a teaching resources.
<ul style="list-style-type: none"> I should prepare what I wanted to do earlier – read a lot about teaching pedagogy. Sometimes, what I planned could not fulfill successfully, Therefore, I need to change my strategies spontaneously.
<ul style="list-style-type: none"> Sometimes, I will face the problem that can make me get no ideas to teach my pupils.
<ul style="list-style-type: none"> Sometimes, I have difficulties in planning interesting activities for the pupils.
<ul style="list-style-type: none"> It is challenging when I was trying to satisfy the pupils' learning abilities & needs as it is quite difficult to plan activities that suit all pupils learning styles.

3b Activities

- Pupils easily to understand and I need to fulfill the left time by doing the other activities.
- Ability pupils. Each pupils have difference abilities. So I need to create difference activities that suitable for their ability.
- Besides, I also need to create suitable activities according to all ability in my class.

3c Curriculum

- Actually, there were lots of challenges in using ARM but to me the most difficult was to catch up with the syllabus because every month they had been scheduled to take exam and many topics to be learnt to answer the exam's questions.

Table 31 Student teacher questionnaires (first placement): extracts from responses to the question 'What challenges did you experience using ARM?'

Theme 4: Professional attributes**4a Pupil focused/pupil centred (building relationships)**

- Handle the pupils' special need.
- Hard to contact with pupils because the amount of pupils is too many.
- Limited time to really know my pupils' ability and performance.
- I need to adjust my teaching strategies according to pupil's ability.
- During my placement, I will be good model for the students.
- I need to be patient and guide them to express their opinions.
- To provide an enjoyable environment is something good, but being too friendly with them will causing them to make noise in the lesson. Hence, I can't overlook the relationship between me and my pupils whereas it can be a 'tool' to control my pupils too.
- It is challenging when I was trying to satisfy the pupils' learning abilities & needs as it is quite difficult to plan activities that suit all pupils learning styles.

4b Confidence

- They are a lot of challenges in using ARM model. Action: Not too confident in delivering the content; not enough experience in facing a crowd of people (pupils). Modelling: Don't have a clear understanding on the topic.
- Action: Lack of confidence at the early stage I was in the school affects my teaching progress.

4c Commitment (no extracts)**4d Reflection on practice (including for improvement)**

- It is hard for me to reflect the areas of development that I need to improve in my T&L process.
- But after practicing ARM, I am able to communicate with students to enable me reflect on their learning.
- After that, I will do a reflection to identify my weaknesses that has to be improve.
- The challenge is the suitable time to use ARM. To find the weakness and strength also the hardest part.
- Sometime when I do reflection on the failure, I did not know how to improve it or solve it.
- It is difficult and boring to write the reflection because there are the same things. I don't know how to write different reflection and sometimes I write same reflection.
- I facing the difficulty whenever I find the effective ways to improve the weaknesses I identified through doing reflection.
- Moreover, I had some difficulties in doing the reflection on the lesson because it was hard to find weakness.
- I never use ARM at first and make me quite difficult to teaching my students. After I made some reflection on myself, I started to use ARM so that it helped me in teaching and learning in the classroom.
- However, reflection developed my teaching ways and strategies becoming better and better.

4e English language (and communication)

- Language constrain. Generally, pupils have difficulties to understand my language especially in English medium. Otherwise, I have trained them for a period of time. They also have difficulties with the mathematical term.
- The language that hard to understand for pupils – pupils' level of English is low.
- Although the ARM is very useful, but it also have some problem. Sometimes, my pupils did not able to express their idea although they understand it. Their communication skill is still not achieve at giving idea.

<ul style="list-style-type: none"> Besides that, the using of English also make the pupils hard to learn. I have to use and translate it in Malay.
<ul style="list-style-type: none"> The use of English in Mathematics make the pupils having difficulties in understanding the lesson. In case they can't follow the lesson and pupils' participation is not very much.
<ul style="list-style-type: none"> The others problem is language. As we know, their skill and knowledges in English is quite slow and it give a lot of problems to me as a teacher. So, I need to translate the language into Malay so that they can acquire the knowledges well.
<ul style="list-style-type: none"> It is a little bit challenge for me when my pupils didn't understood my explanation well because of using the English language. Thus, sometimes I spoke more on using Malay language to let them understand the lesson.
<ul style="list-style-type: none"> Language: Pupils couldn't understand all terms/words used.
<ul style="list-style-type: none"> Language difficulties – pupils did not understand English well.
<ul style="list-style-type: none"> When give explanation, it's hard to me to use the mathematical language and communicate well with pupils.
<ul style="list-style-type: none"> The challenges that I had faced was the language. My class consists of mixed ability students where some of them understood what I taught and some did not. Hence, I need to explain again to these students which was time consuming and the more abled students started to make noise.
<ul style="list-style-type: none"> Students could not understand my language.
<ul style="list-style-type: none"> I also get a problem because my pupils do not understand the English language.
<ul style="list-style-type: none"> Also, my pupils can't understand English because it wasn't our mother tongue language but they showed me improvement when they brave to speak in mix language.
<ul style="list-style-type: none"> The language problem in my class. So there has a bit problem when communicate with my pupils.
<ul style="list-style-type: none"> I thought that the major problem was communication. During the internship, the pupils could not understand English well. Sometimes, they would feel confused about the language, except using their language, Malay.
<ul style="list-style-type: none"> Besides that, language became the main problem for pupils, either for me. I felt quite difficult to communicate with them in English. Pupils also faced difficulties to reflect the lesson in English.
<h4>4f Professional development</h4>
<ul style="list-style-type: none"> I noticed that when I enter the class, I failed to control the class and cannot practice ARM well but I improved it for the next lesson.
<ul style="list-style-type: none"> To improve myself in the areas that I need to do so.
<ul style="list-style-type: none"> Sometime when I do reflection on the failure, I did not know how to improve it or solve it.
<ul style="list-style-type: none"> The knowledge that I have is not enough for me to do the action. I have identified my areas for development, however I sometimes do not have idea to improve myself.
<ul style="list-style-type: none"> However, reflection developed my teaching ways and strategies becoming better and better.
<h4>4g Effective teaching (including flexibility)</h4>
<ul style="list-style-type: none"> The problem I face is the culture of the... It is hard to change pupil's attitude as what I have teach will not effective if the ethos or culture of the school and their family is not good. They will not change if there is no cooperation from the school and family.
<ul style="list-style-type: none"> During my practicum, I realizes that as a teacher we must be a good model for the students in order to deliver the lesson effectively.

Some examples of complete responses from student teachers at the end of their first placement to the question 'What challenges did you experience using ARM?' are provided below.

'Using ARM, challenges me on making appropriate activity for different learning styles and development disabilities. Besides, I've faced problem in controlling the class when I've applied ARM. In making the ARM purposeful to my pupils, it challenges me to think creatively which I've to consider the subject domains, individual and communities, wider social and culture context and so forth.'

Student teacher – Malaysia

'Actually, there were lots of challenges in using ARM but to me the most difficult was to catch up with the syllabus because every month they had been scheduled to take exam and many topics to be learnt to answer the exam's questions. As the trainee teacher, I was still slow in making my lesson activity become very effective for my pupils and I had to teach the same topic for 2 or 3 times to make sure that my pupils have grasp the idea of solving the questions related to the topic.'

Student teacher – Malaysia

'I think, the challenges opposed in using the ARM concept were depend to the school facilities and the feedback from the pupils. School with lack of facilities, set the barrier to teachers implemented the practiced. Less commitment from the pupils also make the practiced useless and not work efficiently although the teacher had positive motivation towards the teaching.'

Student teacher – Malaysia

'From my practicum experience, I notice that my pupils did not use to do reflection on their lesson. I also have problem to find my pupil's problems when they refuse to answer my question, they also have not been encouraged to give reason about their answer.'

Student teacher – Malaysia

'Actually, many challenges that I have faced in using ARM. The pupils are not ever exposed that kind of teaching practice before. It is difficult to me to organise the group work, to ask them present their answer, to ask them sharing the idea and their resources. The pupils were not very confident and not motivated to experience the ARM.'

Student teacher – Malaysia

'I think we might be the first group of teachers who are using ARM in our teaching progression in Malaysia schools. At first, it was quite hard to make the pupils involve themselves actively in the class, especially when asking them to do the discussion and share their ideas/opinions. I need to be patient and guide them to express their opinions.'

Student teacher – Malaysia

'I admit that ARM is good to apply in learning & teaching progress. However it doesn't mean it work on every pupils. To make it can be use on each pupils, other elements should be embedded such as multiple intelligence & learning styles.'

Student teacher – Malaysia

'Class management is a big challenges for me. This is because ARM is just suitable used in the high achievers and intermediate achievers classes. For the low achievers, they cannot concentrate in the lessons. And some passive learners or slow learners cannot catch up the lesson. Due to the time limitation, not all the pupils in the classroom can absorb what I have taught.'

Student teacher – Malaysia

'To provide an enjoyable environment is something good, but being too friendly with them will causing them to make noise in the lesson. Hence, I can't overlook the relationship between me and my pupils whereas it can be a "tool" to control my pupils too. Class management is important for me in future teaching.'

Student teacher – Malaysia

'As I teach primary school students, so as a teacher I have to guide & give more examples as a good role model for them. I have to prepared a lot of things to empowerment student's understanding. It is also hard to get student's reflection about our teaching at the beginning. I still have to find a good way to get more feedback from students.'

Student teacher – Malaysia

'It is challenging when I was trying to satisfy the pupils' learning abilities & needs as it is quite difficult to plan activities that suit all pupils learning styles.'

Student teacher – Malaysia

'I found that sometimes it is difficult to get individually responses from the children. They often to give chorus answer than giving individual answer.'

Student teacher – Malaysia

'They are overexcited when doing activities. I lost control when they move around. Then, I come out an idea on controlling them by praising the group who sit down & keep silent at first.'

Student teacher – Malaysia

'I think classroom management is still a main problem though I use ARM. Pupils are not adapt to new teaching strategies I displayed. When I asked to move around and do some exploration during the main teaching, they are overwhelmed. This made they lose control. However, after I made active learning as classroom routine, the problem overcame.'

Student teacher – Malaysia

'In order to achieve active learning, I had tried bring them out to the class to have the lesson. One thing challenged me was the class control. However, reflection developed my teaching ways and strategies becoming better and better.'

Student teacher – Malaysia

'I felt very difficult to manage the time for the "Reflect" part. Besides that, language became the main problem for pupils, either for me. I felt quite difficult to communicate with them in English. Pupils also faced difficulties to reflect the lesson in English.'

Student teacher – Malaysia

At the end of their final placement student teachers were asked again 'What challenges did you experience using ARM?' During this second survey, a follow up question was added 'If applicable, please describe how you overcame these challenges.' Some examples of the challenges faced by the student teachers and the ways in which they resolved them are provided below.

a) 'The barrier that I face is time constraint and classroom management. I also need a lot of time to prepare the materials.'

b) 'I prepare all the materials earlier. I focus only one activity for each lesson to manage the time well. I set the rules for pupils to follow.'

Student teacher – Malaysia

a) 'Big number of pupils in the class sometimes they cannot see clearly while teacher model in front.'

b) 'Calls a leader of each group, show to them how to do and they go back to their group and they model to their friends.'

Student teacher – Malaysia

a) 'It was difficult to me to control the class because pupils were very excited to play it. Therefore, it made my class become noisy.'

b) 'I set up and remind them rules before doing the activity – for example – discuss by using slow voice – respect others.'

Student teacher – Malaysia

a) 'Language barrier, where sometimes my pupils cannot really understand the English terms that used by me.'

b) 'Initially, I used to make use of simple words to deliver my instruction in a good manner. If it still does not work, I choose to make use of our mother tongue language, that is Malay to support them.'

Student teacher – Malaysia

a) 'The great challenge that I had experienced is time constraint. Sometimes, my mentor had to urge me to follow the teaching syllabus by conducting the lesson faster due to the monthly examination in school. It seemed that scoring is more important than understanding in learning mathematics.'

b) 'I discussed with my lecturer and tried to be flexible in handling certain situations of my teaching by adjusting the time allocated for some activities.'

Student teacher – Malaysia

a) 'The students are shy to voice out their feeling/understanding. It takes a time for me to make them make used with my style.'

b) 'At first, I give the students a form to write down their feedback (reflection). Then I set a game where the students have to voice out. Little by little they became confidence/brave to voice out their reflection.'

Student teacher – Malaysia

a) 'When did group activities, the class become hard to be controlled and some students do act as passengers in the group.'

b) 'During group work, I do give individual tasks where they need to do on their own and share their answers in order to complete the tasks. It does let all the students to be occupied with the task – less noise.'

Student teacher – Malaysia

a) 'Learners were not so used to do reflection after lessons. They mostly did not know how to talk about what they had gone through.'

b) 'Train them slowly. Guide them and hint them with technical prompts.'

Student teacher – Malaysia

a) 'I find that, it was difficult to get pupils participation because they more comfortable to be passive learner as the result from previous learning.'

b) 'From my experience, took time to cultivate active participation. Finally I manage to encourage them to be active in the classroom.'

Student teacher – Malaysia

a) 'Pupils could hardly reflect on their own learning. Pupils were too excited during the activities.'

b) 'I tried to guide pupils by posing them probing questions. I tried to manage the pupils during the activities by setting the ground rules.'

Student teacher – Malaysia

a) 'When there are more actions, class management or class control cannot be handled very well.'

- the class became noisy.
- pupils lack of attention to me.

b) 'Set the rules for the whole class and implement at all times.'

- ask the class "to freeze when teacher shouts freeze".
- use signs for student to attract their attention.'

Student teacher – Malaysia

a) 'Action – to apply the active learning approach I need to make sure the students' understanding first. Besides, active learning challenge my class control.'

'Reflection – Sometimes the pupils cannot highlight the main skill they acquired from the lesson.'

'Modelling – Sometimes the pupils did not pay attention to me when I model, and after that they start to ask what should they do.'

b) 'Action – give clearer instruction before I distribute the resources to groups/ individual.'

'Reflection – Do some repetition to highlight the main part of the lesson.'

'Modelling – Attract their attention by questioning.'

Student teacher – Malaysia

F Using ARM on other programmes and in different settings

The views of lecturers

Question from the questionnaire: 2008 – year 3 (Semester 6)

In what ways do you use ARM on other programmes?

Please give as many examples as possible.

All twenty-three respondents answered this question. Some respondents gave examples of different programmes on which they had used ARM. These included courses for pre-service teachers, in service programme for teachers and TESL groups. Other audiences included post-graduate students and school mentors. Respondents' examples included the following:

'During practicum for our Institute programmes. At times I would do the teaching and ask the trainee to observe and give comments. I more concerned with pupils understanding the ideas & concept of math nowadays rather than they can do questions.'

Lecturer – Malaysia

'Before the practicum of the post graduate program, I conducted a briefing for the mentors from the participating schools. I showed them a video recording of a maths lesson. Action – Mentors are involved in a mentor-trainee simulation. Modelling – I demonstrated how a feedback session should be conducted (more questioning & not instruction). Reflection – Mentors reflects on the differences.'

Lecturer – Malaysia

'I used action learning and reflection strategies a lot in my classes. Modelling is used when I teach methodology. These strategies are routine. They had been applied long before ARM was introduced.'

Lecturer – Malaysia

'In our in service programme for teachers I used ARM to discuss and go through certain topics. Hands-on activities involving creative elements such as in making resources for teaching and learning eg games, teaching aids, etc are all designed by the teachers using ARM.'

'For the pre-service teachers courses, especially involving pedagogical content knowledge are also taught using ARM. Projects such as the use of games to teach underachieved learners also involve ARM.'

Lecturer – Malaysia

'ARM was used in
– group work where the students were actively involved in organising the group activity, reflecting on the effectiveness of the activity, followed by some modelling by watching video clip from Teachers TV.'

– 'questioning where the students think himself/herself, pair up to share their view and open ended question constructed and used it in the teaching.'

Lecturer – Malaysia

Question from the interview schedule: 2008 – year 3 (Semester 6)

Have you changed any aspects of ARM to make it appropriate for your context or setting? If yes, please specify which aspects you have changed.

Some of the interviewees suggested ways in which they adapted the ARM approach for different audiences and settings. One interviewee noted that this depended on the topics, context and audience and suggested that using the ARM approach was dependent on audience participation. A second interviewee commented: 'Sometimes we do need to improvise a bit to get to the need of the activity we are doing.' Another interviewee commented that they were using the same approach before the programme with the University of Hertfordshire but they were not very confident about this. The following examples illustrate some of the changes reported by the lecturers.

'In a way, yes. If I don't have the time then I will start the activities in class and ask them to go back to finish the activities and later on they would report on their reflection. Apart from the BEd programme we might not have enough time to engage the students in this manner.'

Lecturer – Malaysia

'Depends on the topics we should discuss and depends on the context and the audience – not just the students, for example, in-house training for experienced teachers. Audience sometimes is experienced teachers and very reluctant to take part in activities, so need to persuade. If audience don't like to participate can't do the ARMs. Can't see the reflection.'

Lecturer – Malaysia

'Before I get to know this UH programme I have already started only I don't have enough support materials and actual and more practical models or way to do it. So I doing it, I was trying but not very confident. So when I was exposed to the UH programme I was very happy because this is really what I want. The UH programme really gave me a lot of practical way [to implement] and to consolidate my beliefs in my practice and my teaching. Before I didn't really know the name to give it although I was doing. Actually try to incorporate the ARM into other programmes.'

Lecturer – Malaysia

'At times I feel the ARMs is too rigid...'

Lecturer – Malaysia

'We have agreed already the activities to suit our curriculum. So because we have to do action we do hands-on activities which is good – it's not just theory. We didn't change much. For every lecture we make sure we have the three components which is good for them.'

Lecturer – Malaysia

'Sometimes, if a project work we let them view certain video clip or project and see whether they can learn anything from the viewing and encourage them to learn from the viewing pro and con and when they finish discuss and come up with what their plan would be like. From that they start coming to us for guidance, they have practical sessions and ask us to observe and get opinion. Come up with reports of before, during and after what they have learnt.'

Lecturer – Malaysia

G Closing comment from Malaysia

'Numerous studies have established that active participation in the learning process is more effective in a learning environment that emulates a real-world learning environment. In a traditional teaching and learning environment, only little learning is taking place in the classroom even though there appears to be an active shift of information...Hence, it is necessary to bring about a two-way transfer of knowledge between students and teachers as it requires optimum students' participation...'

Vighnarajah, Wong Su Luan and Kamariah Abu Bakar 2008:33

Key themes The Action – Reflection – Modelling (ARM) approach to learning and teaching

The research findings from Section 5.2 are drawn together into some key themes, illustrated using extracts from contributors' responses. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *Active learning strategies emphasise constructivistic qualities in knowledge processing. These are independent inquiry, and structuring and restructuring of knowledge.*
- *Effective reflective practice is drawn from the ability to frame and reframe the practice setting, to develop and respond to this framing through action...*
- *Modeling is inherent in all that we do in teacher education. Intended and unintended learning about teaching occurs through our modeling...*

Previous experience of using aspects of ARM

The views of lecturers (year 3)

Six out of eight lecturers specified that they had used all three components of ARM before starting the programme. One commented: *More or less we have been doing the same thing (three components).*

Learning and teaching using ARM

The views of lecturers (year 3)

Lecturers gave examples of how they had taught using ARM and described the approaches they had used. They described how the student teachers worked in groups, constructed teaching aids, presented, gave and received feedback.

- *Then in another session I would model and do a simulation/role play (child/teacher). Then I let them try out the shared reading in their own group. Then they reflect on the activity. It goes in cycles.*

The lecturers also explained how they had taught ARM to the student teachers.

- *I ask them to prepare an activity and ask where is the action, the reflection and the modelling part. It happens in all topics we discuss with them throughout the session.*

The views of student teachers (year 2, year 4)

Some student teachers described how they had used ARM on their first and final placements in terms of the overall pedagogical approach and others described it in terms of each of the three components: Action – Reflection – Modelling.

End of first placement

- *I be active in conducting the lessons. I encourage groupworks and pair activities to create active learning environment. I always do reflection on my teaching to find areas to be developed. I be a good role model to my students. I model the problems and questions to students.*

End of final placement

- *I engaged my students in learning frequently by giving more chances to students to answer and voice out opinion, creating own questions and work in pair and group. I did reflection everytime I finished a lesson and thought deeply on how to improve my teaching. I also discussed with my partner on how to overcome problem occurred. I also modelled to replace any explanation to help my students get better understanding.*

Student teachers also explained what they had learned from using ARM that would influence their practice as a teacher, referring to active learning and modelling by pupils, pupils' confidence, feedback, needs and understanding.

End of first placement

- *It increases my self-confident to speak, and present my lesson smoothly. It increases my self-evolution to improve myself to be a creative and critical thinker.*
- *ARM is very effective approaches that can be applied in order to develop creative thinking among pupils, promote active learning and enhance their knowledge and skills.*

End of final placement

- *I have learned that combining both pupils-centred approach with teacher's role is really important and helpful in teaching.*

Student teachers used terms such as concept, formula, theory or tool to describe ARM.

- *I feel quite confident in using ARM model. The reason is I have a guidance to follow. ARM model also can enhance my teaching style and feel the lesson become quite systematic. When I stuck what to do in my lesson, ARM can be as my 'next step' toolkits.*

Benefits of using ARM**The views of student teachers (year 2, year 4)**

Student teachers identified benefits for themselves and for their pupils of using ARM. In describing the benefits they used words such as achieve, confident, create, develop, discover, effective, enthusiastic, improve, organise, redesign, review and understand.

Benefits to student teachers: Many of the student teachers referred to the way in which ARM helped them, enabled them and guided them.

End of first placement

- *Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting.*
- *The child are motivated to learn and are actively involved in my teaching.*

End of final placement

- *I was able to establish a lively learning atmosphere for pupils. I managed to improve my teaching and learning strategies. I could help pupils to build up their knowledge easier through modelling.*

Benefits to pupils: The student teachers described a good learning environment and suggested that the pupils are eager to answer my questions, develop good moral values, can generate ideas and understanding, cooperate with each other, explore their own learning, experience it by themselves, constructed their own knowledge, gain confident and self-esteem, reflect on their learning and feel safe and valued.

End of first placement

- *My pupils becomes good problem solvers who able to create ideas, communicate effectively, reasoning logically, find appropriate strategies in tackling problems and have their own views and beliefs.*

End of final placement

- *My pupils were excited and surprised with some of the strategies used. They showed great enthusiasm and made efforts to learn as well as to help their peers.*

Challenges of using ARM**The views of student teachers (year 2)**

Most of the student teachers identified challenges, which they had experienced using ARM. Examples of the challenges given here provide valuable insights into the ways in which the student teachers engaged in their first experience of teaching in school.

Newness of the experience: *It is difficult to do action and modelling in teaching progress because this is a new thing for me.*

**Introducing a different approach to working with the children:**

Since, students were used to the memory based learning, where they were spoonfed all the time, it was quite hard for me to foster active learning in the classroom.

Classroom management and behaviour management:

While doing the action, pupils are very excited to observe me and then it came out to be very noisy. Sometimes, I won't be able to control my class.

Teaching mathematics in English: *Also, my pupils can't understand English because it wasn't our mother tongue language but they showed me improvement when they brave to speak in mix language.*

The views of student teachers (year 4)

Similar challenges were identified during the second survey. The following example illustrates another of the challenges (1) and the way in which it was resolved (2).

- (1) *The students are shy to voice out their feeling/understanding. It takes a time for me to make them make used with my style.*
 (2) *At first, I give the students a form to write down their feedback (reflection). Then I set a game where the students have to voice out. Little by little they became confidence/brave to voice out their reflection.*

Using ARM on other programmes and in different settings**The views of lecturers (year 3)**

Lecturers suggested ways in which they adapted the ARM approach for different audiences and settings. One lecturer suggested that this depended on the topics, context and audience and one commented *Sometimes we do need to improvise a bit to get to the need of the activity we are doing.*

5.3 Learning and teaching strategies and objectives

This third section of the main findings starts with excerpts from published literature, which introduce the themes of strategies used in learning and teaching and objectives of learning and teaching. These excerpts are followed by some findings about the strategies lecturers used on the BEd programme and suggested relationships between these strategies and selected learning and teaching objectives. The way in which some of the student teachers referred to selected learning and teaching strategies and objectives as they described their use of ARM are reported here, together with school mentors' views of the extent to which the student teachers used the different strategies. The section concludes with a closing comment from the Malaysian context.

The findings in this section are set out using the following headings:

- A Excerpts from the literature
- B Learning and teaching strategies and objectives
- C Closing comment from Malaysia

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'No student teacher, however, enters the classroom as a complete novice. They bring with them a vast array of skills, knowledge, and understandings derived from other contexts. At the least, they have sat through years of schooling as students. They have also experienced preliminary college-based programs prior to their work in school, and these have an important influence. But these preliminary experiences involve a different kind of learning from a direct engagement with the teaching process itself. Seeing teaching from the point of view of a student is very different from taking responsibility for running a class. Students may learn a great deal about the "surface structure" of teaching – how teachers organize the classroom, the teaching techniques they use – but much of the intention and purpose behind teachers' actions remains invisible to them.'

Furlong 2000:14

'The theories of Vygotsky are central to any serious discussion of children's learning processes. Vygotsky argued that children do not develop in isolation, rather that learning takes place when the child is interacting with the social environment. It is the responsibility of the teacher to establish an interactive instructional situation in the classroom, where the child is an active learner and the teacher uses their knowledge to guide learning.'

Daniels 2001 (cover text)

B Learning and teaching strategies and objectives

The views of lecturers

Question from the questionnaire: 2008 – year 3 (Semester 6)

Which learning and teaching strategies have you used on the BEd course?

Strategies: Demonstrating, Questioning, Directing, Describing, Listening, Evaluating, Modelling, Explaining, Informing, Coaching, Instructing, Summarizing, Other (please specify).

Frequency of use: Often? Sometimes? Occasionally?

Nineteen respondents (83 per cent) completed this question for all twelve learning and teaching strategies listed. There were twenty-one or more responses for each strategy. Two respondents selected two options ('often' and 'sometimes') for one strategy. These strategies are used in a variety of pedagogical approaches.

The number of respondents who considered they used different strategies 'often' ranged from twenty-one of twenty-three respondents (91 per cent) for questioning and evaluating to seven of twenty-one respondents (33 per cent) for directing. None of the respondents selected 'occasionally' for questioning, describing, listening, evaluating and coaching. Figure 2 shows the findings for all respondents for the twelve strategies.

Other strategies which respondents reported using were reflection/reflecting (three respondents); hands-on activity (two respondents) and analysing, presenting, simulation/role play, visualisation role play, informal talk (outside formal contact hours) and watching, each reported by one respondent.

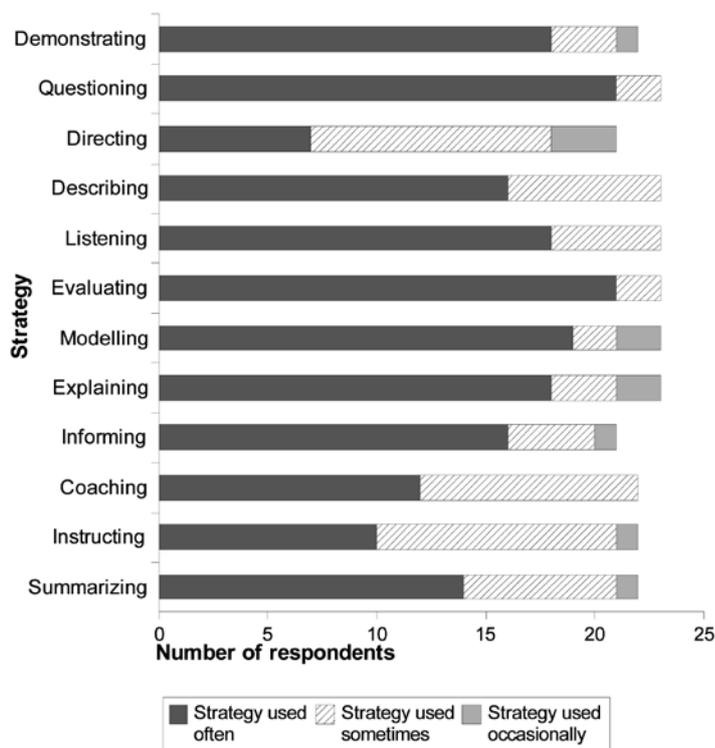


Figure 2

Lecturer questionnaires: the number of respondents who considered they used specified learning and teaching strategies often, sometimes and occasionally on the BEd course

Note: one respondent selected 'often' and 'sometimes' for questioning and another respondent selected these options for coaching. These have been coded as 'often' in Figure 2.

The views of lecturers

Question from the questionnaire: 2008 – year 3 (Semester 6)

Which of the above strategies best promote the following objectives?

Objectives: Enjoyment, Motivation, Involvement/Engagement, Challenge to thinking, Knowledge, Understanding, Skills.

The layout of this item in the questionnaire invited respondents to suggest three strategies for each of the objectives listed. These objectives are dispositional aspects of the learning process. Some respondents completed part of the question.

Table 32 shows the strategies selected by the greatest number of respondents and the fewest to promote each objective. Figure 3 shows the findings for all respondents. Each of the twelve strategies was selected by at least one respondent to promote involvement/engagement and knowledge.

Figure 4 shows that the two strategies suggested most often by respondents were questioning and modelling. The two suggested least often were directing and instructing.

Taking the responses overall, four strategies (demonstrating, questioning, modelling and coaching) were each considered to promote all of the objectives.

Some respondents suggested using other strategies to promote the objectives. One or two respondents suggested using hands-on activities to promote enjoyment, motivation, involvement/engagement, challenge to thinking and skills; three respondents suggested using watching to promote motivation; one respondent suggested using reflection to promote understanding and another to encourage involvement/engagement. Finally, one respondent suggested using presenting to promote challenge to thinking.

Table 32 Lecturer questionnaires: the learning and teaching strategies selected by the greatest number and the fewest respondents to best promote specified objectives

Objectives	Greatest number (%) of respondents and strategies selected	Fewest (%) respondents and strategies selected	Total number of respondents
Enjoyment	17 (85%) modelling	0 directing, describing, evaluating, explaining, informing, instructing	20
Motivation	6 (29%) questioning, listening	0 explaining, summarizing	21
Involvement/engagement	14 (67%) questioning	1 (5%) directing, explaining, informing, instructing	21
Challenge to thinking	14 (67%) questioning	0 directing, describing, listening, informing	21
Knowledge	8 (38%) explaining	1 (5%) demonstrating, directing	21
Understanding	10 (50%) questioning	0 directing, listening, instructing	20
Skills	14 (70%) modelling	0 listening, informing	20

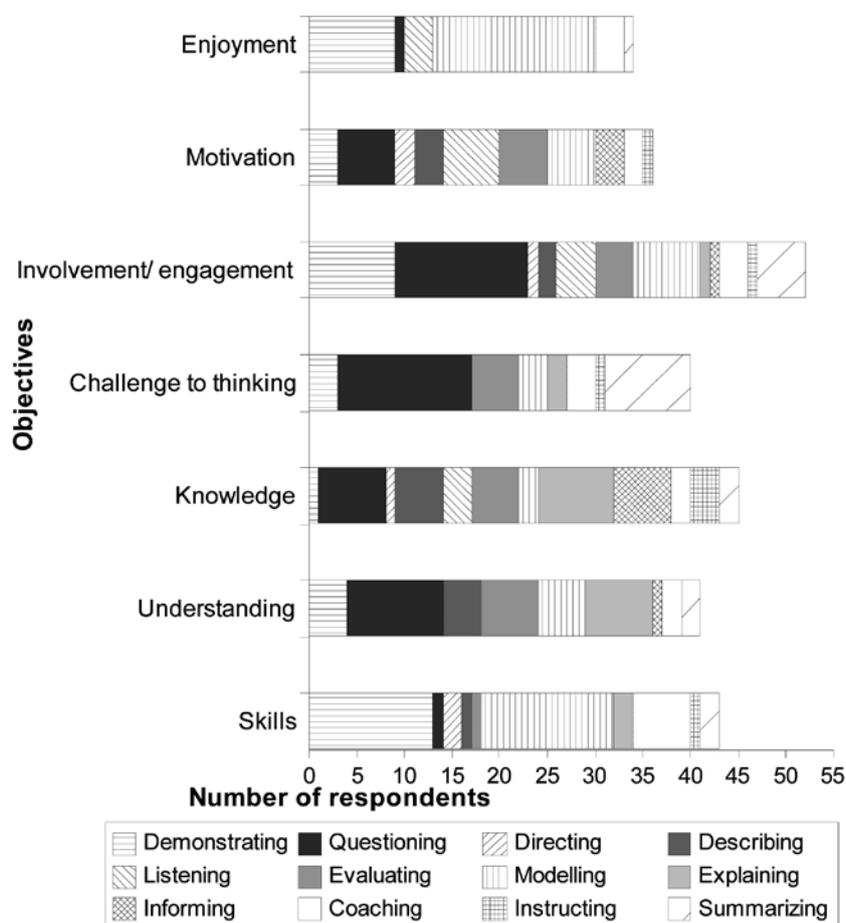


Figure 3

Lecturer questionnaires: the number of respondents who selected each of twelve learning and teaching strategies to best promote specified objectives

Note: two responses not clear; one for enjoyment, one for knowledge

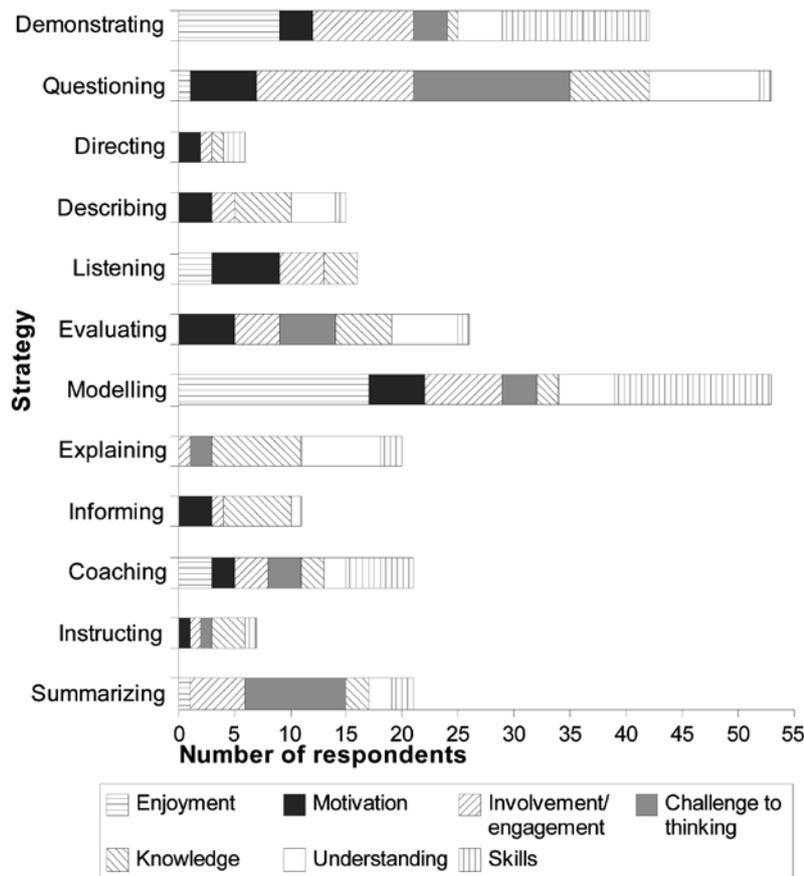


Figure 4

Lecturer questionnaires: the number of respondents who considered specified objectives were best promoted by each of twelve learning and teaching strategies

Note: two responses not clear; one for listening, one for informing

The views of student teachers

Many of the student teachers referred to learning and teaching strategies and objectives in their response to the question 'How did you use ARM on your (first) placement?' Tables 33 and 34 show extracts from some of the student teachers' responses to illustrate the way they described these strategies and objectives and include the number of student teachers referring to each one. The list of learning and teaching strategies includes strategies used in a variety of pedagogical approaches. It matches the list provided in the survey of lecturers, with the exception of modelling. Three strategies, explaining, questioning and demonstrating were mentioned by nineteen (17 per cent) or more respondents in response to this question at the end of their first placement. None of the student teachers referred to directing, describing, informing, coaching or summarizing.

The list of learning and teaching objectives, also taken from the list used in the lecturers' survey includes a selection of dispositional aspects of the learning process. Alternative phrases for the objective 'challenge to thinking' included 'provoke them to think' and references to pupils' ideas. However, words with a similar meaning have not been included for most strategies and objectives. The learning and teaching objectives cited by most respondents were understanding, mentioned by twenty-nine student teachers (26 per cent) and involvement/engagement mentioned by twenty (18 per cent). Eight student teachers (7 per cent) referred to knowledge.

Table 33 Student teacher questionnaires (first placement): number of respondents who referred to selected learning and teaching strategies in response to a question about how they used ARM and some extracts from responses

Learning and teaching strategies	Number of respondents
<p>Demonstrating (demonstrate, demonstration)</p> <ul style="list-style-type: none"> – Action – I use it during my teaching & learning activities, such as explaining, demonstrating, questioning to my pupils. – Action: Demonstrate things in teaching; Active in participating with pupils' activities; Create good resource, activity. – Action – I have used ARM to demonstrate the activity for my pupils. Encourage pupils involve actively in the activity. Create the creative resources, the creative learning environment. Contribute the good assessment that can my pupils enhance their learning. – I had used Action and Modelling to give explanations and demonstrations about how my pupils going to solve the questions. – While I am teaching, I always demonstrate a good action in front of the class. I always tell them in words first, and then followed by the picture and an example. – Modelling – Demonstrating any task to give the students example and generate their ideas. – A – action = my action and pupils action in learning like explaining, demonstrating. – During the placement, I used lot of materials to help me to demonstrate the concept that I want to teach on that day. – Modelling. Demonstrate; show the example first. – I as a teacher shows a good modelling to the pupils. In other words, demonstrate the concepts or skill in the lesson clearly. – Modelling – I use to explain the topic and when demonstrating materials or activities to pupils. – I try to be the best model among my pupils & try my best on demonstrating. – Before giving them any tasks to do, I'll explain and demonstrate the way to conduct the task. – M – I used appropriate teaching aids to support my teaching. I demonstrated what the pupils supposed to do. – Modelling I used to demonstrate the knowledge by using concrete materials once it is reasonable. – Modelling – I used demonstration to give better understanding. – Modelling – I demonstrate and explain on each topic for better understanding. 	19
<p>Questioning (question, questions)</p> <ul style="list-style-type: none"> – Action: the process of delivering the content by using a few approach or activity. For example, role play, explaining or questioning. – I had used Action and Modelling to give explanations and demonstrations about how my pupils going to solve the questions. – I had emphasized teaching skills on explaining, questioning, assessing and pupils involvement towards achieving the learning objective of the lesson. – Then after they look like understand or see it I ask them to answer the question on the worksheet or whiteboard based on the way that I had showed to them. – During the lesson, I always ask questions so that they will always give a full attention. – Then, I am asking my pupils several question relate to the lesson. – Reflection – Pupils give response to the question in verbal and non-verbal. – Active learning. Provide a Questioning and Answering session. Encourage pupils' participation in learning. – Besides, after the class session, to know how the activities going smoothly, I have reflected and assess pupils by asking questions... – However, when I asked them to answer questions or give opinion, my pupils were eager to answer and share their ideas. – Use 'A' during teaching (explanation, questioning, etc.) – Drew questions to pupils in order to provoke them to think. – I model the problems and questions to students. – Regarding modelling, I used different types of teaching aids based on the learning objectives which I have set. I would show and asked open questions whenever I used a particular teaching aid. – I always ask questions and got feedback from the students. – Reflection on learning by students – ask questions at the end of the lesson. Modelling of good practice by teacher – give more explanation; demonstrate how to do the questions. – Every lesson at the plenary part, I did seek some questions in order to reflect their learning. – Reflection – I ask questions and give test to get the feedback and reflect on their performance. 	21
Directing	0
Describing	0

<p>Listening</p> <ul style="list-style-type: none"> – Teaching skills. I have used varieties of teaching skills such as questioning, explaining, demonstrating, role play, story telling and listening. Those skills helps my pupils understand clearly the topic that I have taught to them. – Modelling: I show a good modelling so that student can easy to listen my instructions. – I used the three elements of ARM namely action, reflection, modelling in daily teaching. For example, I acted as a listener who paid attention to the pupils' explanations, sometimes as a guide who helped them to identify and solve their problems. 	3
<p>Evaluating</p> <ul style="list-style-type: none"> – I used ARM when teaching and when doing reflection. I prepared active learning activities for my students. I used it to evaluate my strengths & area for development. – I used it during my practicum to evaluate my performance. I used it to evaluate my weakness and my strengths. – Reflection – I gave 'mini test' to evaluate students' performance gave questions. 	2 (evaluate self) 1 (evaluate pupils)
<p>Explaining (explain, explanation)</p> <ul style="list-style-type: none"> – Modelling – I use modelling to explain something to my pupils. I show ways to do something to them. As for example, in topic of length I show them how to use rule. – For example when I teach my pupils about addition, first I need to explain and modelling what exactly is addition. – Model – I try to modelling when I'm explain something to the pupils so that they can see & understand clearly. – Every time I explain, I will model to my pupils so that they get picturise in their mind. – (M) As a teacher, I have model the subject matter by give clear explanation with appropriate resources. – First of all I try to explain the learning content by verbally. – Modelling – Show many example; Explain clearly. – (M) During my explanation, I used modelling so that the pupils get better and clear understanding about the topic taught. – When teaching, the Action will be taken when explaining about the topic. – I used ARM especially when explaining to pupils about the topic. – M – Modelling: explain to the students before each activity is been carried out. – Modelling of good practice by teacher – give more explanation; demonstrate how to do the questions. – M – I explained the topic on the blackboard. I list down the solution step to step. – I modelled good explanations to my students. 	24
<p>Informing</p>	0
<p>Coaching</p>	0
<p>Instructing (instructions)</p> <ul style="list-style-type: none"> – Modelling: I show a good modelling so that student can easy to listen my instructions. – I gave the instruction very well so that they can do the activity and give some reflection on that. Before I let them to do the activity, I show them how to do it. – I give more instruction for the activities. – I played a role as a model to my students before let them to do the activity. So that they can understand my instruction clearly. 	4
<p>Summarizing</p>	0

Table 34 Student teacher questionnaires (first placement): the number of respondents who referred to selected learning and teaching objectives in response to a question about how they used ARM and some extracts from responses

Learning and teaching objectives	Number of respondents
<p>Enjoyment (enjoy)</p> <ul style="list-style-type: none"> – Lastly, I did some reflections with them to make some enjoy and differents in my lesson. – I used ARM in every my lesson plan and activities which are made my pupils enjoyed. – As they play, they are enjoy within the learning environment. 	3
<p>Motivation</p>	0
<p>Involvement/engagement (involve, involving)</p> <ul style="list-style-type: none"> – Encourage pupils involve actively in the activity. – Action – Involving students participation in any activity. – Create more activity that can be participate and involving many pupils, so that they'll work together. – As the result, some of brilliant pupils conquer the activity and the weak pupils just stay quiet and did not fully involve in the session. – For example, I had produce an activity that can involve all my pupils such as group work. – I make sure my lesson involve active learning. I used to make my students to involve actively through group works and hands-on activities. – Designed activities that involved pupils actively in the lesson. – A = Active learning – create different activity that are interesting and involve all student to stimulate their interest in learning. – I need to ensure that every pupils were involved in the activity. – I will always let my students to involve actively in my activity. – During my teaching, I encourage my pupils to involve actively during the learning process. – I will prepare a joy learning environment for my pupils to involve actively. – In my lesson, I organised an active learning with lots of students involvement. – A – I planned interesting & challenging group activities so that pupils involved in learning actively. – My pupils involve in active learning during my lesson. – I encouraged pupils to engage in learning actively. – I tried to plan the lesson with interesting activities inserted to engage active learning in children. – A – While I am doing my lesson plan, I tried to plan for interesting activities to make my pupils engage in learning. – Then the reflection. I used to identify my strengths and weaknesses so that I am able to improve myself in future lesson and engaged my students attention. – I asked my pupils to be actively engaged in all class activities – especially group activities. 	20
<p>Challenge to thinking (eg provoke them to think; generate their ideas)</p> <ul style="list-style-type: none"> – Modelling – Demonstrating any task to give the students example and generate their ideas. – I gave opportunities to pupils to talk and clarify their ideas as a response to my teaching. – Drew questions to pupils in order to provoke them to think. – Wait time was given so that the pupils were able to think and learn through the teaching aids provided. – I let them thinking & try to stimulate their interest to give active respond to the learning & teaching activity. – A – I will get ideas from them and plan an effective lesson plan to let the pupils to be active learning. 	6
<p>Knowledge (know)</p> <ul style="list-style-type: none"> – While I was teaching I had took all the action that I had planned to give my pupils' knowledge. – After every end of the lesson, I will revise back whether they have got the knowledge that I've taught. – I also used reflection part during teaching. It is during set induction as to recall what they have learnt and memorise the previous knowledge. – On my placement, I found that my pupils are quite slow to get and understand the knowledge well. – I also emphasized this model in the class by encourage the pupils actively participate in the activities, recall back their previous and current knowledges and I as a teacher shows a good modelling to the pupils. – At the end of the lesson, I will make sure students know what they have learnt. 	8

Learning and teaching objectives	Number of respondents
<ul style="list-style-type: none"> – After their active learning, I guided them to recall on their previous knowledge and reflected on their strengths and weaknesses on their learning. – Modelling I used to demonstrate the knowledge by using concrete materials once it is reasonable. 	
<p>Understanding (understand)</p> <ul style="list-style-type: none"> – Modelling: teacher gives a clear picture about the content, so that the pupils will be able to assess the content and have a better understanding on it. – Model them teaching point using modelling to increase understanding. – Other than that, I encourage them to give idea about the lesson, so that I can know their understanding during my lesson. – One way to get them understand is by modelling, not only teacher's model but pupils also can modelling on what they've learn. – Based on action concept, I had used several approached to enable pupils grasped the understanding. – Then after they look like understand or see it I ask them to answer the question on the worksheet or whiteboard based on the way that I had showed to them. – Refer from this question, I will get the pupils reflect. I will know either they are understand or not for my lesson. And, is the pupils are understand, I will continue my lesson. – First of all, I will use action when teaching in progress as well as the modelling in order to stimulate more interest and understanding to my pupils. – Model – I try to modelling when I'm explain something to the pupils so that they can see & understand clearly. – Other than that, I used reflection during conclusion part to identify their understanding for each lesson. – Modelling. When I am teaching, I usually model to my pupils how to do things, so that they can get the understanding. – Sometimes, I have to bring a concrete materials such as fruits, marbles and candy in order to make my pupils understand better. – First of all I try to explain the learning content by verbally. Then I ask for pupil's feedback whether their understand or not...To improve my teaching approach I used modelling to increase pupils's understanding. – So I have to use the ARM concept. In order to develop their understanding, I have used a lot of approaches to make the learning session become more effectively. – I used modelling to give better understanding on what they are learnt. Here pupils will experience something from my modelling. – [M] During my explanation, I used modelling so that the pupils get better and clear understanding about the topic taught. – Teaching skills. I have used varieties of teaching skills such as questioning, explaining, demonstrating, role play, story telling and listening. Those skills helps my pupils understand clearly the topic that I have taught to them. – I did modelling by using appropriate resources and aids in order to make my pupils understand what is being taught. – When I was teaching, I usually used modelling to my pupils how to do things. So that, my pupils would get better understanding. – Modelling: I show some modelling in front the pupils so that they can understand what I try to say. – I also ask feedback from my pupils at last of my lesson. So that I can know my pupils understanding. For Modelling, I had show a good example to my pupils so that it will help them to understand. – By using modelling, I can teach the pupils effectively. They can understand the task better. – Before I let them to do the activity, I show them how to do it. They can understand and do the activity very well. – I will always let my students to involve actively in my activity. Then, I asked them to reflect on their learning whether they understand the lesson or not. – I used modelling in my lesson in order to increase my pupils' understanding on the subject matter. – M – I will display concrete objects and some examples to ensure my pupils understand my lesson. – M – I display examples to make my pupils understand the topic better. 	29
<p>Skills (excluding teaching skills)</p> <ul style="list-style-type: none"> – For example, during PE lesson, I have monitor and model the pupils in doing a skills. – I as a teacher shows a good modelling to the pupils. In other words, demonstrate the concepts or skill in the lesson clearly. – Active – I used group work activities to enhance learning, develop communication skills. 	3

The views of school mentors

Question from the questionnaire: 2009 – year 4 (Semester 7) final placement/practicum

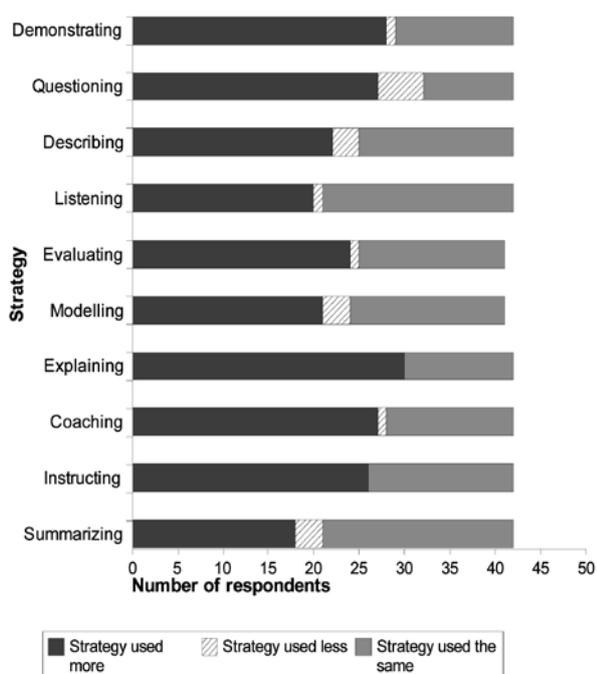
Consider the strategies below. Do the BEd students use each strategy more, less or the same as previous students?

Strategies: Demonstrating, Questioning, Describing, Listening, Evaluating, Modelling, Explaining, Coaching, Instructing, Summarizing.

Response options for each strategy: More than previous students? Less than previous students? Same as previous students?

Forty-one or forty-two respondents (87 or 89 per cent) completed this question for each of the strategies listed. The non-responders included some school mentors who had taken this role for the first time.

The number of respondents completing the question who considered the BEd student teachers used different strategies less than previous students ranged from zero, for explaining and instructing, to five (12 per cent) for questioning. Numbers of respondents who selected the 'more than' category ranged from eighteen (43 per cent) for summarizing to thirty (71 per cent) for explaining. The findings for all respondents for the ten strategies are shown in Figure 5.



C Closing comment from Malaysia

'...We must now create contexts that favour an inquiry approach so that student teachers concentrate on both teaching and reflecting. In an inquiry framework, student teachers ask questions, examine their assumptions, and evaluate their actions in a critical manner.'

Lee Wai Heng and Tan Sok Khim 2004:193

Figure 5
School mentor questionnaires: the number of respondents who considered the BEd student teachers used specified learning and teaching strategies more than previous students, less than previous students or the same as previous students

Key themes Learning and teaching strategies and objectives

The research findings from Section 5.3 are drawn together into some key themes, illustrated using extracts from contributors' responses. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *No student teacher, however, enters the classroom as a complete novice. They bring with them a vast array of skills, knowledge, and understandings derived from other contexts...But these preliminary experiences involve a different kind of learning from a direct engagement with the teaching process itself.*

- *It is the responsibility of the teacher to establish an interactive instructional situation in the classroom, where the child is an active learner and the teacher uses their knowledge to guide learning.*

Learning and teaching strategies and objectives The views of lecturers (year 3)

Lecturers were asked how frequently they had used each of twelve learning and teaching strategies (demonstrating, questioning, directing, describing, listening, evaluating, modelling, explaining, informing, coaching, instructing, summarizing) on the BEd course. These strategies are

used in a variety of pedagogical approaches. Questioning and evaluating were used 'often' by most respondents. Respondents also used reflection, hands-on activity, analysing, presenting and simulation/role play.

Lecturers considered which of these strategies best promote the following objectives: enjoyment, motivation, involvement/engagement, challenge to thinking, knowledge, understanding, skills. These objectives are dispositional aspects of the learning process. Taking the responses overall, four strategies (demonstrating, questioning, modelling and coaching) were each considered to promote all of the objectives.

The views of student teachers (year 2)

Many of the student teachers referred to learning and teaching strategies and objectives when they described how they used ARM on their first placement. The strategies mentioned most often were explaining, questioning and demonstrating. None of them referred to directing, describing, informing, coaching or summarizing.

- *I have used varieties of teaching skills such as **questioning, explaining, demonstrating, role play, story telling and listening**. Those skills helps my pupils understand clearly the topic that I have taught to them.*
- *Reflection – I gave 'mini test' to **evaluate** students' performance gave questions.*

- *I played a role as a model to my students before let them to do the activity. So that they can understand my **instruction** clearly.*

The learning and teaching objectives cited most often were understanding and involvement/engagement.

- *As they play, they are **enjoy** within the learning environment.*
- *A = Active learning – create different activity that are interesting and **involve** all student to stimulate their interest in learning.*
- *Drew questions to pupils in order to **provoke them to think**.*
- *After their active learning, I guided them to recall on their previous **knowledge** and reflected on their strengths and weaknesses on their learning.*
- *Modelling: teacher gives a clear picture about the content, so that the pupils will be able to assess the content and have a better **understanding** on it.*
- *Active – I used group work activities to enhance learning, develop communication **skills**.*

The views of school mentors (year 4)

School mentors were asked whether the BEd students used each of ten learning and teaching strategies (demonstrating, questioning, describing, listening, evaluating, modelling, explaining, coaching, instructing, summarizing) more, less or the same as previous students. More than half of the respondents thought that the student teachers used seven of these strategies more than previous students.

5.4 Effective learning and teaching

This fourth section of the main findings uses extracts from published literature to introduce the concept of 'effective learning and teaching'. It then sets out some lecturers' views of effective learning and teaching, and school mentors' views of the effectiveness of the classroom teaching of the BEd student teachers compared with the teaching of other student teachers. These views are complemented in this section by those of student teachers in response to a question about 'what successful learners do'. The section concludes with a closing comment from a Malaysian perspective.

The findings in this section are set out using the following headings:

- A Excerpts from the literature
- B Views of effective learning and teaching
- C Effectiveness of learning and teaching
- D What do successful learners do?
- E Closing comment from Malaysia

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'Learning to teach, as we all know but often fail to remember, is a complex, bewildering and sometimes painful task. It involves developing a practical knowledge base, changes in cognition, developing interpersonal skills and also incorporates an affective aspect...'

Maynard and Furlong 1995:10

'Learning should aim to help people to develop the intellectual, personal and social resources that will enable them to participate as active citizens and workers and to flourish as individuals in a diverse and changing society. This implies a broad view of learning outcomes and that equity and social justice are taken seriously.'

(The Teaching and Learning Research Programme's (TLRP's) first principle of effective teaching and learning)

Pollard 2010:8

B Views of effective learning and teaching

The views of members of the senior management team

One member of the senior management team made the following observation about learning in response to a question about collaboration during the preliminary interviews carried out in the first year of the project.

– from what I understand, UH is also thinking along the same lines – they don't want to give us everything but they want us involved in this programme so we can learn new things and I believe that learning through experience is the best way to learn.

Member of senior management team – Malaysia

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

What would you say if someone asked you the question: 'What is effective teaching and learning?'

Some of the words and phrases which the lecturers used in response to the question about effective teaching and learning are shown in Table 35. These words and phrases have been categorised according to whether they refer to teachers, to students or to both teachers and students. They are taken from the complete set of responses to this question.

Table 35 Lecturer interviews: words and phrases used in response to the question 'What is effective teaching and learning?'

Refer to teachers	Refer to students	Refer to both teachers and students
<ul style="list-style-type: none"> • aware of your students' differences • committed (punctual) • creative (vary your teaching style) • efficient • facilitators • feedback • friendly • give/input giving • keep up with new information • know the subject matter (knowledge) • know them • listen • meaningful way • monitoring • personality • resources (eg ICT, less talk and chalk, LCD, computer) • warm • well prepared 	<ul style="list-style-type: none"> • activities • answer • apply • discover/learning through discovery • discuss/discussion • enjoyment/enjoy learning • follow the classroom rules • freedom • fun • get the information • independent • investigate • learn to reflect • learns • learning process • motivate • positive feedback • positive learning • present • reflections • serious • social skills • solve problems • strengths and weakness • student centered learning • tell us their thinking • transfer the learning into practice • work together 	<ul style="list-style-type: none"> • ARM • action • modelling • objectives of the lesson is achieved • student centred or teacher centred based on activity • support – materials, texts • two-way communication • two-way process • understand/understanding • way human learn: audio, visual, kinaesthetic

The following examples of interviewees' responses illustrate their views of effective learning and teaching.

'I would say it is ARM. There is enjoyment in the class and the objectives of the lesson is achieved.'

Lecturer – Malaysia

'In general, the effective learning is when [primary – learning aspect] the student learns what they have to learn in the session. The approach that makes them learn is the effective approach. Not stuck with one way – I use the things that I think are more effective. Based on way human learn – audio, visual, kinaesthetic. Action and modelling comes in. Those three sense will be used in their learning. ARMs have that characteristic that make students learn better...'

Lecturer – Malaysia

'The most important thing is are the students understanding? And the students are enjoy learning and the learning process should be meaningful to the students. And I get to understand the strengths and weakness of the students, and the feedback I give them should be able to help them in their learning process. The teaching and learning should be able to motivate the students to further investigate any aspect that is related to this teaching and learning session and also to apply also.'

Lecturer – Malaysia

'Effective teaching is whereby we can produce students they know how to answer, how to solve problems, they can tell us their thinking. In fact social skills also involve in effective teaching, for example, the students can work together, follow the classroom rules. It is more on two-way communication.'

Lecturer – Malaysia

'It all boils down to the trainer or teacher. You have to be committed to your work and you have to be creative. Committed – you have to be punctual (students see you as someone who is committed). Creative – have to vary your teaching style. Some I start with a lecture, sometimes I do the reverse. That is the skills you have in terms of input giving but your personality is also important. You have to be efficient in your work. Students want the teacher to know them. Not just efficient and...but you have to be warm. The needs of groups are not the same. You have to know them. As a teacher you have to be aware of your students' differences. You have to listen to your students. Be friendly with them.'

Lecturer – Malaysia

'The most effective teaching and learning is whereby we make use of student centred learning. Most activities done by the student and we as lecturers try to speak as little as possible and we become facilitators...Lecturers give them the freedom to do the activities and get the information on their own. The learning has to be fun and at times there are things they need to be serious about it especially when activities involve a lot of risk...Maybe that one less student centred and more teacher centred. Student centred or teacher centred based on activity. For effective teaching and learning must make use of as many resources as possible, for example, ICT, less talk and chalk, use LCD, computer. To gain as much knowledge as possible from what we are doing.'

Lecturer – Malaysia

'Effective teaching and learning is not merely good lecture but how much the student has learnt and do they transfer the learning into practice in their daily activity. Good lecture notes doesn't guarantee effective teaching. Monitoring of the after lecture is the most important.'

Lecturer – Malaysia

'Being able to make your teaching effective you have to know the subject matter (knowledge), be well prepared, have your own approach so when you approach your students you are able to do it in a meaningful way. For the learning if I can see positive feedback from the learner, I know that some positive learning takes place. It's a two-way process.'

'We have to keep up with the new information all the time – things change all the time.'

'Effective teaching would also call for support – materials, texts. I try to propose that students need to be independent because they cannot depend on me entirely. They have got to discover – learning through discovery matters, it is very good for them. I guess that is how they learn to reflect.'

'Working along with the group they give us a very systematic way. I learnt new terms, for example, ARM, Teacher's Toolkit. I have shared with other teachers. It is very beneficial for the country. It's how I see this programme. Although I know this programme solely focus on maths so because we have to use English to teach maths.'

Lecturer – Malaysia

The views of lecturers

Question from the surveys: 2008 – year 3 (Semester 6)

Questionnaire: Has your view of effective teaching changed during your involvement on the BEd? If yes, how?

Interview schedule: Has your view of effective teaching and learning changed during your involvement on the BEd degree? If yes, please specify how your view has changed.

Twenty-two (96 per cent) of the twenty-three respondents to the survey completed this question, of whom more than two-thirds considered that their view of effective teaching had changed during their involvement on the BEd programme. Two respondents noted that the student involvement both in the classroom and outside was different from other programmes.

All eight interviewees responded. Some interviewees specified how their view had changed and others provided examples of ways in which their practice had changed. One interviewee considered that their involvement on the programme had strengthened their view of effective teaching and learning.

Table 36 includes some extracts from responses to the self-completion questionnaires and the interviews. These extracts are presented under the four main headings: learning and teaching; assessment and feedback; planning; and professional attributes.

Table 36 Lecturer questionnaires and interviews: extracts from responses to the question 'Has your view of effective teaching (and learning) changed during your involvement on the BEd degree?'

Theme 1: Learning and teaching	
<i>Lecturer questionnaires</i>	
<ul style="list-style-type: none"> • experiential learning and exploration • understanding of ideas are important; use of teaching aids are important even at higher education level; enjoyment & fun of learning are important • the new ideas and activity from the BEd involvement are effective • understanding of items/concept are important • I am now using ARM in most of my lectures & seminars. I focused on the level of graduate skills during most of my interaction with students • I have added the element of modelling in my session • more creative 	<ul style="list-style-type: none"> • new ideas in teaching • I used ARM in order to engage them • trainees have to come up with creative approaches to teach students • more consolidation on modelling & active learning & usage of resources like Teachers TV, interactive computer programme and manipulative items • aware the involvement & participation of the students actively in the class • I believe that active learning approach is a better alternative for effective teaching
<i>Lecturer interviews</i>	
<ul style="list-style-type: none"> • I use a lot of open-ended [questions] to know how my students' thinking • student participation also good, they participate actively in the activities and they really understand what they are doing • The programme allows for my learner to grow. ARM is the thing that helped my children to be confident 	
Theme 2: Assessment and feedback	
<i>Lecturer interviews</i>	
<ul style="list-style-type: none"> • we need to have feedback from the students • maybe especially in terms of assessment and the feedback given to students • I can see you have to be 'soft'...For example, when you give praises to them...The praise is motivating • you focus a lot on your summative assessment...especially your moderation and module writing sessions... something that we have to follow 	
Theme 3: Planning	
<i>Lecturer questionnaires</i>	
<ul style="list-style-type: none"> • I will think of appropriate activity to include in my session • evaluation of the materials and assignment • involving hands-on activities such as making resources 	
Theme 4: Professional attributes	
<i>Lecturer questionnaires</i>	
<ul style="list-style-type: none"> • working together (collaboration and cooperation) 	
<i>Lecturer interviews</i>	
<ul style="list-style-type: none"> • more open minded • I did a lot of reflective teaching...my students also they have to do a lot of reflection • I was able to share the knowledge I have gained...I have shared what I have gained from this programme with other teachers 	<ul style="list-style-type: none"> • my idea has changed. Give me more energy, more drive • we learnt something new and were able to present it [to] other teachers

Some examples of questionnaire respondents' comments are as follows:

'Yes. I am now using ARM in most of my lectures and seminars. I focused on the level of graduate skills during most of my interaction with students.'

Lecturer – Malaysia

'I used to ask lots of "How" and "Why" questions in my class. During my involvement on the BEd, I have added the element of modelling in my session.'

Lecturer – Malaysia

'Basically, I'm teaching English Language as second language. So more or less I'm exposed to a variety of approaches for ELT. I would say that this programme has been effective because of the specialisation in dealing with primary school teaching. It's not new and has not really changed my view but it has indeed given emphasis and focus on ELT, which means suitable for primary school teaching.'

Lecturer – Malaysia

'Not really because in my language lessons, activity-based learning has always been my focus to ensure effective learning takes place. Hence I've adopted ARM long before my involvement on the BEd.'

Lecturer – Malaysia

'Definitely, this is true especially for pedagogy courses where I used ARM in order to engage them.'

- *'As a lecturer, I have to design lectures involving hands-on activities such as making resources, asking them to present their Product and then to reflect & improve using their friends' responses. Trainees have to come up with creative approaches to teach students.'*

- *'For mathematics courses. Based on content (pure mathematics) – we have to find instances where the theories are applied in the real world. Projects can be designed to do just that.'*

Lecturer – Malaysia

'Yes. More consolidation on modelling & active learning and usage of resources like Teachers TV, interactive computer programme and manipulative items.'

Lecturer – Malaysia

'Yes. Aware the involvement and participation of the students actively in the class. ARM strategy is always need in each [teaching/learning] session. Reflection is always done to evaluate the effectiveness of [teaching/learning].'

Lecturer – Malaysia

'Yes. I believe that active learning approach is a better alternative for effective teaching. I try to incorporate it in my teaching and I find that it does produce better result in learning process.'

Lecturer – Malaysia

'Yes. Understanding of ideas are important; use of teaching aids are important even at higher education level; enjoyment and fun of learning are important.'

Lecturer – Malaysia

Some examples of interviewees' responses are as follows:

'Yes. Definitely I think my views have changed. To know that the learning is effective we need to have feedback from the students, particularly from those students who are not that expressive so let's say with the introduction of journals as practice in the BEd programme we can really know whether the lesson is a success or not. They can write the comments on paper incognito to tell you how the lesson went. Previously, I just received the feedback very informally but the students are polite and they won't tell you the truth unless they give feedback without their identities being revealed. In journals they will give constructive criticism (with journals I know their name). This has led me to be more open minded.'

Lecturer – Malaysia

'I have changed especially the reflection part so I did a lot of reflective teaching. I have changed about the way I use questions during the lecture. I use a lot of open-ended [questions] to know how my students' thinking and for my students also they have to do a lot of reflection. Student participation also good, they participate actively in the activities and they really understand what they are doing. I feel that the way we teach when we use these effective method when we send for practicum the schools say these students are better than the previous ones sent for practicum. For placement B they want us to send them to the same school again because they are happy with the activities. I am happy that the way I teach my students they can implement it in school. So no complaints from the school means the student is good. So it's a compliment isn't it.'

Lecturer – Malaysia

'I am beginning to look into this programme more on the positive side. It is not only helping BEd maths but also other programmes. Other programmes with UK, Australia, New Zealand they have taken some of our ideas into their programme. This is good. I was able to share the knowledge I have gained through a one week teachers CPD course. I team with [colleagues] to do a course for forty teachers. In terms of effective sharing of ideas I have shared what I have gained from this programme with other teachers.'

'My idea has changed. Give me more energy, more drive. The programme allows for my learner to grow. ARM is the thing that helped my children to be confident.'

Lecturer – Malaysia

'Maybe I have mellowed over the years. About this programme before this I was teaching students going to secondary school. The approach is different. From the UH programme I can see you have to be "soft"...For example, when you give praises to them. This is what I learnt from UH especially...There is a change in the way you approach your students. Generally Malaysians find it difficult to praise your students verbally. We don't do that in Malaysia. The praise is motivating. Don't know whether it is training or personality.'

Lecturer – Malaysia

'No, it has strengthened [my] view of effective teaching and learning. It provide me another means and tools that I can use in doing my jobs.'

Lecturer – Malaysia

'Yes, yes. Maybe especially in terms of assessment and the feedback given to students.'

Lecturer – Malaysia

'It has changed quite a bit. Your programme is very timely. You focus a lot on your summative assessment... especially your moderation and module writing sessions has taught us a lot compared with what we have been doing – something that we have to follow.'

Lecturer – Malaysia

'Definitely. Based on what we get from UH and lecturers. We have to learn and practise before we present it to the students. Those not keen to teach in English that can be a problem. For example, anatomy and physiology. We had to search on the internet. The PowerPoint we could get in English. Most of the information from the internet is in English.'

To get the information is easy but then we need to practise.

'It really changed because effective teaching and learning before we were happy with what we had. We had to change a few strategies. We learnt something new and were able to present it [to] other teachers. That more or less changed our view of effective teaching and learning to a certain extent. Students were used to being spoon-fed so they were taken aback by the approach [University of Hertfordshire]. The students were uneasy and didn't know what to do. Now they are more or less able to cope with what needs to be done and they are better off now than when they first started. For example, English. They are much better than when they started. More confident to present. In our culture we are not so used to talking in front of everybody. They are more confident to present...'

Lecturer – Malaysia

C Effectiveness of learning and teaching

The views of school mentors

Question from the questionnaire: 2009 – year 4 (Semester 7) final placement/practicum

Compare the classroom teaching of the BEd students with previous students. Which of the following statements do you agree with?

Response options: The BEd students are: More effective; Less effective; The same.

Forty-two respondents (89 per cent) completed this question. Thirty-three of these respondents (79 per cent) agreed with the statement 'The BEd students are more effective' when asked to compare the classroom teaching of the BEd students with the teaching of previous students. Nine of these respondents (21 per cent) agreed that 'The BEd students are the same'. None of the respondents selected the statement 'The BEd students are less effective'. The findings for all respondents are shown in Figure 6.

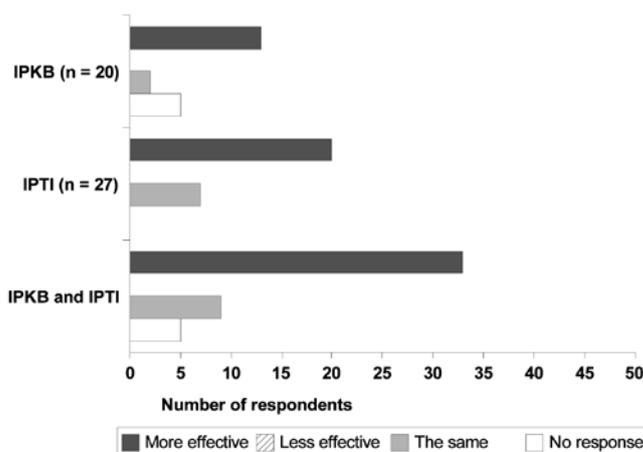


Figure 6

School mentor questionnaires: the number of respondents who agreed with the statement 'The BEd students are: more effective; less effective; the same' when comparing their classroom teaching with previous students

D What do successful learners do?

The views of student teachers

Question at group session: Beginning of the programme

Question from the questionnaire: 2009 – year 4 (Semester 7) end of final placement

What do successful learners do?

At the beginning of the degree programme student teachers worked in groups and prepared annotated pictorial responses to the question about successful learners. Most words and phrases used by the student teachers referred to 'learner attributes or characteristics' and 'learner activities'. Table 37 shows some of the words and phrases categorised according to these two themes. There was some overlap between the themes. One group of student teachers also referred to the learning environment, 'conductive places/surrounding'.

Table 37 Student teacher group session (beginning of the programme): words and phrases used in response to the question 'What do successful learners do?'

Learner attributes or characteristics		
ambitious/great ambition	friendly	positive thinking
be brave (ask question)	good attitude	proactive
committed/commitment	hard-working	punctual
competitive	humble	rich of knowledge
confident/self confident	initiative to ask/learn	self-discipline
curiosity	interest	self esteem
determination	motivation	systematic
don't shy to ask	never give up easily	vision
enjoy the study	overcome challenges	well organised
focus	patient	
Learner activities		
able to share ideas/sharing ideas/ listen to other ideas	finding resources	revision
analyse/analyse the problem	learn from the past mistake	self assessment
apply/apply the knowledge in life	listen/listening/be a good listener/ listen carefully	set a goal
ask/asking/ask when we are not certain/ask the question	make a daily schedule	sharing and discussion with peers
calculate	memorising	study smart/work smart, not hard
communication skills	mind mapping	summarize at the end of each topic (conclusion)
concentration	participate actively	surfing internet
consistency in work	pay attention/pay full attention	taking notes/good notes/note taking skills
cooperation/cooperate	practise/practice	talk/talking
creative/creative thinking	preparation/preparation before class	
discuss/discussion/group discussion	read/always reading	

do modelling and research	recall	teaching others
do more exercise (practice more)	refer to the reference books	thinking/critical thinking
explore and investigate	reflection	time management
explore the new things	remember	understanding/understand well/ good understanding/understand what we learn
explore learning	research	write
	respect (teacher & friend)	
	review	

Some examples of complete responses from groups of student teachers to the question 'What do successful learners do?' are provided below. These responses were made at the start of the degree programme.

'Successful learning – How? Enjoy the study; hard-working; always reading; do more exercise (practice more); try your best to memorize formula; be brave (ask question); never give up easily; discuss with friends and the lecturers; pay attention; refer to the reference books.'

Student teachers – Malaysia

'Successful learner! Preparation before class → concentration in class → able to understand → good notes → well-organized → hard-working → consistency → committed; no pressure; study smart; discuss; analyse.'

'Self-discipline; confident – determination; interest – ambitious; time management; humble; investigate & explore; reading; basic skills (progression).'

Student teachers – Malaysia

'What do successful learners do? Discuss with friends or the lecturers; full attention; try to understand; take a note; ask if don't understand; good attitude towards people; well prepared before the class; reading as a hobby to develop knowledge; analyse what they got after the lesson; memorize the important parts such as formulae.'

Student teachers – Malaysia

'Skill of successful learner – good listener; pray to God; pay attention; creative (note); do revision; friendly; do a lot of exercise; discussion; patient; do research; hard-working; confidence; tuition; brave; healthy food.'

Student teachers – Malaysia

'What do successful learners do? Creative; hard-working; giving attention; exercises; confident; asking question; surfing internet; not give up; brave; reading for information; discussion; good listener; make notes.'

Student teachers – Malaysia

'What do successful learners do? Rich of knowledge; understand what we learn; competitive; discipline; hard-working; punctual; systematic; share ideas; study smart; study timetable; do a revision; read a lots of book from different resource; proactive.'

Student teachers – Malaysia

'What do successful learners do? Successful learner – Willing to try new things; sacrifice time, money; brave to express feeling; sharing and working with friends; concentrating study/avoid nonsense thing.'

Student teachers – Malaysia

'Ask for a question; sharing ideas; cooperate; time management; make a reference from other source; take note; pay attention; respect (teacher & friend); punctual.'

Student teachers – Malaysia

'Do the same steps on the different topics:

- *Read and understand (before the lecture)*
- *List out the things that we do not understand*
- *During the lecture, pay attention carefully*
- *Make a short note*
- *Discussion with partners*
- *Did a lot of exercises*
- *Make revision on the topics.'*

Student teachers – Malaysia



Student teachers were asked the same question **'What do successful learners do?'** during the survey at the end of their final placement. This followed the questions about the ARM approach to learning and teaching. Some examples of individual student teachers' responses are provided below.

'Successful learners always finish the works. They also take further next steps to enhance their learning.'

Student teacher – Malaysia

'As a successful learners, we need to reflect on what we have done in order to identify the strength and the area of development that need to be done.'

Student teacher – Malaysia

'Be able to explain back what they have learned successfully. Can solve the problem occur very well.'

Student teacher – Malaysia

'Find the next step for any problems. Improve weaknesses. Apply what they had learned. Share their experience, knowledge and opinions with others.'

Student teacher – Malaysia

'A successful learners should: share knowledge/experiences/skills and opinions with others. Assess their learning. Improve the weaknesses.'

Student teacher – Malaysia

1. *'They understand what they learn.*
2. *'They can apply what they have learnt.*
3. *'They can share what they learnt to [others?]'*

Student teacher – Malaysia

'Keep improving. Learn from mistakes.'

Student teacher – Malaysia

'Never give up! Learn from the success & mistakes. They ask lots of questions. They are curious to learn new topic.'

Student teacher – Malaysia

'In my opinion, they ask me lots of question during the lesson. They are very active during the activity especially during the group work.'

Student teacher – Malaysia

'They enjoy my lesson and are able to apply what they have learnt in the higher order questions given. Moreover, they can teach and help their peers too.'

Student teacher – Malaysia

'Successful learners always reflect what they have learnt, to find the strength and the weakness.'

Student teacher – Malaysia

'Use and apply what have learnt.'

Student teacher – Malaysia

'Being flexible and "open-minded". Reflect on what you learnt. Always curious with the environment around them. Being thankful and grateful with the teachers/lecturers.'

Student teacher – Malaysia

'Be more independent in learning.'

Student teacher – Malaysia

'Successful learners always reflect on their action in order to improve themselves in the future.'

Student teacher – Malaysia

'Think creatively and critically. Able to learn and improve himself to adapt to the rapidly changing world. Optimistic. Risk taking – able to try out new thing that is good for children/his own learning!'

Student teacher – Malaysia

'Successful learners will find a way to solve problems with their own method.'

Student teacher – Malaysia

E Closing comment from Malaysia

‘The quality of education that teachers provide to student is highly dependent upon what teachers do in the classroom. Thus, in preparing the students of today to become successful individuals of tomorrow, science and mathematics teachers need to ensure that their teaching is effective. Teachers should have the knowledge of how students learn science and mathematics and how best to teach. Changing the way we teach and what we teach in science and mathematics is a continuing professional concern. Efforts should be taken now to direct the presentation of science and mathematics lessons away from the traditional methods to a more student centered approach.’

Effandi Zakaria and Zanaton Iksan 2007:35

Key themes Effective learning and teaching

The research findings from Section 5.4 are drawn together into some key themes, illustrated using extracts from contributors’ responses. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *Learning to teach, as we all know but often fail to remember, is a complex, bewildering and sometimes painful task. It involves developing a practical knowledge base, changes in cognition, developing interpersonal skills and also incorporates an affective aspect.*
- *Learning should aim to help people to develop the intellectual, personal and social resources that will enable them to participate as active citizens and workers and to flourish as individuals in a diverse and changing society.*

Views of effective learning and teaching

The views of lecturers (year 3)

The following responses illustrate lecturers’ views of effective learning and teaching.

- *Effective teaching is whereby we can produce students they know how to answer, how to solve problems, they can tell us their thinking. In fact social skills also involve in effective teaching, for example, the students can work together, follow the classroom rules. It is more on two-way communication.*
- *Effective teaching and learning is not merely good lecture but how much the student has learnt and do they transfer the learning into practice in their daily activity. Good lecture notes doesn’t guarantee effective teaching. Monitoring of the after lecture is the most important.*

Many of the lecturers, not all, considered that their view of effective teaching and learning had changed during their involvement on the BEd programme.

- *Yes. I believe that active learning approach is a better alternative for effective teaching. I try to incorporate it in my teaching and I find that it does produce better result in learning process.*

- *Not really because in my language lessons, activity-based learning has always been my focus to ensure effective learning takes place. Hence I’ve adopted ARM long before my involvement on the BEd.*
- *No, it has strengthened [my] view of effective teaching and learning. It provide me another means and tools that I can use in doing my jobs.*

Effectiveness of learning and teaching

The views of school mentors (year 4)

More than three-quarters of the school mentors who took part in the survey agreed with the statement ‘The BEd students are more effective’ when asked to compare the classroom teaching of the BEd students with previous students. The remaining respondents agreed that ‘The BEd students are the same’. None of the school mentors suggested that the student teachers were less effective.

What do successful learners do?

The views of student teachers (beginning of the programme)

The student teachers worked in groups and prepared annotated pictorial responses to a question about successful learners. Examples of words and phrases they used were:

Learner attributes or characteristics: ambitious, committed, competitive, confident, enjoy the study, friendly, hard-working, humble, initiative to ask/learn, interest, motivation, overcome challenges, patient, proactive, self-discipline, systematic.

Learner activities: able to share ideas, analyse, communication skills, cooperate, creative, discuss, explore and investigate, learn from the past mistake, listen, memorising, participate actively, reflection, self assessment, understand well.

The views of student teachers (year 4)

At the end of their final placement one student teacher suggested that a successful learner would: *Never give up! Learn from the success & mistakes. They ask lots of questions. They are curious to learn new topic.*

5.5 Changes and future developments

Section five of the main findings starts with some findings from the literature about changes in learning and teaching. It then sets out some of the lecturers' reports of changes in their teaching since the start of the collaborative project and their suggestions for a future BEd degree programme. School mentors' observations on differences between the classroom teaching of the BEd student teachers and previous student teachers are included in this section. Some reflections on future developments from members of the senior management team and lecturers are also reported here. The section ends with a closing comment from a Malaysian viewpoint.

The findings in this section are set out using the following headings:

- A Excerpts from the literature
- B Changes in learning and teaching
- C Ideas for a future BEd degree
- D Reflections on future developments
- E Closing comment from Malaysia

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'Society's educational goals.

Education connects our past to the future – but exactly what happens is worked out through debate and action in the present.

'Children and young people are our most precious asset. They come to embody our culture and their values and capabilities will determine the ways in which our economy and society will evolve over the 21st century...'

It is noted later in the Commentary:

'Elements of learning. ...Teachers thus have enormous responsibilities not just for the content of what learners may learn, but in contributing to the values and attitudes of our future citizens...'

Pollard 2010:13, 15

'Learning is thus a way of interacting with the world. As we learn, our conceptions of phenomena change, and we see the world differently. The acquisition of information in itself does not bring about such a change, but the way we structure that information and think with it does. Thus education is about conceptual change, not just the acquisition of information.'

Biggs 1999:60

'I do not believe that we should have a one-size-fits-all teacher education program, but I do believe that we can be using best practices and draw on research to develop common goals and practices. We need to make explicit pedagogies of teacher education that help to guide both new teachers and experienced teacher educators. Developing such pedagogies is fraught with challenges, but that is what teacher education is all about.'

Kosnik 2007:29

B Changes in learning and teaching

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

What do you do more of in your teaching since the start of the BEd degree (with the University of Hertfordshire), if anything?

This question followed four questions about ways in which the interviewees had used ARM or aspects of ARM and this was reflected in several of the responses. Some interviewees commented on using more of one or two of the components of ARM: active learning, reflection and modelling. Table 38 shows some extracts from lecturers' responses to this question.

Two interviewees made the following comments on changes since the start of the BEd degree: 'Anything that is new is pertaining to knowing about the UK education system' and 'A few of the topics for the last three modules are something new for us.' One of these interviewees referred back to an example they had given in response to an earlier question about using ARM and suggested 'It's not the quality of the [activity] we want to see, it's the cooperation and the leadership.'

Table 38 Lecturer interviews: extracts from responses to the question 'What do you do more of in your teaching since the start of the BEd degree (with the University of Hertfordshire), if anything?'

More of active participation and reflection. The modelling is already there
[Doing a workshop]. Approach is less talk, less lecture, more the participant doing it on their own...I find more – I ask them to model it for their friends rather than me do the modelling
I have more discussion with my students and give them feedback on their strengths and their weakness in a more specific way
I have changed a lot. I have more modelling, more action; students do hands-on activities a lot...So more student participation
Changing my comment to their cognitive development and link to the graduate skill level

Some examples of interviewees' responses are included here.

'More of active participation and reflection. The modelling is already there. Sometimes you don't need any modelling – just by posing some open-ended questions our students can take part actively just by question and answer sessions. So I pose a question and give them time to talk in groups and later have discourse in class where I am more of a facilitator. Most of our active participation (because of shortage of time to complete the syllabus) is usually done in this manner. Sometimes we do give them activities (hands-on) that do not last too long a time.'

Lecturer – Malaysia

'Coaching them to keep up with the formative assignments.

'Anything that is new is pertaining to knowing about the UK education system. I have some experience when I was in UK...so I shared the experience with the students...I have some experience of the UK – they like the information and input of what is happening there. We don't have assistant teachers here. We are moving but we are still far behind. So the students have experience from the video, from my experience shared with them and their reading but very much limited.'

Lecturer – Malaysia

'I combine some of the ARMs with the other things – one of the things I usually use – the reflection part is there. Start with the problem and ask the participants to reflect on the problems.

[Doing a workshop]. 'Approach is less talk, less lecture, more the participant doing it on their own. Teachers have their own experience. I use their experience in the session so that it becomes active and participative. I find more – I ask them to model it for their friends rather than me do the modelling. Concept of 'lesson study' Japanese model of teaching and learning. Teachers observe other teachers – consider it as modelling.'

Lecturer – Malaysia

'In researching materials from the internet, for example, Teachers TV, interactive teaching programme. I try to incorporate the ARM into our other programmes. There are suggestions but we are free to use any strategy we like but I try to use ARM in my other programmes.

'I have more discussion with my students and give them feedback on their strengths and their weakness in a more specific way.'

Lecturer – Malaysia

'I have changed a lot. I have more modelling, more action, students do hands-on activities a lot. In fact the students plan for suitable activities to be carried out in schools and during the seminar we have micro-teaching. During the planning for every seminar we have micro-teaching so they will carry out in groups at the same time. At first I thought will my students do the activities – they present in their small groups. I underestimate them, I thought they would play. I have to move from one group to another group but they did that. Together with the reflection of the teaching and questioning of their peers. So when I move from one group to another group they will give feedback, which is good. So more student participation. Normal practice – only one group present and everybody will observe. For other programme also I did like this. I use ARM for another programme.'

Lecturer – Malaysia

'Coming up to assignment that's where I need to give them more because they are so anxious to get good grades. Takes up a lot of my time. They are so scared of doing it alone. Have to go through them step by step. I am guiding them to write proper academic writing...'

Lecturer – Malaysia

'Everything has to be in English. Naturally we have to improve on that also. We felt a little uneasy – this is why some of my colleagues would not want to teach this class. Three of us took on the challenge and are happy to do it...'

Lecturer – Malaysia

'I am a bit sensitive to students' graduate skills before we had Bloom's Taxonomy. Since we have been focusing on module writing and graduate skills I am always commenting on students' graduate skills. Quite interesting to check on their cognitive development. Changing my comment to their cognitive development and link to the graduate skill level.'

Lecturer – Malaysia

The views of school mentors

Question from the questionnaire: 2009 – year 4 (Semester 7) final placement/practicum

Is the classroom teaching of the BEd students different from previous students?

Response options: Yes; No.

If YES, please give 3 ways in which the teaching of these BEd students is different from the teaching of previous students.

From the cohort of forty-seven school mentors, forty-one (87 per cent) answered this question. Thirty of these respondents (73 per cent), thirteen of them from IPKB and seventeen from IPTI, considered that the classroom teaching of the BEd students was different from the teaching of previous students. Eleven of these respondents (27 per cent) eight of them from IPTI did not. Two questionnaires included a note that the responses had been translated.

Table 39 shows some of the ways in which the school mentors suggested that the teaching of the BEd students was different from the teaching of previous students.

The findings have been categorised using four main themes and a series of sub-themes. The four main themes are: learning and teaching; assessment and feedback; planning; and professional attributes.

Some respondents identified more than one difference within the same sub-theme between the teaching of the BEd students and the teaching of previous students. In cases where respondents suggested differences which fell into more than one category in a single part of their response, this part of the response has been entered under each relevant sub-theme in the table.

Table 39 School mentor questionnaires: some of the ways in which respondents suggested the teaching of the BEd student teachers was different from the teaching of previous students

Ways in which the teaching of the BEd students was different	Number of times each theme was identified
	Total
Theme 1: Learning and teaching	
Learning and teaching strategies	
<ul style="list-style-type: none"> the teacher is more confident, the intonation and the instructions more clearer and precise they are very good in giving explanation to the pupils varieties of teaching strategies (2)* they give clear instructions strategies (2)* good communication and explanation to the pupils teaching strategies are very systematic and many creative ideas they use variety of teaching and learning methods they able to increase pupils' interests. Various teaching strategies and ICT used in teaching strategies are various and creative, especially in solving pupils problems 	12
Learning and teaching objectives	
<ul style="list-style-type: none"> T&L process be more interesting (can attract student) BEd students can developed students in thinking skill more than previous student very interesting teaching & learning teaching is more of inquiry discovery nature more ICT base program compare to last time. Teaching become more interesting the activity is more interesting BEd students did the teaching and learning more interesting, more understanding and more thinking for their students they able to increase pupils' interests. Various teaching strategies and ICT used in teaching 	8
Active learning	
<ul style="list-style-type: none"> active learning very effective group activity they always use or prepared group work/group task (active lessons) pupils can explore by their own in the activity that teachers did to them 	4
Creative teaching	
<ul style="list-style-type: none"> more creative in ideals and activities they are very creative more creative creative in using teaching aid and usage the ICT programme teaching strategies are very systematic and many creative ideas teachers are more creative to have a good teaching creative 	7
Classroom management	
<ul style="list-style-type: none"> classroom management is more effective good class management class management classroom management 	4

Ways in which the teaching of the BEd students was different	Number of times each theme was identified
	Total
Behaviour management	
<ul style="list-style-type: none"> good class control (2)* manage to control class very well they have an idea how to tackle the students 	4
Teaching aids and ICT	
<ul style="list-style-type: none"> BEd students used multi teaching and learning resources especially 'IT' (software) they use more teaching aids during their lesson they have various and attractive teaching aids use more ICT for their teaching good use of ICT skills creative in using teaching aid and usage the ICT programme they use a lot of concrete materials to build visual concept for the pupils more ICT base program compare to last time. Teaching become more interesting different in approaching the students. First time seeing the mini board they use an advanced of using ICT BEd students more creative to find the resources and make the teaching aids they able to increase pupils' interests. Various teaching strategies and ICT used in teaching teaching aids are various and more creative using ICT as a teaching aid very good in using ICT very good in usage of ICT 	16
Learning theory	
<ul style="list-style-type: none"> good application of Learning Theory 	1
Fun learning	
<ul style="list-style-type: none"> have more fun during the learning process. 	1
Theme 2: Assessment and feedback	
Assessment	
<ul style="list-style-type: none"> they have various methods of evaluating the pupils 	1
Feedback	
<ul style="list-style-type: none"> there are less comments given to them seldom heed the subject teacher's advice/advise (2)* slow response from mentor/mentor's instructions (2)* 	5
Theme 3: Planning	
Lesson planning	
<ul style="list-style-type: none"> detail and clear lesson plan teaching matches exactly with the lesson plan Teaching Preparation: they are more confidence and prepare good teaching plans. Compare with previous students 	3
Activities	
<ul style="list-style-type: none"> give more activities varieties of activities help to promote teaching and learning different activities were carried out for every teaching step always involve activities that relate to students' experience in real life situation created various activities 	5

Theme 4: Professional attributes	
Pupil focused/pupil centred (building relationships)	
<ul style="list-style-type: none"> they are more concern with the pupils good relationship with the students always involve activities that relate to students' experience in real life situation different in approaching the students. First time seeing the mini board BEd students did student-centred teaching and learning 	5
Confidence	
<ul style="list-style-type: none"> the teacher is more confident, the intonation and the instructions more clearer and precise more confident (4)* teaching methods and approach – more confident (2)* Teaching Preparation: they are more confidence and prepare good teaching plans. Compare with previous students 	8
Commitment	
<ul style="list-style-type: none"> BEd students are very committed with all the task that given to them 	1
Reflection	
<ul style="list-style-type: none"> reflection writing is different → Action Research approach → pupils understanding 	1
English language	
<ul style="list-style-type: none"> better usage of English language in classroom speak English better and fluent Language: good in using ENGLISH to communicate and in teaching process 	3

*number of respondents providing the same response

Some examples of complete responses to the question about the ways in which the teaching of the BEd students was different from the teaching of previous students are provided below. Phrases have been linked with semi-colons rather than listed as numbered suggestions.

'BEd students used multi teaching and learning resources especially 'IT' (software); T&L process be more interesting (can attract student); BEd students can developed students in thinking skill more than previous student; BEd students are very committed with all the task that given to them.'

School mentor – Malaysia

'Better usage of English language in classroom; classroom management is more effective; the teacher is more confident, the intonation and the instructions more clearer and precise.'

School mentor – Malaysia

'They use more teaching aids during their lesson; they are very good in giving explanation to the pupils; they are very creative.'

School mentor – Malaysia

'More confident; active learning; varieties of teaching strategies.'

School mentor – Malaysia

'More creative; more confident; varieties of teaching strategies.'

School mentor – Malaysia

'They are more concern with the pupils; they give clear instructions; there are less comments given to them.'

School mentor – Malaysia

'They have various and attractive teaching aids; different activities were carried out for every teaching step; they have various methods of evaluating the pupils.'

School mentor – Malaysia

'Teaching matches exactly with the lesson plan; very interesting teaching & learning.' [response translated]

School mentor – Malaysia

'Teaching is more of inquiry discovery nature.' [response translated]

School mentor – Malaysia

'Classroom management; teaching methods and approach – more confident; strategies.'

School mentor – Malaysia

'Good use of ICT skills; very effective group activity.'

School mentor – Malaysia

'Manage to control class very well; creative in using teaching aid and usage the ICT programme.'

School mentor – Malaysia

'They use a lot of concrete materials to build visual concept for the pupils; they always use or prepared group work/group task (active lessons); good communication and explanation to the pupils.'

School mentor – Malaysia

'Teaching strategies are very systematic and many creative ideas; good relationship with the students; always involve activities that relate to students' experience in real life situation.'

School mentor – Malaysia

'The activity is more interesting; teachers are more creative to have a good teaching; pupils can explore by their own in the activity that teachers did to them.'

School mentor – Malaysia

'BEd students did the teaching and learning more interesting, more understanding and more thinking for their students; BEd students more creative to find the resources and make the teaching aids; BEd students did student-centred teaching and learning.'

School mentor – Malaysia

'Teaching Preparation: they are more confidence and prepare good teaching plans. Compare with previous students.'

'Language: good in using ENGLISH to communicate and in teaching process.'

'Pupils' Interests: they able to increase pupils' interests. Various teaching strategies and ICT used in teaching.'

School mentor – Malaysia

'Using ICT as a teaching aid; have more fun during the learning process.'

School mentor – Malaysia

'Creative; very good in usage of ICT; good application of Learning Theory.'

School mentor – Malaysia

The school mentors suggested several ways in which the teaching of the BEd students was different from the teaching of previous students (Table 39). Many of the student teachers referred to one or more of these aspects of their teaching in response to the question **'How did you use ARM on your final placement?'** independently illustrating the issues raised by the school mentors. Some student teachers referred to classroom and behaviour management and confidence in response to the question **'How did [ARM] benefit you?'** Classroom management, behaviour management and English language were also mentioned in response to the question **'What challenges did you experience using ARM? If applicable, please describe how you overcame these challenges.'**

The voices of individual student teachers are used in the following quotations together with examples of responses from the school mentors. The quotations have been categorised using the same four main themes and sub-themes.

Theme 1: Learning and teaching

Learning and teaching strategies

Some responses from school mentors: *the teacher is more confident, the intonation and the instructions more clearer and precise; they are very good in giving explanation to the pupils; good communication and explanation to the pupils; teaching strategies are very systematic and many creative ideas; they use variety of teaching and learning methods; they able to increase pupils' interests. Various teaching strategies and ICT used in teaching; strategies are various and creative, especially in solving pupils problems.*

The views of student teachers

'During the activity, I always used ARM in my placement. Before I asked my pupils to do something, I had demonstrated it clearly and make sure all the pupils understand. Then, I also made a reflection after teaching and learning session in order to recognise where is areas of improvement and those things that must be concern.'

Student teacher – Malaysia

'Action – I used action to explain the such concept of mathematics such as in multiplication.'

'Reflection – I used reflection in my teaching to reflect back what pupils learned in previous lesson.'

'Modelling – I used modelling to model the concept of fractions such as use the circular cut out to model the improper fractions.'

Student teacher – Malaysia

Learning and teaching objectives

Some responses from school mentors: very interesting teaching & learning; teaching is more of inquiry discovery nature; more ICT base program compare to last time; the activity is more interesting; BEd students did the teaching and learning more interesting, more understanding and more thinking for their students.

The views of student teachers

'I exposed my pupils active learning approach such as Mathematics trail. Moreover, I asked my pupils what they have learned for the end of the lesson as reflection the topic learned. Finally, I model in front the class in order to help my pupils understand the concept.'

Student teacher – Malaysia

'A – I always include active learning in my lesson so that pupils can move or do some action.

'R – I always reflect my own teaching after each lesson.

'M – I use to model the pupils to arouse the pupils' interest and understanding.'

Student teacher – Malaysia

'Active learning – I gave the group activity to pupils who are divided into several group. They discuss and discover the concepts I want them to know.

'Reflective – As usual, during the group presentation, I might request the pupils to reflect their learning process during their discussion and sharing.

'Modelling – I usually do demonstration and explanation before I introduce the topic I want the pupils to know.'

Student teacher – Malaysia

'A target of my teaching goals is that my pupils should at least achieve the minimal level of the learning objectives planned in my lesson. After every lesson, I would do reflection based on the lesson carried out and state-out the weaknesses of myself so that I can make improvement on it in planning the next lesson. I prefer pupils-centred of learning rather than just I am talking in front and the pupils follow the instruction given.'

Student teacher – Malaysia

Active learning

Some responses from school mentors: active learning; very effective group activity; they always use or prepared group work/group task (active lessons); pupils can explore by their own in the activity that teachers did to them.

The views of student teachers

'I used ARM during my final placement whereby in each of my lesson, I will include active learning so that my pupils can move and do some action. Besides, I also do reflection after each lesson. For the modelling, I will model/ demonstrate first so that my pupils can easily understand and at the same time it will attract my pupils' attention.'

Student teacher – Malaysia

'I made use of ARM at most of the time during the lesson. Eg

'A – I always implement active learning approaches during the teaching so that I can see more actions from pupils.

'R – At the end of the lesson, I always ask students to review what they have learnt, what are their feelings. I also made reflections at the end of the lesson.

'M – Always modelling to pupils especially during the Physical and Health Edu. Subject.'

Student teacher – Malaysia

'I always encourage active learning environment in my classroom. I always reflect on the areas to be developed in my future lesson. I always demonstrate a good modelling.'

Student teacher – Malaysia

Creative teaching

Some responses from school mentors: more creative in ideals and activities; they are very creative; more creative; creative in using teaching aid and usage the ICT programme; teaching strategies are very systematic and many creative ideas; teachers are more creative to have a good teaching.

The views of student teachers

'In all my lesson, I tried to create activities where my pupils can actively working so that they can express their idea to do the task. Before I gave the task, I modelling it first or show the example how to do. I also do reflection at the end of every lesson.'

Student teacher – Malaysia

'Use creative activity to stimulate children to learn and reflect on children response every step and improve from that.'

Student teacher – Malaysia

'I have created a creative environment to let pupils participate actively in the teaching and learning. I would guide pupils to do a reflection after every lesson and learning. However, I did a demonstration to pupils before they investigation.'

Student teacher – Malaysia

Classroom management and behaviour management

Some responses from school mentors: classroom management is more effective; good class management; good class control; manage to control class very well; they have an idea how to tackle the students.

The views of student teachers

'It make me to be a better teacher where I am capable to design better lesson plan for my pupils dealing with their learning styles and needs. It helps me to improve my classroom management.'

Student teacher – Malaysia

'The first challenge was how to plan for the active learning when there are many pupils in a class. It was very difficult to me to make sure all the pupils involve. Then, it also hard to control the class whereby in Malaysian school, there are no assistant teacher to help the teacher.'

'I will manage the group work activity and prepare the roles for each pupils so that, it will ensure the pupils involved. To the class control problem, I think I have to discuss with the pupils about their behaviour, find the solution and decide what we should do together.'

Student teacher – Malaysia

'Action – to apply the active learning approach I need to make sure the students' understanding first. Besides, active learning challenge my class control.'

'Reflection – Sometimes the pupils cannot highlight the main skill they acquired from the lesson.'

'Modelling – Sometimes the pupils did not pay attention to me when I model, and after that they start to ask what should they do.'

'Action – give clearer instruction before I distribute the resources to groups/individual.'

'Reflection – Do some repetition to highlight the main part of the lesson.'

'Modelling – Attract their attention by questioning.'

Student teacher – Malaysia

'It was difficult to me to control the class because pupils were very excited to play it. Therefore, it made my class become noisy.'

'I set up and remind them rules before doing the activity – for example – discuss by using slow voice – respect others.'

Student teacher – Malaysia

'When did group activities, the class become hard to be controlled and some students do act as passengers in the group.'

'During group work, I do give individual tasks where they need to do on their own and share their answers in order to complete the tasks. It does let all the students to be occupied with the task – less noise.'

Student teacher – Malaysia

'Improve my pedagogical skills. Let me to have a better class control.'

Student teacher – Malaysia

Teaching aids and ICT

Some responses from school mentors: BEd students used multi teaching and learning resources especially 'IT' (software); they use more teaching aids during their lesson; they have various and attractive teaching aids; use more ICT for their teaching; good use of ICT skills; creative in using teaching aid and usage the ICT programme; they use a lot of concrete materials to build visual concept for the pupils; BEd students more creative to find the resources and make the teaching aids; teaching aids are various and more creative.

The views of student teachers

'I have use ARM model integrating in the lesson. I try to integrate the model as much as I could while delivers the lesson. For example, I believe attract pupils participation will produce meaning learning outcomes.'

Student teacher – Malaysia

'Therefore I have prepare each lesson with attractive resources; provoking questions to highlight their previous learning; show examples how to overcome learning contents/ problem.'

Student teacher – Malaysia

'A – I used several resources including ICT to make my class active/promote active learning.'

'R – reflect own teaching and let the students to reflect on their own for learning.'

'M – being a good model to my pupils.'

Student teacher – Malaysia

Learning theory

Response from a school mentor: good application of Learning Theory.

The views of student teachers

'Action: Before, during and after the lesson.'

'Reflection: After each lesson, I reflect upon myself to find the weaknesses, strengths and solution.'

'Modelling: During the lesson (using oral, visual, kinaesthetics).'

Student teacher – Malaysia

'Used creativity to fulfill learning theories and learning styles during teaching and learning. The pupils enjoy the active learning approach. Use the resource that concrete materials to support learning.'

Student teacher – Malaysia

'Apply the skills (ARM) in my lesson planning, reflection on the teaching & learning occurred in the classroom. Relate my knowledge learnt from the course with the practical stuff.'

Student teacher – Malaysia

Theme 2: Assessment and feedback

Assessment

Response from a school mentor: they have various methods of evaluating the pupils.

The views of student teachers

'I practised active learning approach during my lesson. During the lesson, I just a facilitator, demonstrator and a guider to my pupils. Then, I gave them chances to think, reflect and evaluate their learning from the activities that they involved.'

Student teacher – Malaysia

'A – I used a lot of group activities as it promoted pupils' talk. I also assigned some "little teachers". They helped me a lot in handling the weak pupils. I also can evaluate their understanding through their explanation.'

'R – After each lesson, I did reflection on my area of development in teaching and children's learning. When the pupils

seem not understand the day's lesson, another same L.O lesson will be carried out but in different way.'

'M – Each and every "new" knowledge need to be modelled to the pupils. This always came with "examples". Besides content knowledge, I did also model good behaviour.'

Student teacher – Malaysia

Feedback

Some responses from school mentors: there are less comments given to them; seldom heed the subject teacher's advice/advise; slow response from mentor/mentor's instructions.

The view of a student teacher

'Action: I used various strategies which I have learnt from this course and also tried out some new strategies/activities both in the classroom and in the field. For example, incorporated dance in the PE lesson, conducted "Formation of Fractions" with the pupils.

'Reflection: I did reflection in the end of every lesson. This had greatly helped me to understand my strengths and areas for development. In addition, I had discussion with my mentor and lecturer in order to get deeper insights on my teaching.

'Modelling: I demonstrated some skills such as collaborating with each other in my teaching. For instance, I assigned some pupils as the "ambassadors" to help their peers in other groups with my monitoring.'

Student teacher – Malaysia

Theme 3: Planning

Lesson planning

Some responses from school mentors: detail and clear lesson plan; teaching matches exactly with the lesson plan; Teaching Preparation: they are more confidence and prepare good teaching plans. Compare with previous students.

The views of student teachers

'I have used ARM during my final placement. For example, I modelled to the pupils how to do subtraction without regrouping. Besides, I also planned the active learning activity whereby all the pupils involved.

For example, I have carried out pair work activity which required pupils to solve the questions on the topic of subtraction. At the end of the session, I will ask pupils to reflect what they have understood/got from lesson.'

Student teacher – Malaysia

'I consider the application of ARM in each and every lesson that I planned. I create & planned variety of group discussion to make sure all pupils actively involved in the lesson. I also models to the students & after each lesson I will do my revision.'

Student teacher – Malaysia

Activities

Some responses from school mentors: give more activities; varieties of activities help to promote teaching and learning; different activities were carried out for every teaching step; always involve activities that relate to students' experience in real life situation; created various activities.

The views of student teachers

'I used "Action" by providing hands on activity whereby the pupils can participate and involve in.

'I applied "Reflection" usually at the end of each lesson. Whereby I asked them what have they learned, and sometimes, I asked them to grade the lesson by using 3 stars and 1 wish or emotions. Eg: [the respondent had drawn three faces with different expressions]

'For "Modelling" I applied this especially during the activity, whereby I need to model on how to carry out the activities.'

Student teacher – Malaysia

'Active learning – I did a lot of group activities and hands-on activities to engage the students in the learning.

'Reflection – Reflection helps me to identify my areas for development and take actions.

'Modelling – I had model good learning style where I demonstrate each time I conduct my lesson.'

Student teacher – Malaysia

'During my placement, I usually let the pupils to experience active learning by conducting group activity where everybody had their role and responsibility for the task. I also model good practice for them. After each lesson, I will do reflection on my pupils' learning in order to seek [??] for improvement.'

Student teacher – Malaysia

Theme 4: Professional attributes

Pupil focused/pupil centred (building relationships)

Some responses from school mentors: they are more concern with the pupils; good relationship with the students; always involve activities that relate to students' experience in real life situation; different in approaching the students; BEd students did student-centred teaching and learning.

The views of student teachers

'I use ARM (Action, Reflection, Modelling) to teach the concept of money. When dealing with the money, I shows some action and modelling how to deal with the money – I also asked pupils to reflect on their experience in daily life to support their learning for the topic.'

Student teacher – Malaysia

'A – More group work activity, pupils are encouraged to ask questions and voice up their ideas.

'R – Pupils reflect on what they have learnt. Reflect on my own teaching.

'M – Interaction among teacher and pupils.'

Student teacher – Malaysia

'Active learning – I let them pupils to participate more during lesson. I'm promoted students' centred.

'Reflection – I had made reflection on each lesson which had been done.

'Modelling – I had shown/model everything [??] – I have taught before letting pupils to do.'

Student teacher – Malaysia

Confidence

Some responses from school mentors: the teacher is more confident, the intonation and the instructions more clearer and precise; more confident; teaching methods and approach – more confident; Teaching Preparation: they are more confidence and prepare good teaching plans. Compare with previous students.

The views of student teachers

'I feel confident in the class whereby I know exactly what should I do in the class.'

Student teacher – Malaysia

'I used all the ARM important elements in this final placement of mine. I have improved a lot from my previous placement and things have got more challenging. I was happy that I often reflected, modelled and did active learning for my pupils.'

Student teacher – Malaysia

'Build up my confidence as a teacher. Lighten my work lot, make me think that "teaching" is not a burden. Become a reflective + an effective teacher.'

Student teacher – Malaysia

Commitment

Response from a school mentor: BEd students are very committed with all the task that given to them.

The view of a student teacher

'I engaged my students in learning frequently by giving more chances to students to answer and voice out opinion, creating own questions and work in pair and group. I did reflection everytime I finished a lesson and thought deeply on how to improve my teaching. I also discussed with my partner on how to overcome problem occurred. I also modelled to replace any explanation to help my students get better understanding.'

Student teacher – Malaysia

Reflection

Response from a school mentor: reflection writing is different → Action Research approach → pupils understanding

The views of student teachers

'During the activity, I always used ARM in my placement. Before I asked my pupils to do something, I had demonstrated it clearly and make sure all the pupils understand. Then, I also made a reflection after teaching and learning session in order to recognise where is areas of improvement and those things that must be concern.'

Student teacher – Malaysia

'I had used active learning in my placement by include game, group work and so on. In closure, I asked my pupils to do reflection on what they have learn in the lesson. Before giving task, I had demonstrated what they need to do.'

Student teacher – Malaysia

English language

Some responses from school mentors: better usage of English language in classroom; speak English better and fluent; Language: good in using ENGLISH to communicate and in teaching process.

The views of student teachers

'The challenges that I faced was to communicate with my pupils using English. I try to use simple words.'

Student teacher – Malaysia

'Language barrier, where sometimes my pupils cannot really understand the English terms that used by me.'

'Initially, I used to make use of simple words to deliver my instruction in a good manner. If it still does not work, I choose to make use of our mother tongue language, that is Malay to support them.'

Student teacher – Malaysia

C Ideas for a future BEd degree

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

If you were asked to write your own BEd degree in the future, what would it look like? *(Please consider for example, approaches, principles, values.)*

All eight interviewees described their idea of a future BEd degree. Five interviewees referred to values, which was one of the elements put forward in the question. These included universal, societal and human values; good values; values which can be seen when doing activities, for example, cooperation, leadership, and 'values we should develop before students reach graduation'.

Two interviewees suggested using a combination of the Malaysian approach and the approach used on the BEd degree programme: *'I think the best one is the combination*

of our traditional curriculum and the UH programme' and 'we are going to combine transmission model and active learning approach'. Several interviewees mentioned elements of the ARM approach to learning and teaching and two were explicit about saying that they would use this approach or model if they were asked to write their own BEd degree in the future. Two interviewees referred to involving or setting out the levels of graduate skills.

Some examples of interviewees' responses to this question are given here.

'I will use the ARM model definitely. I would ask them to write journals and I think in the Malaysian context the written assignment is important for them to improve their English. I would include elements where there is critical analysis and it would involve all the graduate skills from level 1 to level 3. Using the format where you have lectures, workshops and independent student learning. I think I would follow this present programme we have done. It gives the students enough time to interact with their lecturers and to study on their own...'

Lecturer – Malaysia

'Thinking about that for the past few days. Reflecting on training of teachers.

'Three parts:

- 1. the knowledge – what knowledge they should do*
- 2. how to deliver the knowledge*
- 3. how are they going to acquire the skills.*

'It's about knowledge, skills. Apart from social, economic issues that have to be incorporated. Basis model is the Malaysian context. Approach of acquiring skills and knowledge. Knowledge and skills come with a value. Society defines the values. The human value. Different society have different values. Values, for example, punctuality in the sense of effective use of time and other things; reading habits. In our society we acknowledge reading is a good value but research shows people reading newspapers/ magazines. The values are quite universal. UN Charter – the universal value accepted by all nations. Base the programme on the UN Charter. Thinking is based on the Malaysian context – it is multiracial and every race has its own values.'

Lecturer – Malaysia

'...I have some experience of thinking what needs to be put into a degree. Based on what I've got from UH...For me we have to progress. In order to progress we have to put something new into the curriculum...We put in a few topics that more or less everybody knows but not in the curriculum. We put in [activity] whereby values can be seen when doing activities. For example, cooperation, leadership.'

Lecturer – Malaysia

'I think the UH programme is very good. Only one thing I think the best one is the combination of our traditional curriculum and the UH programme. Because to me our traditional programme is more of a content based programme and, of course, the UH programme is more the ARM approach but there are some weakness there. To certain extent it depends on the lecturers and also the students' attitude. If the attitude is not positive enough – sometimes when they are doing something active they don't learn much. The resources and the references suggested to the students is very important so that the students really learn something by doing something. Sometimes the students participate in the active learning process but if they are not really guided they don't learn much.'

Lecturer – Malaysia

'We will use both – we are going to combine transmission model and active learning approach. I really impress of the active learning approach whereby we focus on the importance of talk, grouping and school activities. So for BEd programme we try to do a lot of school activities, various types so that our students are familiar with the activities so that they can implement it in school. So more school activities. So the focus is more school activities.'

'One more thing – making of resources or using resources. So during the school activities they have to plan starting from the learning objectives, then the concept (knowledge for the teachers) then the activities to be carried out and building of resources. Then of course every activity I want them to do reflection and synthesise the ideas to get new suggestions on how to improve the activity.'

Lecturer – Malaysia

'...[I would love] to see graduate skills clearly laid out as UH do. Set out in levels – very helpful. Level of thinking has to suit the year of learning – cognitive, social, emotional. States all the values we should develop before students reach graduation. That should be clearly stated in the module contract.'

Lecturer – Malaysia

'This goes with the values. I have observed in UK how trainers were so approachable to their students and very professional. For example, two hours is two hours on teaching. That is very efficient and effective teaching. Solely talk about what you are supposed to deliver.'

'Of course the ARM approach, I am all for the ARM approach. Covers how you deliver your input (teaching) also the assessment and evaluation. Tediously done but very effective. Every aspect of writing is analysed. We are developing analytical thinking among lecturers themselves when it comes to assessment and evaluation.'

'Personality, the approach and the assessment and evaluation are the three parts.'

Lecturer – Malaysia

'I would like them to have this approach which is more explorative, to be able to work on their own, less depending on being spoon fed by the lecturers. More on looking at what is needed currently, it's more global, eclectic – taking the best of everything.'

'Definitely I would like to have my students able to justify what they are learning for.'

'It is very good to put in good values – working with young children. Important to instil good values.'

Lecturer – Malaysia

D Reflections on future developments

The views of members of the senior management team

At the end of the additional interviews (years 3 to 4), members of the senior management team were asked whether they had any further comments about the collaboration or about any other aspects of working with colleagues from Malaysia or the University of Hertfordshire. Interviewees' comments relating to future developments are included here.

'I think the programme is coming to an end they should explore more ways of having links with Malaysia [Colleges etc] in other professional areas. If it ends there it is quite sad. I think the contacts, the linkages should continue at another level, follow through, not just end when the students graduate. For example, research; sending UK students to Malaysia to do studies. I was hoping we would [have] other collaborative work. For example, placement for UH students in Malaysian schools. International exposure would make them a better teacher.'

**Member of senior management team
– Malaysia**

'One thing that has struck me is that it was for UH a very new and innovative way of working. Over the three years the pattern of international work is changing... It is actually these strategic partnerships and alliances and different ways of working that are going to be the shape of things to come...'

**Member of senior management team
– University of Hertfordshire**

'Wish that this programme would continue but it doesn't happen. I wish [we could] adopt more of the spirit of the UH programme into our own local programme. Not just the content but helping the students, ongoing assessment and giving feedback to the students...'

**Member of senior management team
– Malaysia**

'It's obviously been a really enjoyable experience. I don't know though whether it's a sustainable model for the future. An awful lot of time has been invested to make it the success it has been. To be really positive it's been such a worthwhile project and people have learnt so much from it...It has opened up the whole School of Education. It's not just about personal and professional confidence. It has opened up the School and enabled us to be much more outward looking.'

**Member of senior management team
– University of Hertfordshire**

E Closing comment from Malaysia

'...Constructivist, task based, genre-oriented pedagogy engaging learner interests in terms of their life experiences would arguably, help the global workers of the future to become problem-solving, flexible, innovative and creative thinkers. A knowledge based society would have to hone such thinkers. An information-based society limits its learners to accumulation of facts, without the critical skills of applying and critiquing it in relation to theoretical and practical issues/problems.'

Koo Yew Lie 2008:126

Key themes Changes and future developments

The research findings from Section 5.5 are drawn together into some key themes, illustrated using extracts from contributors' responses. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *Teachers thus have enormous responsibilities not just for the content of what learners may learn, but in contributing to the values and attitudes of our future citizens.*
- *Learning is thus a way of interacting with the world. As we learn, our conceptions of phenomena change, and we see the world differently.*
- *I do not believe that we should have a one-size-fits-all teacher education program, but I do believe that we can be using best practices and draw on research to develop common goals and practices.*

Changes in learning and teaching

The views of lecturers (year 3)

Lecturers identified the following examples of what they did more of in their teaching since the start of the BEd degree.

- *I have more discussion with my students and give them feedback on their strengths and their weakness in a more specific way.*
- *I have more modelling, more action; students do hands-on activities a lot...So more student participation.*

The views of school mentors and student teachers (year 4)

Almost three-quarters of the school mentors who responded to a question about the teaching of the BEd students considered that the classroom teaching of the BEd students was different from previous students. The remaining respondents did not.

The following examples show some of the ways in which the school mentors thought the teaching of the BEd students was different from the teaching of previous students. Many student teachers also referred to these aspects of their teaching on placement.

Learning and teaching strategies

School mentors: *the intonation and the instructions more clearer and precise; good communication and explanation to the pupils; teaching strategies are very systematic; various teaching strategies and ICT used in teaching.*

A student teacher: *During the activity, I always used ARM in my placement. Before I asked my pupils to do something, I had demonstrated it clearly and make sure all the pupils understand.*

Learning and teaching objectives

School mentors: *very interesting teaching & learning; teaching is more of inquiry discovery nature; more understanding and more thinking for their students.*

A student teacher: *Active learning – I gave the group activity to pupils who are divided into several group. They discuss and discover the concepts I want them to know. Reflective – As usual, during the group presentation, I might request the pupils to reflect their learning process during their discussion and sharing. Modelling – I usually do demonstration and explanation before I introduce the topic I want the pupils to know.*

Active learning

School mentors: *active learning; very effective group activity; they always use or prepared group work/group task (active lessons); pupils can explore by their own in the activity.*

A student teacher: *I used ARM during my final placement whereby in each of my lesson, I will include active learning so that my pupils can move and do some action. Besides, I also do reflection after each lesson. For the modelling, I will model/ demonstrate first so that my pupils can easily understand and at the same time it will attract my pupils' attention.*

Creative teaching

School mentors: *they are very creative; creative in using teaching aid and usage the ICT programme; many creative ideas; teachers are more creative.*

A student teacher: *Use creative activity to stimulate children to learn and reflect on children response every step and improve from that.*

Classroom management and behaviour management

School mentors: *classroom management is more effective; good class management; good class control; they have an idea how to tackle the students.*

A student teacher: *It make me to be a better teacher where I am capable to design better lesson plan for my pupils dealing with their learning styles and needs. It helps me to improve my classroom management.*

Teaching aids and ICT

School mentors: *they use more teaching aids during their lesson; use more ICT for their teaching; good use of ICT skills; creative in using teaching aid and usage the ICT programme; they use a lot of concrete materials to build visual concept for the pupils.*

A student teacher: *A – I used several resources including ICT to make my class active/promote active learning. R – reflect own teaching and let the students to reflect on their own for learning. M – being a good model to my pupils.*

Feedback

School mentors: there are less comments given to them; seldom heed the subject teacher's advice; slow response from mentor's instructions.

A student teacher: Reflection: I did reflection in the end of every lesson. This had greatly helped me to understand my strengths and areas for development. In addition, I had discussion with my mentor and lecturer in order to get deeper insights on my teaching.

Lesson planning

School mentors: detail and clear lesson plan; teaching matches exactly with the lesson plan; they are more confidence and prepare good teaching plans.

A student teacher: I consider the application of ARM in each and every lesson that I planned. I create & planned variety of group discussion to make sure all pupils actively involved in the lesson. I also models to the students & after each lesson I will do my revision.

Pupil focused/pupil centred (building relationships)

School mentors: they are more concern with the pupils; good relationship with the students; BEd students did student-centred teaching and learning.

A student teacher: I use ARM...to teach the concept of money. When dealing with the money, I shows some action and modelling how to deal with the money – I also asked pupils to reflect on their experience in daily life to support their learning for the topic.

Confidence

School mentors: teaching methods and approach – more confident; they are more confidence.

A student teacher: I feel confident in the class whereby I know exactly what should I do in the class.

English language

School mentors: better usage of English language; speak English better and fluent; good in using ENGLISH to communicate and in teaching process.

A student teacher: Language barrier, where sometimes my pupils cannot really understand the English terms that used by me. Initially, I used to make use of simple words to deliver my instruction in a good manner. If it still does not work, I choose to make use of our mother tongue language, that is Malay to support them.

Ideas for a future BEd degree**The views of lecturers (year 3)**

When describing their idea of a future BEd degree, five lecturers referred to values, one of the elements suggested in the question. These included universal, societal and human values and values such as cooperation and leadership. Two interviewees suggested combining the Malaysian approach and the one used on the degree programme ('I think the best one is the combination of our traditional curriculum and the UH programme'); and 'we are going to combine transmission model and active learning approach'. Lecturers also mentioned elements of the ARM approach to learning and teaching and involving or setting out the levels of graduate skills.

5.6 Learning and teaching primary mathematics in English

This final section of the chapter opens with some findings from the literature relevant to teaching and learning primary mathematics in English in Malaysia. It then brings together some of the research findings that are specific to this aspect of the project. This section also includes four complete sets of responses from student teachers to the surveys, and some reflections on the project from lecturers and a member of the senior management team. Some of these findings have been included in earlier sections of the report. The section ends with a closing comment from Malaysia.

The findings in this section are set out using the following headings:

- A Excerpts from the literature
- B Learning and teaching in English
- C Learning and teaching primary mathematics
- D Examples of complete survey responses from student teachers
- E Reflections on the project
- F Closing comment from Malaysia

The 'context box' at the beginning of Chapter 5 provides some information relevant to the setting of the project and supports the interpretation of the research findings. Further information, which is relevant to the context, is found in earlier chapters of the report.

A Excerpts from the literature

'At a general level, the mathematics educators from all countries—Australia, Czech Republic, Hong Kong SAR, North America, and Switzerland—tended to agree on the features they were looking for in effective mathematics teaching. First, all groups indicated that students should play a significant role in the classroom rather than having it dominated by the teacher. They agreed that the teacher should allow students to actively participate in making sense of the mathematics. Second, all of the groups

commented on the degree of challenge posed by the mathematics content in the lessons. Those lessons deemed mathematically demanding were held in greater esteem than those whose content was considered slim or minimal. Also noted by the educators was the extent to which the content was developed. They reacted negatively to lessons that simply demonstrated rules and procedures and asked students to practice.'

Bogard Givvin et al. 2009:51

'Although teachers are exposed to student centered learning, contextual and cooperative learning approaches, they seem difficult to change the culture of mathematics teaching and learning in schools. For any new approaches that they employed, they have to meet the demands of the school principals and parents. It is thus not easy to change the culture of teaching and learning in schools.'

Lim Chap Sam 2006:212

B Learning and teaching in English

During the interviews in Semester 6, one of the lecturers in Malaysia expressed the following view about teaching student teachers in English:

'Everything has to be in English. Naturally we have to improve on that also. We felt a little uneasy – this is why some of my colleagues would not want to teach this class. Three of us took on the challenge and are happy to do it...'

Lecturer – Malaysia

Some examples of the ways in which student teachers taught in English in schools have been selected from the responses to the surveys carried out at the end of the students' first and final placements. Several of the student teachers raised this issue in response to the question **'What challenges did you experience using ARM?'**

Examples from student teachers – end of first placement

'ARM were benefit to me when to give clear explanations and instructions to my pupils. It is because almost of my pupils were lacked in their English proficiency so I had to use my body language to minimise the use of native language (Malay language) in my classroom. So, indirectly my pupils understand what has been told to them by seeing my actions and not listening to the translations in Malay language. By making own reflection, I had discovered that lots of my pupils need to be guided through their activities so they can do it more effectively and save more time to wait for them to complete it on their own. Besides that,

I noticed that by using Modelling, I can teach my pupils about how to solve the questions more easier by guiding them to collect information and make their calculations.'

Student teacher – Malaysia

'It is a little bit challenge for me when my pupils didn't understood my explanation well because of using the English language. Thus, sometimes I spoke more on using Malay language to let them understand the lesson. Other than that, sometime as I reflect them via asking questions, mostly all of them didn't know how to answer it.'

Student teacher – Malaysia

'The challenges when I can't budget the time duration and the learning objective more than two. Also, my pupils can't understand English because it wasn't our mother tongue language but they showed me improvement when they brave to speak in mix language.'

Student teacher – Malaysia

'I thought that the major problem was communication. During the internship, the pupils could not understand English well. Sometimes, they would feel confused about the language, except using their language, Malay.'

Student teacher – Malaysia

Examples from student teachers – end of final placement

'I observed that pupils were able to understand the concept very well. Besides, they were very excited and interested to learn Mathematics and English as well.'

Student teacher – Malaysia

Three of the student teachers explained the challenge of teaching in English and the ways in which they overcame this challenge:

- *'The challenges that I faced was to communicate with my pupils using English.'*
- *'I try to use simple words.'*

Student teacher – Malaysia

- *'Language barrier, where sometimes my pupils cannot really understand the English terms that used by me.'*
- *'Initially, I used to make use of simple words to deliver my instruction in a good manner. If it still does not work, I choose to make use of our mother tongue language, that is Malay to support them.'*

Student teacher – Malaysia

- *'The challenges did I experience is how I was going to explain the concept using ARM in English language because pupils had a problem to understand English.'*
- *'Use a lot of ARM in teaching, use non-verbal communication.'*

Student teacher – Malaysia

C Learning and teaching primary mathematics

Examples of the ways in which student teachers taught mathematics during their first and final placements have been selected from the responses to the surveys carried out at the end of those placements.

Examples from student teachers – end of first placement

'I have applied ARM concept as much as I can in all subjects I've taught. When planning a lesson, I had consider ARM to appropriate activities. For each lesson I tried to involve an actions, reflections and modelling (ARM). For instance, I've asked to act as I acted like claps, steps, laugh, cry, angry and so on for English subject. Meanwhile for Maths lesson, I've done an action activities for measuring length, mass and volume. It is more actions involve during teaching PHE when my pupils have to catch and pass the ball, do running, galloping, skipping and many more. For reflection, it is must before I've end the session by pupils' presentation. My pupils reflected on what they've learnt during that session in order for me to make them get clear success criteria. While modelling is appropriate when my pupils get stuck and need helps. One way to get them understand is by modelling, not only teacher's model but pupils also can modelling on what they've learn.'

Student teacher – Malaysia

'I had used ARM that are action, reflection and modelling when I was and after teaching process. While I was teaching I had took all the action that I had planned to give my pupils' knowledge. Action and modelling are related to each other. So when teaching process happen, I had modelling first and then I had asked my pupils to do it as action. For example when I teach my pupils about addition, first I need to explain and modelling what exactly is addition. I give a lot of example to them to show that is addition. Then after they look like understand or see it I ask them to answer the question on the worksheet or whiteboard based on the way that I had showed to them. After teaching process done, I had make reflection on my teaching and pupils. What is weaknesses and strengths that I have and learning outcomes that have achieved.'

Student teacher – Malaysia

'During I'm teaching Mathematics with the topic of "time", to create the active learning in the classroom. I have done several interesting activities such divide pupils into groups and asked them to discuss to solve problems given. Thus, I distributes some resources that I've created to each group and let them used it by their own as they can touch and feel it. The resources are such as clock, flashcards and so on. Besides, after the class session, to know how the activities going smoothly, I have reflected and assess pupils by asking questions such as, "What do you understand about this topic?", "How many minutes in an hour?" Using modelling, I modelled to the pupils about how to move the time correctly and they will follow the methods.'

Student teacher – Malaysia

Examples from student teachers – end of final placement

'Action – I used action to explain the such concept of mathematics such as in multiplication.'

'Reflection – I used reflection in my teaching to reflect back what pupils learned in previous lesson.'

'Modelling – I used modelling to model the concept of fractions such as use the circular cut out to model the improper fractions.'

Student teacher – Malaysia

'Pupils can understand the concept of mathematics taught better where they can visualize it.'

Student teacher – Malaysia

'As one of the element is active learning. Pupils feel excited and are engaged in learning in my lesson as they delighted with the activities I planned. For example, pupils like "Shopping Activities" where they will buy their favourite things with their friends. It makes the learning of money fun and interesting!'

Student teacher – Malaysia

'I used ARM during the lesson. I made the pupils to create their own song for a topic called percentage.'

The pupils were very happy as they worked in groups to create the song. Then the pupils would have to reflect on the effectiveness of the song and how much do they understand about the topic. Finally I had guide the pupils to sing the song in the whole classroom.'

Student teacher – Malaysia

Two of the student teachers explained the challenge of teaching mathematics and the ways in which they overcame this challenge:

- *'Sometimes I had problems to explain and visualize to my pupils, about the topic. They could not see what I am try to explaint it. For example, I had problem to explain that $\frac{2}{4}$ is equivalent with $\frac{4}{8}$.*
- *'When the problem occur I tried to discuss with my mentor. So, she suggested to me to visualize the fraction in 3 condition. In symbols, picture cards and also concrete materials. So, I had followed her suggestion.'*
- *'The challenge is when I try to relate math concept and the concrete idea.'*
- *'I make sure every lesson I teach, I will try to relate any concrete material or things with pupils knowledge.'*

Student teacher – Malaysia

Student teacher – Malaysia

D Examples of complete survey responses from student teachers

Complete sets of student teachers' responses to the surveys carried out at the end of their first and final placements are given below, two sets from each survey. These sets illustrate the value of the contributions made by individual participants.

Examples at the end of first placement

How did you use ARM on your placement?

'I have applied ARM concept as much as I can in all subjects I've taught. When planning a lesson, I had consider ARM to appropriate activities. For each lesson I tried to involve an actions, reflections and modelling (ARM). For instance, I've asked to act as I acted like claps, steps, laugh, cry, angry and so on for English subject. Meanwhile for Maths lesson, I've done an action activities for measuring length, mass and volume. It is more actions involve during teaching PHE

when my pupils have to catch and pass the ball, do running, galloping, skipping and many more. For reflection, it is must before I've end the session by pupils' presentation. My pupils reflected on what they've learnt during that session in order for me to make them get clear success criteria. While modelling is appropriate when my pupils get stuck and need helps. One way to get them understand is by modelling, not only teacher's model but pupils also can modelling on what they've learn.'

How did it benefit you?

'It benefits me a lot in making sure my pupils understood on what they've been taught. Using ARM affect me in achieving clear learning intentions for pupils. In addition, I can deliver the input and appropriate knowledge using new approaches rather than traditional ways. Besides, my teaching and learning sessions become more fun, enjoyable, entertain, attractive and interesting. Furthermore, it bring up an active learning and I've two-way communications within teacher and pupils.'

How did it benefit your pupils?

'It benefits my pupils in getting clear about what they are going to learn during the sessions. Using new approaches of ARM avoid my pupils felt bored and uncomfortable. The use of ARM make the lessons become meaningful for them and they loved it I know, when some of them asked me to do ARM in next teaching and learning activities. Doing ARM build up their understanding from an exploration and experience learning themselves. Lastly, using ARM is one way in creating positive classroom climate for them.'

What challenges did you experience using ARM?

'Using ARM, challenges me on making appropriate activity for different learning styles and development disabilities. Besides, I've faced problem in controlling the class when I've applied ARM. In making the ARM purposeful to my pupils, it challenges me to think creatively which I've to consider the subject domains, individual and communities, wider social and culture context and so forth.'

What have you learned from using ARM that will influence your practice as a teacher?

'As a teacher, using ARM will influence me to be an effective teacher. Besides, it is actually helps me in learning to think creatively in order to bring up new approaches.'

Student teacher – Malaysia

How did you use ARM on your placement?

'I have applied ARM on my placement. To promote active learning. I have carried out many activities as I know children learn better through playing. As they play, they are enjoy within the learning environment. Yet, I have tried out a game but have been criticise...during my practicum. [S/he] said that my lesson is like a gameshow. It might be true but I still believe that that is a starting point of promoting active learning. However, ARM have teach me to adapt with the situation.'

How did it benefit you?

'ARM have beneficial me in my teaching. I know how to create a better learning environment. Reflection help me in looking my area of development and the strength that I need to keep on developing. Modelling from my mentor and lecturer do give me a good role model and references in my teaching.'

How did it benefit your pupils?

'After gone through reflection, I am able to redesign my lesson and choose appropriate activities to suit different children. They learn better as their teacher (me) is able to show a good attitude of learning and teaching to them.'

What challenges did you experience using ARM?

'The problem I face is the culture of the...It is hard to change pupil's attitude as what I have teach will not effective if the ethos or culture of the school and their family is not good. They will not change if there is no cooperation from the school and family.'

What have you learned from using ARM that will influence your practice as a teacher?

'To be an excellent teacher, ARM is not only a guidance. A teacher should improve and upgrade himself with others elements. I hope that ARM is not just a theory but a actual way to become a good teacher.'

Student teacher – Malaysia

Examples at the end of final placement**How did you use ARM on your final placement?**

'I engaged my students in learning frequently by giving more chances to students to answer and voice out opinion, creating own questions and work in pair and group. I did reflection everytime I finished a lesson and thought deeply on how to improve my teaching. I also discussed with my partner on how to overcome problem occurred. I also modelled to replace any explanation to help my students get better understanding.'

How did it benefit you?

- '1. Learning objectives usually achieved.*
- '2. I could develop my teaching skills based on comments I got from my partner in an attempt to reach effective teaching and learning session.*
- '3. It help to build my confidence as a teacher.*
- '4. I could see the strengths and weaknesses of my teaching.'*

How did it benefit your pupils?

- '1. My students could learn and understand better.
2. Everybody were given chances to try out activities which help to reinforce their understanding.'

a) What challenges did you experience using ARM?**b) If applicable, please describe how you overcame these challenges.**

- a) '1. The selection of activities sometimes quite make me stress. Sometimes, I did the stereotype activities.
2. I am not really fair with my students. Sometimes I left the slow learners because of the time constraint.'
- b) '1. I think I should do more sharing and discussion with my friends about activities, that they did.
2. I should be prepare with all those activities for every level of students.'

What have you learned from using ARM that will influence your practice as a teacher?

- '1. All students should engage in activities/learning session according to their learning styles.
2. Teacher has to prepare many activities in one session hour.'

What do successful learners do?

'Apply ARM and create miracle learning and teaching session with the young learners.'

Student teacher – Malaysia

How did you use ARM on your final placement?

'Action: I used various strategies which I have learnt from this course and also tried out some new strategies/activities both in the classroom and in the field. For example, incorporated dance in the PE lesson, conducted "Formation of Fractions" with the pupils.'

'Reflection: I did reflection in the end of every lesson. This had greatly helped me to understand my strengths and areas for development. In addition, I had discussion with my mentor and lecturer in order to get deeper insights on my teaching.'

'Modelling: I demonstrated some skills such as collaborating with each other in my teaching. For instance, I assigned some pupils as the "ambassadors" to help their peers in other groups with my monitoring.'

How did it benefit you?

'It helped me to realise my strengths in teaching and more importantly, I was able to learn that things are not always going as what I had expected. Thus, I learn to be accepting for some unexpected situations and always be ready for any circumstance occur in my lesson.'

How did it benefit your pupils?

'My pupils were excited and surprised with some of the strategies used. They showed great enthusiasm and made efforts to learn as well as to help their peers.'

a) What challenges did you experience using ARM?**b) If applicable, please describe how you overcame these challenges.**

- a) 'The great challenge that I had experienced is time constraint. Sometimes, my mentor had to urge me to follow the teaching syllabus by conducting the lesson faster due to the monthly examination in school. It seemed that scoring is more important than understanding in learning mathematics.'
- b) 'I discussed with my lecturer and tried to be flexible in handling certain situations of my teaching by adjusting the time allocated for some activities.'

What have you learned from using ARM that will influence your practice as a teacher?

'I have learned that combining both pupils-centred approach with teacher's role is really important and helpful in teaching.'

What do successful learners do?

'They enjoy my lesson and are able to apply what they have learnt in the higher order questions given. Moreover, they can teach and help their peers too.'

Student teacher – Malaysia

E Reflections on the project

The view of a member of the senior management team

At the end of the additional interviews (years 3 to 4), members of the senior management team were asked whether they had any further comments about the collaboration or about any other aspects of working with colleagues from Malaysia or the University of Hertfordshire. Most of the comments related to future issues and have been included in Section 5.5. However, one interviewee made the following observation about the project.

'I love working with them. Twice a year is nice. I know them better now. I can communicate with them better now.'

'The UH staff has always been very professional. They know exactly what has to be done. That is something we admire in them. Also see the UH staff they band together, work together. Whenever they have any presentations it's always a team effort...'

Member of senior management team – Malaysia

The views of lecturers

Question from the interview schedule: 2008 – year 3 (Semester 6)

Finally, do you have any further comments about your teaching on the BEd and other programmes or about any other aspects of working with colleagues from the University of Hertfordshire?

All eight interviewees contributed in response to an invitation to make further comments at the end of the interview. Several interviewees mentioned aspects of the collaborative approach to working, for example, 'working together, planning together', 'working with the team', and cooperation and sharing with members of the project team ('free to share ideas') and with colleagues. Comments were also made about moderation or assessment. These comments included: 'in the assessment – the validity/reliability is there', 'the experience of moderation for marking, this is a great experience', 'marking of the script...the validity is there'. Three interviewees commented on their personal and professional learning through the programme. Some examples of interviewees' comments are given here.

'This is an enriching and enlightening experience [the BEd]. There have been many new things I have learnt to add onto my skills as a teacher-trainer. One thing I like most is the creativity models. All this time I have been looking at creativity from a very limited perspective but now I think I have got better perspective on it and it has also sort of unleashed creativity in me.'

Lecturer – Malaysia

'Experience of being exposed to the American and British systems. Americans has a basic text that they use. British – not specific text. Malaysian more like British.'

'I'm not well exposed to the British system. There is a lot of things I look forward to learn, to get more experience. Besides interaction with this programme I have opportunity to be in a group of teachers that discuss standards in education. Give me more exposure about how the teachers train in UK compared to what we have here. That give me – looking forwards to see what's next, what's out there that I can learn, what skills I can acquire to make myself a better person...'

'I learn lots. I know all those things but you practise it, for example, in the assessment – the validity/reliability is there. Consider ARM is part of constructivism approach. Academically you know about it but in practice don't relate it as closely.'

Lecturer – Malaysia

'I appreciate that the module is done is a collaborative and there is mutual respect. Our opinion is accepted particularly when applicable to our local needs before it is implemented. There are some UH lecturers that teach us how to look for the resources and I find that is very useful for us.'

Lecturer – Malaysia

'We have a great time, I learnt a lot, I have new experience and feel I have a lot to share with my colleagues. I feel this is a one-off experience in my lifetime. Working together, planning together. During the planning, we discuss and put according to our curriculum. Regarding the experience of moderation for marking, this is a great experience. I like the way we list our students' strengths and areas for development which is important for our students. In fact, three stars and a wish – I love that one and I have used that when I carry out the courses for the teachers. It looks simple but it gives feedback to us...'

Lecturer – Malaysia

'...It's wonderful working with the team. I like the sense of the family unit we have created – it is very informal, we are free to share ideas especially when we were doing our syllabus, scheme of work and also when we we[re] preparing the questions/assignments...'

Lecturer – Malaysia

'I'm satisfied with whatever is going on right now, for example, cooperation from UH. Input is really useful for us. Sometimes they give us resources which are really useful to my students, for example, documents, books etc.'

'Marking of the script – I could see the seriousness about UH coming and marking with us – the validity is there. It might be a bit tedious but for me that should [be] the way. So far our interaction with lecturers from UH is close. There is not much of a gap there. We are able to say what needs to be said...We are doing things in a happy way. Before we start each semester UH come and discuss the topics for the module. It doesn't come totally from UH they are willing to hear what we like to put in. That is something beautiful about this curriculum.'

'Our lecturers being given a chance to receive seminars in UH. That is something good. Whoever goes gets good exposure about something new...'

Lecturer – Malaysia

'I see no negatives, I see all the positives. UH lecturers are very committed, creative, innovative, sharing, very patient and also very serious; guide us, not selfish...'

Lecturer – Malaysia

F Closing comment from Malaysia

'...Besides, communication is also central to students' learning of mathematics and to the solving of mathematical problems. During mathematics learning, students need to relate their everyday language to mathematical language and symbols. When solving mathematical problems, students need to make important connections between concrete information and abstract situation. Through effective communication students will be able to organize, consolidate and explain their mathematical thinking coherently and clearly to peers, teachers and others. They can also analyze and evaluate the mathematical thinking and strategies of others.'

Lim Chap Sam and Chew Cheng Meng 2007:1

Key themes Learning and teaching primary mathematics in English

The research findings from Section 5.6 are drawn together into some key themes, illustrated using extracts from contributors' responses. Excerpts from the literature referenced in that section are also included here.

Excerpts from the literature

- *At a general level, the mathematics educators from all countries – Australia, Czech Republic, Hong Kong SAR, North America, and Switzerland – tended to agree on the features they were looking for in effective mathematics teaching. First, all groups indicated that students should play a significant role in the classroom rather than having it dominated by the teacher. They agreed that the teacher should allow students to actively participate in making sense of the mathematics.*
- *Although teachers are exposed to student centered learning, contextual and cooperative learning approaches, they seem difficult to change the culture of mathematics teaching and learning in schools.*

Learning and teaching in English

The views of student teachers (year 2, year 4)

The following examples show how the student teachers taught in English in schools.

End of first placement

- *ARM were benefit to me when to give clear explanations and instructions to my pupils. It is because almost of my pupils were lacked in their English proficiency so I had to use my body language to minimise the use of native language (Malay language) in my classroom. So, indirectly my pupils understand what has been told to them by seeing my actions and not listening to the translations in Malay language.*

End of final placement

This time the student teacher explained how they overcame the challenge.

- *Language barrier, where sometimes my pupils cannot really understand the English terms that used by me. Initially, I used to make use of simple words to deliver my instruction in a good manner. If it still does not work, I choose to make use of our mother tongue language, that is Malay to support them.*

Learning and teaching primary mathematics

The following examples show how the student teachers taught mathematics.

End of first placement

- *During I'm teaching Mathematics with the topic of 'time', to create the active learning in the classroom. I have done several interesting activities such divide pupils into groups and asked them to discuss to solve problems given. Thus, I distributes some resources that I've created to each group and let them used it by their own as they can touch and feel it. The resources are such as clock, flashcards and so on. Besides, after the class session, to know how the activities going smoothly, I have reflected and assess pupils by asking questions...Using modelling, I modelled to the pupils about how to move the time correctly and they will follow the methods.*

End of final placement

- *As one of the element is active learning. Pupils feel excited and are engaged in learning in my lesson as they delighted with the activities I planned. For example, pupils like 'Shopping Activities' where they will buy their favourite things with their friends. It makes the learning of money fun and interesting!*

Reflections on the project

The views of lecturers (year 3)

At the end of the interviews lecturers commented about aspects of the collaborative approach to working such as working together, planning together and cooperation and sharing with members of the project team and with colleagues. Comments were also made about moderation or assessment ('in the assessment – the validity/reliability is there'; and 'the experience of moderation for marking, this is a great experience'). Lecturers also commented on their personal and professional learning through the programme.

Chapter 6

6

Professional benefits from learning together through international collaboration in teacher education in Malaysia

The Benefits



This final chapter of *Learning together through international collaboration in teacher education in Malaysia* provides an opportunity to focus on the ongoing value of the project. In this chapter some of the participants identify ways in which the project has influenced and continues to influence their practice. Once again, the emphasis is on listening to individual voices, this time of colleagues who worked and learned together as they developed the degree programme.

The story of the project told in this report ends as it started, in Malaysia; not, however, in the Ministry of Education but in a rural area of Perak. Muhamad Hafiz Bin Ismail, one of the 120 student teachers who graduated in March 2010 shares some insights into his experience of his first few months of practice as a newly qualified teacher.

6.1 Reflections on professional benefits

The following reflections on professional and personal benefits from the project were recorded in the first few months after graduation. These personal stories form a valuable addition to the reflections on the professional benefits of the collaboration reported by colleagues from the Institutes and the University as part of the research study.

'I found this project to be one of the most interesting and enjoyable experiences in my career. The project gave me the opportunity to work closely with colleagues in the School of Education with whom I had not previously collaborated. Being able to engage intensively with a group of colleagues on a professional and personal level during the working weeks in Malaysia was a uniquely valuable experience, which I feel had a lasting impact on our return to UH.'

'The most valuable part of the experience was in working with our colleagues in Malaysia. Although it was hard work, I appreciated their care and concern for our wellbeing and their humour with which they approached the work, making the experience stimulating, interesting and enjoyable. I valued the opportunity to visit both Colleges where I met the students and observed some of the teaching of sessions. I also attended programme committee meetings at the two Colleges. This experience enabled me to contextualise the project more effectively.'

'As someone who likes to travel, I valued being able to visit Malaysia and learn a little about the culture, and about education in the country. I was interested to learn about how diverse the peoples are within the country. I found people to be friendly and welcoming wherever I travelled to

within the country. Malaysian hospitality is wonderful.'

'I had previously visited countries neighbouring Malaysia including Thailand, Vietnam, Laos, Cambodia and Indonesia. I wondered why I had managed not to visit Malaysia in the past. Now I know that I will return to Malaysia from time to time in the future.'

Adenike Akinbode, UH

'Professionally, I learnt all about how another country's education system worked – the global aspect. I also learnt much more about my own practice because in articulating what I do I understand it more clearly – it surfaced what I did intuitively and made me question it, for example, marking. The project provided CPD for me in all sorts of ways.'

'On a personal level, the project empowered me to travel. It made me more confident that I can build relationships with people from other countries and gave me the opportunity to do it. It also gave me a personal insight into myself and made me move out of my comfort zone.'

'The professional aspect was amazing in terms of the learning – it made me rethink all my practice because I was sharing it with somebody else.'

Lynn Bhanja, UH

'International collaboration . . . intense team work with colleagues . . . a chance to travel in South East Asia . . . any or all of these could feature as personal and professional benefits to involvement in the Malaysian BEd project.'

'However, the most unexpected advantage for me resulted from needing to articulate the rationale for ARM: active learning, reflection and modelling. Having to explain why ARM was being recommended as an approach to teaching and learning involved us in on-going discussion and debate as we questioned many existing opinions and assumptions. I rather naively expected this to be complete at the start of the project but it remained a constant feature throughout. Of course this was vital in order to validate and showcase our practice – and then to be able to present our ideas in a way which would influence and persuade others. Experienced practitioners are rarely required to outline their pedagogy – indeed their approaches to teaching and learning can often appear as second nature, in skillfully habituated and automatic routines. Because of this, the need to put ARM into words was revealing and informative; and only achieved through the professional support of colleagues, collaborating with and learning from each other as ideas took shape. Thus the process became an illuminating obligation which confirmed and extended my practice – and I am really grateful to all those involved.'

Julie Bowtell, UH

'On a personal level, education is for me all about human relationships, and I wish to share some observations on the Malaysian project in this context. These relationships are never separate or distinct from an individual's own professional development, but are intrinsically interwoven into it, and form an integral part of it.

'Over the four years that I have been working as a team member in a variety of settings in Malaysia, I have got to know a number of colleagues from here in the UK very well and also our partners in Malaysia.

'Perhaps most significantly, I also got to know some of the Malaysian students very well as I was fortunate enough to be invited to do placement observations in local schools, and to facilitate the visit of the students when they came to the UK in the early summer of 2009. In what is often a turbulent and troubled world, what was clear to me was just how much we had in common with each other, across a range of contexts. My colleagues at UH and my colleagues at both Colleges in Malaysia were always mindful of who the primary stake-holders in education actually are – the students, and in this case, the next generation of teachers.

'On my final flight home after the student graduation in March 2010, I was accompanied by one of my fellow lecturers from UH, who commented that being involved in the Malaysian project was one of the highlights of his career. I could not have summed up my own involvement more effectively.'

Barry Paraskevas Costas, UH

'Working as part of the team in Malaysia benefited my role as a teacher educator in reinforcing my belief that to enhance student experience I need to:

- **always start from where the students are.**

My starting point in finding out about the Malaysian student experience was to build trusting relationships with Malaysian colleagues. Through spending time listening to each others' perspectives, ideas and opinions we all gained important insights and cross-cultural understanding. It was through nurturing these professional relationships and valuing students' prior learning that innovative learning and teaching strategies were created.

- **synthesise learning and teaching.**

Working together to create strategic maps required ongoing dialogue. It was through continual questioning, exploring and making connections we were able to understand each others' contexts. But it required an ability to think quickly in order to capture complexities and explain them to others. Through this process of synthesising I developed new ways of articulating my subject knowledge and my pedagogy. An example of this was the 'Teacher's Toolbox' created as a teaching tool and a mode of student assessment.

- **grow my professional knowledge through shared reflection.**

Learning from experience is dependent on critical reflection. My professional practice was enhanced when working in Malaysia through the many opportunities for ongoing dialogue between colleagues, the sharing of alternative perspectives and the many opportunities I had for developing dynamic pedagogical models (eg ARM, models of reflective learning, Vygotsky's ZPD).'

Sally Graham, UH

'This project has enabled many professional benefits. Collaborating with colleagues from a different context helped to develop my ability to listen to other perspectives, to reconsider my own views and to understand some of the influences on the way I see the world. It enabled me to look at the curriculum I teach and the resources I use and to begin to redevelop these in a more multicultural way. The work also developed my abilities to articulate my knowledge and values and this enhanced my professional confidence.

'The project also gave me insights into the importance of sharing and clarifying principles underpinning practice in order to create a shared understanding and direction with colleagues and with students. This has influenced my practice at UH. The project gave me the opportunity to engage in sustained team work which enabled me to experience the way people with different strengths could work together to create effective outcomes. This team work made me appreciate my UH colleagues even more than I had done before. The generosity and commitment of Malaysian colleagues was highly valued both in terms of personal friendships and because this enabled the collaborative partnership to flourish.'

Dr Joy Jarvis, UH

'My involvement in the project was at an academic quality level, as I acted as the link tutor. I only attended one preparation week and no assessment weeks though I was a participant in the conference that we ran for all the training colleges involved in the project.

'The biggest bonus for me was the chance to meet with the students on a regular basis. My involvement with colleagues was mainly with the more senior members of the project and I keep in touch with a number of them. Key success factors included the ability to get on with each other, our developed shared philosophical base, an atmosphere in which creative criticism could take place, professional respect and a commitment to spending time jointly planning, evaluating and reflecting.

'In terms of personal development I think my greatest learning came at the beginning of the project when we were actually writing the degree and engaging for the first time with Ministry and College professionals. To say that this was a challenging process does not begin to describe it. It was certainly the steepest learning curve of my career at UH. However it reinforced my belief in a "can do" attitude and probably engendered in me the confidence to go for my current role.'

Bernice Rawlings, UH

Reflections from the Head of School of Education,
University of Hertfordshire

'The Malaysia project has changed the nature of the School of Education, given staff confidence and an awareness of international developments, provided opportunities for individuals to travel to South East Asia and enabled team building and shared working to flourish in new and unexpected ways – a real broadening of experience for us all.

'One of the joys of this project has been the relationships with our colleagues in the two partner Institutes, their willingness to take on new ideas and to share their good practice with us. As the project progressed the collaborative working and thinking became ever stronger, supporting the experience of the students and ensuring quality in every aspect. Although I did not realise it at the beginning, it has been the most effective staff development experience, changing our way of thinking, our sense of ourselves as educators and our ability to think outside the box.

'The work in Malaysia has been one of the highlights of my professional career; challenging me to think differently, to lead in new ways and to articulate my practice as both a teacher and a teacher educator. Alongside this professional benefit the personal opportunity to work in the Far East and to understand something of a different culture was a life enhancing experience.'

Dr Mary Read, UH

'I have been involved in teachers' education since 1987. Reflecting back, there are a few phases in my career path that are very important in helping me to become a more professional and effective teachers' trainer. Being involved in the collaboration programme is definitely one of them.

Professional Development

'From the beginning, the UH staff have been working closely together with the Malaysian counterparts in developing the course content. This is totally different from my earlier perception that everything would come from UH and we would just have to carry out the training. Even though this process is very demanding I have to admit that this is a very important aspect of professional development for me. At the same time we appreciate the professionalism and work ethic of the UH staff in carrying out their duties.

Assessment

'Before the collaboration, the course assignment that we have been doing only focused on the physical product from the trainees such as teaching aids and lesson plans. From the collaboration, I learn to formulate assignments which require students to reflect critically on their experience, analyse the strengths and weakness of their practices during practicum. This has been very challenging for both the lecturers and students and I am glad to say that this format is still going strong in our local programme and I strongly believe this is a very good training for developing critical and creative thinking in our students.'

Su Howe Yong, IPKB

'Working with the Malaysian Ministry of Education and higher education colleagues surfaced skills, dispositions and behaviours that had been tacit in the UK. The process of negotiating and constructing the degree in primary mathematics developed my ability to observe and listen; to think clearly and creatively; to transfer and amalgamate systems between contexts; to articulate and simplify difficult concepts; to allow mutual trust and respect to emerge.

'In terms of curriculum design, my deeper understandings of academic quality systems and procedures in two countries allowed me to see both the bigger picture and the fine detail, with a clearer focus on the learners' personal, academic and professional needs. Working with experienced and able Malaysian lecturers sharpened my ability to recognise, utilise and value colleagues' talents and knowledge.

'Overcoming challenges and finding solutions with colleagues taught me how to recognise and deploy new soft skills: academic charm, professional fun and collegial humour. Throughout the whole collaboration I adapted and adopted my language uses in the four areas of listening, speaking, reading and writing, across English and Bahasa Malaysia. The key professional benefit was learning how to work closely and intensively with colleagues – UH and Malaysian – and seeing firsthand how all of that hard work has produced high quality teachers in Malaysian primary schools.'

Dr Kit Thomas, UH

6.2 Insights from a newly qualified teacher

The story of the project continues to unfold in the lives of the participants. One example of this is included in this final section of the report. Muhamad Hafiz Bin Ismail, one of the graduate teachers, provides an inspirational record of his early experiences as a teacher in a rural school with pupils from the Temiar people, one of many groups of Orang Asli (Original People) that live in Malaysia. Hafiz's educational enquiry, documented in his blog *Life through My Eyes* (<www.apistakkisah.blogspot.com/>) provides a powerful and vibrant example of the ongoing impact of the project. The following extracts from his reflective writing describe the setting in which he is working and illustrate how he is using some of the learning from the degree programme.

Up and Down

'First year of being a teacher is not really easy. You need to learn lots of things from managing the classroom to managing your time. Everything needs to be learned and experienced in the first year. Sometimes you are given a task that you never thought you would do in a school and at the same time you need to learn how to tackle pupils' understanding in the classroom. Many things you have to consider. I believe that to be a teacher means that you need to be ready to accept all of these things and have lots of patience...' (12 July 2010)

A Visit to the Last Village

'...It so great to come and see how my pupils live in their village situated far away from the town. I am even asking myself how the place will look in the night when there is no electricity here. Oh, that is why some of these children feel so new with the school that is equipped with fans and lamps (especially the pre-school pupils and year 1 pupils) and also television and computers. However, lots of changes have already come for them. Yeah...maybe time will change the place (I do not mean to change the nature). I do feel grateful and honoured to give a little contribution in educating these pupils. Maybe it is just a little but I know it is useful for the future of these kids.

'Honestly, this visit make me realize about the importance of educating these children. They really need lots of encouragement and support to help them develop and live in this world of technology. They should been given the same opportunity, feel and use the same technology that we have and we use now. Why should we let them be left behind while we can use technology? We are in the same country!' (15 May 2010)

Language barriers

'Language has been one of the major problems in the teaching and learning session with these Temiar pupils. Their mother tongue is not Malay language but the Temiar language. So, the Malay language is a second language and English is the third language.

'For some of the level 1 pupils, the Malay language is so new to them. They never really hear or use Malay language at home especially those who live far away in the village. So, the Malay language is new to them. In the early teaching, I had to repeat several times the instructions or explanations given to them. Then, I needed to add body language and facial expressions so that they can get what I want to tell them.

'Right now, I can see some differences about their ability to understand the instructions and explanations. Yeah, I still need to remember to use simple language and I also learn some simple Temiar words to make the pupils feel comfortable with me. They love to hear me speak their language. I can see that they smile and giggle when they hear I say the simple words in Temiar language...' (2 June 2010)

After 3 months in the orang asli village...

'I am already 3 months in since my first day here. Whether I like or not, I really need to accept what I have here. I think I already feel comfortable with the surroundings. I have started to understand the school culture and also the community. I feel grateful for what I have here.

'Focusing on the teaching and learning sessions with Temiar children, I really sure that ARM is very useful to be applied in the class. I need to use lots of modeling to the children, make them learn to reflect, and me too, and also provide them with active learning in the classroom. I just need to force myself to always be positive and help these children to learn. Honestly, sometimes I also feel frustrated and disappointed to see their performance. But I believe that this is what we call a challenge. It is not an excuse for me to stop trying. It should be a medium for me to be more energetic.

'I feel thankful when I see some motivated children. They show a great interest to learn and I can see lots of potential in their eyes. I try to motivate them as much as I can because I believe that these pupils need lots of motivation. They always believed that they cannot change their life and think that they will be the same as their parents. That is so wrong. I want them to see other perspectives rather that old one.

'For this week, I hope that I can finish doing a Mathematics corner in the Year 1 class. I hope it can help them to love Mathematics. I did not expect a huge change to them but if it is as small as an ant I will still be happy.

'P/S Reading: "Happiness in Hard Times" by Andrew Matthews for motivation! Go Hafiz Go!' (26 March 2010)

Introducing...the group work for year 1 Temiar pupils

'I think that my year 1 pupils now were ready to be introduced to group work in learning mathematics... I believe that they are ready to get involved in group

activities and ready to work together, among themselves. This is because; I can see that their attitude is now change compared to their attitude in the first month they were in school. Whereas before some of them were so shy that they did not want to talk or walk in the class, now I can see some smiley faces running in the class... Whereas before some of them were so scared to open their mouth to say out numbers, now I can observe that they do movements while singing mathematics songs... Their attitude shows that they are ready for more approaches...

'The activity was so simple but need a little preparation and planning before the lesson begins. The objective of the activity is to count from 11 to 20 (I use lots of Malay language in introducing numbers to them to avoid confusion). I had prepared a board with numbers on it (in words), a piece of paper with lots of shapes on it, glue and scissors. To complete the activity, pupils need to cut out the shapes and paste it on the board according to the number written on the board.

'I had appointed different tasks for each of the pupils in each group. Two pupils will cut out the paper, one will paste it on the board and the other will count the shapes and make sure that it is correct. Then, I encouraged them to switch their position so that every pupil has a chance to do a different activity and no pupil will conquer the activity by himself.

'I was quite surprised that my pupils can work together in their first group work task. Yeah, I know that at some moments I need to be strict with them to control their behaviour but most of all they can show that they can communicate with each other well to complete the task. Although they prefer to communicate in Temiar language that I cannot understand at all now except a few simple words. But for me when they can complete the task together and help each other that shows a great situation in learning mathematics.

'During the activity, I do not let the pupils compete one group against another group yet because I want to avoid sad feelings among the children. Yeah, they are so new to the group work and I think that if I let them compete, the last group that finish the task will feel down and will find that the group work is not interesting. So, I reminded myself to avoid the pupils from competing with each other. I change the way so that every group must finish the work with a neat, tidy and beautiful poster. I found that this way is more positive in introducing group work.

'After all the groups finish their work, I write down their names on the board and paste their work on the wall. I believe that every pupil in the class will feel proud with it and that will make them happy. Most important, I believe that the group work activity can help them to learn counting from 11 to 20 ;)' (25 May 2010)

Children and Imagination

'Young kids' imaginations are so amazing. To be a teacher means to celebrate pupils' imagination not to bring it down...

'...We just need to encourage them with their ability and their interest so that they will feel accepted and happy to be in the school. We cannot 100% judge our pupils on their ability to answer examinations. It's better to celebrate their abilities and creativity!' (12 August 2010)

Extra Class: My Small Research Begin

'...For the pupils...I really hope that their spirit to learn will be increased. Not only in Mathematics but for all the subjects that they learn in school. Most of all, they learn how to live in this real world using all the knowledge and experiences that they gain from school.' (5 May 2010)

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References

- Atweh, B. and Clarkson, P. (2002) Some Problematics in International Collaboration in Mathematics Education. In: Barton, B., Irwin, K., Pfannkuch, M. and Thomas, M. (eds) *Mathematics Education in the South Pacific: Proceedings of the 25th annual conference of the Mathematics Education Research Group of Australasia* (100–107). University of Auckland: MERGA. [Author version of article available from: <http://eprints.qut.edu.au>] [accessed 29 June 2010]
- Biggs, J. (1999) What the Student Does: teaching for enhanced learning. *Higher Education Research & Development* 18(1), 57–75
- Bogard Giwin, K., Jacobs, J., Hollingsworth, H. and Hiebert, J. (2009) What is Effective Mathematics Teaching? International Educators' Judgments of Mathematics Lessons from the TIMSS 1999 Video Study. In: Jinfa Cai, Gabriele Kaiser, Bob Perry and Ngai-Ying Wong (eds) *Effective Mathematics Teaching from Teachers' Perspectives. National and Cross-National Studies*. Sense Publishers. pp. 37–69
- Brookfield, S.D. (1995) *Becoming a Critically Reflective Teacher*. San Francisco: Jossey-Bass
- Bruner, J.S. (1974) *Toward a Theory of Instruction*. Harvard University Press
- Carr, D. (1993) Moral Values and the Teacher: beyond the paternal and the permissive. *Journal of Philosophy of Education* 27(2), 193–207
- Crystal, D. (1987) *The Cambridge Encyclopedia of Language*. Cambridge: Cambridge University Press
- Daniels, H. (2001) *Vygotsky and Pedagogy*. RoutledgeFalmer
- Department for Education and Skills/Teacher Training Agency (2002) *Qualifying to teach – Professional Standards for Qualified Teacher Status and Requirements for Initial Teacher Training*. Department for Education and Skills/Teacher Training Agency
- Effandi Zakaria and Zanaton Iksan (2007) Promoting Cooperative Learning in Science and Mathematics Education: A Malaysian Perspective. *Eurasia Journal of Mathematics, Science & Technology Education* 3(1), 35–9
- Furlong, J. (2000) School Mentors and University Tutors: Lessons from the English Experiment. *Theory Into Practice* 39(1), 12–19
- Government of Malaysia (1991) *Sixth Malaysia Plan 1991–1995*. Kuala Lumpur: Government Printers
- Haylock, D. and Cockburn, A. (2003) *Understanding Mathematics in the Lower Primary Years*. Paul Chapman Publishing
- Koo Yew Lie (2008) *Language, Culture and Literacy: Meaning-making in Global Contexts*. Faculty of Social Sciences and Humanities, National University of Malaysia, UKM Bangi
- Kosnik, C. (2007) Still the same yet different. Enduring values and commitments in my work as a teacher and teacher educator. In: Tom Russell and John Loughran (eds) *Enacting a Pedagogy of Teacher Education. Values, relationships and practices*. Routledge. pp. 16–30
- Laws of Malaysia. Act 550. Education Act 1996
- Lee Wai Heng and Tan Sok Khim (2004) *Reflective Practice in Malaysian Teacher Education. Assumptions, Practices and Challenges*. Marshall Cavendish Academic
- Lim Chap Sam (2006) In Search of Good Practice and Innovation in Mathematics Teaching and Learning: a Malaysian Perspective. *Tsukuba Journal of Educational Study in Mathematics* 25, 205–19. [Available from: <http://e-archives.criced.tsukuba.ac.jp/data/doc/pdf/2007/06/LIM%20Chap%20Sam.pdf>] [accessed 20 July 2010]
- Lim Chap Sam and Chew Cheng Meng (2007) *Mathematical Communication in Malaysian Bilingual Classrooms. Paper to be presented at the 3rd APEC-Tsukuba International Conference: Innovation of classroom teaching and learning through lesson study – focusing on mathematical communication*. December 9–14, 2007 at Tokyo and Kanazawa, Japan. [Available from: www.criced.tsukuba.ac.jp/math/apec/apec2008/papers/PDF/11.LimChapSam_Malaysia.pdf] [accessed 29 June 2010]
- Loughran, J. (2002) Effective Reflective Practice. In search of meaning in learning about teaching. *Journal of Teacher Education* 53(1), 33–43
- Loughran, J. (2006) *Developing a Pedagogy of Teacher Education. Understanding teaching and learning about teaching*. Routledge

Mattessich, P.W. and Monsey, B.R. (1992) *Collaboration: What Makes It Work. A Review of Research Literature on Factors Influencing Successful Collaboration*. Amherst H Wilder Foundation

Maynard, T. and Furlong, J. (1995) Learning to teach and models of mentoring. In: Trevor Kerry and Ann Shelton Mayes (eds) *Issues in Mentoring*. The Open University. Routledge. pp. 10–24

McColl, E., Jacoby, A., Thomas, L., Soutter, J., Bamford, C., Steen, N. et al. (2001) Design and use of questionnaires: a review of best practice applicable to surveys of health service staff and patients. *Health Technol Assess* 5(31)

Merriam, S.B. (2002) Introduction to Qualitative Research. In: S.B. Merriam (ed) *Qualitative Research in Practice: Examples for Discussion and Analysis*. Jossey-Bass. pp. 3–17

Ministry of Education Malaysia. *Mission and Objectives* (2009) Ministry of Education Malaysia website (Available from: www.moe.gov.my/?id=5&lang=en) (accessed 20 May 2009)

Ministry of Education Malaysia. *PPSMI* (2010) Ministry of Education Malaysia website (Available from: www.moe.gov.my/?id=130&lang=en) (accessed 27 July 2010)

Niemi, H. (2002) Active learning – a cultural change needed in teacher education and schools *Teaching and Teacher Education* 18, 763–80

Noraini Idris, Loh Sau Cheong, Norjoharuddeen Mohd. Nor, Ahmad Zabidi Abdul Razak and Rahimi Md. Saad (2007) The Professional Preparation of Malaysian Teachers in the Implementation of Teaching and Learning of Mathematics and Science in English. *Eurasia Journal of Mathematics, Science & Technology Education* 3(2), 101–10

Piaget, J. (1954) *The Construction of Reality in the Child*. Routledge & Kegan Paul Ltd

Pollard, A. (ed) (2010) *Professionalism and Pedagogy: A contemporary opportunity. A Commentary by TLRP and GTCE*. London: TLRP

Pope, C. and Mays, N. (1995) Qualitative Research: Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ* 311, 42–5

Schön, D.A. (1982) *The reflective practitioner: How professionals think in action*. Basic Books

UNESCO; International Reading Association, IRA. (2008) *Status of Teacher Education in the Asia-Pacific Region*. Bangkok, UNESCO-APEID (Available from: www.unescobkk.org/education/apeid/programme-areas/teacher-education-and-training/status-of-teacher-education-in-the-asia-pacific-region/) (accessed 17 August 2010)

University of Hertfordshire School of Education (2006) *Learning and Teaching. Building Learning Communities 2006/07*. University of Hertfordshire

Vighnarajah, Wong Su Luan and Kamariah Abu Bakar (2008) The Shift in the Role of Teachers in the Learning Process. *European Journal of Social Sciences* 7(2), 33–41

Vygotsky, L. (1978) *Mind in Society*. Cambridge, MA: Harvard University Press. pp. 79–91





