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Nurturing Higher Order Thinking Skills Among Malay Language Teachers Through Lesson Study

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Abstract
The aim of this study is to identify higher order thinking skills (HOTS) among Malay language (ML) teachers through a lesson study. Two aspects were explored in order to answer the research questions, namely the nurturing of HOTS and the teaching attitude towards the implementation of the lesson study at school. Qualitative research is the research design used by the researchers. A total of seven ML teachers acting as participants in the research. Information is obtained through triangulation methods which cover interviews, observations and analysis of documents. The data interviews were analysed and transcribed verbatimally with study participants. The findings showed that there is a deepening of teacher's HOTS through a variety of student learning activities during teaching. The participants in the study were positive and prepared for study of the lesson. Study lessons would be more effective if the workload of the teacher is decreased. Meeting time between teaching staff involved in the study of lessons should be included in the teaching schedule. The findings of this study are therefore important to consider the development of HOTS, which can be used by all teachers in teaching to make learning more relevant to 21st century learning.

Keywords: Malay Language, High Order Thinking Skills, Lesson Study

Introduction

Higher Order Thinking Skills (HOTS) allows people to make imaginative, inventive, visual, creative and problem-solving use of their intelligence and expertise. Nurturing can be characterized as ability and progressiveness (Naomichi, M. 2010; Rajendran, N. S. 2008). In this case, nurturing was chosen as the elements of HOTS have already been practiced in schools, but it has not evolved to the level of culture (Mohd Nazari B. Yaakob, 2014). HOTS is one of the six priorities outlined in the Malaysian Education Development Plan (PPPM) 2013-2025. The aim of the Malaysian Education Blueprint (MEB) is to prepare students to master a wide range of cognitive skills, such as problem-solving, decision-making, reasoning, critical-thinking, creative and innovative skills. Efficiency in education is fully underscored through three main elements of curricula, assessment and pedagogy, as well as four supporting elements, namely co-curriculum, community support, resources and capacity building. All of these elements are for teachers and students to inculcate the culture of professional development. Teachers as curriculum implementers need to plan teaching in this context by incorporating the elements into the learning of the students.

The Academy of Higher Education Leadership (2011) report found that only fifty percent of school learning and teaching is at the highest level. This situation reflects the teaching of teachers to lectures rather than to the involvement of students. Learning and teaching are said to focus more on low cognitive levels such as comprehension and less on high-level thinking skills. To facilitate the process of enhancing LS in schools, schools need to integrate LS into each topic by incorporating HOTS into teacher lesson. Improving lesson in schools can take place in four phases, (i) Moral imperatives (ii) Contextual understanding (iii) Implementation design and (iv) Implementation. Monitoring is carried out by the principal himself, where through the monitoring process the principal will provide and receive any feedback or input. Improvements shall be made at any stage in the event of deficiencies.

The ability to shape student-level thought can be realized through the position of the classroom teachers. Teachers need to identify and select appropriate teaching approaches in this regard, focusing on thinking

skills and actively involving students in the classroom. At the same time teachers need to build a supportive learning atmosphere for students. A comfortable environment leads to a higher degree of cognitive, affective, and psychomotor performance of the students. Nielsen (2004) believes that the role of teachers in shaping an environment that can enhance existing skills of the students is seen as important. Practices of study of lessons can help teachers shape the students' active learning environment. The concept of lesson study involves collaborative learning and teaching among teachers to enhance the acquisition of knowledge and to create a high level of teacher thinking culture. High-level thought culture among teachers is specifically reflected in the preparation of lesson plans, the provision of student learning materials and teaching aids, as well as the design of activities that involve students actively in the classroom.

Lessons that enhance collaborative practice focus on learning from students and teachers focus on thinking from students. Lewis (2002) says that if teachers are to make a lesson a practice in the teaching process they have to be strongly understood. The principal aim of the lesson study is for the teachers to cooperate, observe and reflect on the teaching that constitutes the foundation of teacher teaching and learning. In line with the study conducted by Zuraidah et al, (2009), it has been shown that the success of teaching students as a practice has shown that teaching among teachers has improved. Teachers are becoming more positive as the support and motivation of their peers have increased. At the same time, the quality and achievement of the students in the formative tests has also been shown to improve. The Lesson Study, which emphasizes collaborative practice, needs to be conducted on an ongoing basis to identify the best teaching strategies to improve student achievement.

The teachers difficulties attitude to accept any change in teachers has led to the traditional teaching and learning approach. Benton (2001) states that history teachers approaches to teaching and learning have not changed, as teachers still use traditional approaches. This method makes more teacher-centred teaching and learning processes and having difficulties to develop creative and critical thinking skills. Agness (1996) believes that students are still faithful listeners as teachers teach. Carpenter et, al (1980) also states that pupils are only listening to teaching teachers and spectators while teachers address problems on board. Marzano et, al (1988), discussing the situation in the classroom, found it difficult to create an organization that could cultivate student minds to improve critical and creative thinking skills. As such, teachers are seen to be playing a part in turning the passive condition in the classroom into active. This will require collaboration among teachers as they plan for the teaching and learning implementation. In this way all weaknesses in teaching and learning can be enhanced. The sharing of knowledge between teachers is therefore critical for the growth of competitive human capital in the area of education.

Higher Order Thinking Skills

Studies on the use of HOTS in teaching and learning show that many of the teachers know about HOTS but are less knowledgeable about how to apply it to teaching and learning. Rajendran NS (2016), claiming that teachers lack the capacity to teach thought skills due to lack of expertise and experience in the area, teachers are not equipped to carry out specific teaching skills in the subjects taught, review-oriented curricula policies that contribute to the implementation of thinking skills and pedagogical methods to teaching less successful learning in applications. The level of thinking skills at the teacher is still low. When the Kestrel Education (UK) and 21 Century Schools (USA) presented a report on the need for research on November 2, 2011, it was reported that high-level thinking among Malaysian teachers and students was still low. Findings from Rafiei's study (2017); Rajendran N.S. (2017) also reported that teachers have low teaching and learning thinking skills. However, it is found that teachers are conscious of the importance of thinking skills. This situation occurs because the teacher is still in the old-fashioned, teacher-centred way of teaching.

The results of the study by Sharifah et.al (2017) also show that teachers have a high level of awareness of their thinking skills. However, they do not have the knowledge to apply it in teaching and learning. Morrison et. al (2016) argues that teaching that is well communicated, accepted, understood and remembered and that can be applied to students' daily lives is the most effective approach to teaching. The findings of Bakry et.al (2018) also show that the knowledge of mathematics teachers at HOTS is still low. It therefore proposes that some of the classroom activities that could develop HOTS be carried out;

(a) Teachers developing problem-based learning models
(b) Teachers providing team-based learning
(c) Providing students with informal & complex questions,
(d) Brainstorming and discussion in all teaching and learning activities.

However, the research by C.F.Peng & Shashipriya (2015) shows that the application of critical and creative thinking skills in terms of execution is satisfactory. Teachers as curricula implementers must therefore

master their thinking skills so that these skills can be integrated into the subjects taught. It will not be possible to pass on knowledge of thinking skills to students without their own teachers.

Lesson Study History in Malaysia

The University of Science Malaysia (USM) represented Malaysia in the APEC Lesson Study Project 2006-2008, coordinated by the Asia Pacific Economic Caucus (APEC), Tsukuba University, Japan and Khon Kaen University, Thailand. The involvement of USM prompted RECSAM (Regional Centre for Education in Science and Mathematics) to take part in the project in 2007. The APEC-Tsukuba project was the starting point for the Penang Study project conducted by USM and RECSAM to the Eye Math Lessons (Cheah & Lim 2010). This makes it the first project of Lesson Study to take place in Malaysia. The Ministry of Education has started implementing the Lesson Study in the Professional Community Learning Programme as part of the National Key Result Areas (NKRA) initiative in education, determined to be the Teacher Education Division. Since the start of the 2011 Lesson Study, English, History, Science and Mathematics subjects in primary schools have been implemented at several schools in Malaysia with the aim of enhancing teachers' teaching and professionalism (KPM 2011).

Lesson Study that promotes collective activity needs to be undertaken on an ongoing basis to determine the best teaching approaches to increase student achievement. Collaborative practices focus more on student learning and focus on the presence and participation of teachers in student thinking. According to Lewis (2002), teachers need to have a strong understanding if they are to make learning a practice in the teaching process. While there are a number of different approaches to learning as defined by Baba (2016), the main thrust of the lesson analysis is teacher cooperation, evaluation and reflection on lessons that are central to teaching. Lesson Research became popular around the world when James W.Stigler and James Hiebert revealed the roots of Japanese performance in TIMSS 1995 in their 1999 book "The Teaching Gap" (Naomichi 2016, Rock & Wilson 2017). Internationally, students who understand and master the subjects of science and mathematics are evaluated through TIMSS (Trends in Mathematics and Science Studies) and PISA (International Student Evaluation Programme). The results of the 1995 TIMSS analysis show that countries like America, Germany and Japan (NCES 1999) are very important for the quality of teaching and learning in the two assessments. Studies in the three countries were carried out using videotapes of teaching and learning mathematics. The outcome of this analysis found that the training of mathematics teachers in Japan varies from that of other countries in which teachers of Japanese mathematics practice Lesson Study in teaching and learning (Lewis & Tsucida 1997, Lewis & Tsucida 1998, NCES 1999). Americans who have undergone the Lesson Study over the past ten years understand Lesson Study's efficacy in enhancing their teaching skills, thus giving them confidence to develop their teaching (Isoda 2011).

The aim of the Chuah Kin Hwa (2014) study is to discover more action research by collaborating in the study of lessons. This study provided teachers with an idea of how to effectively convey teaching. The results of the Siti study (2016) have shown that learning practice can improve the quality of learning. In line with the findings of the Kanako (2017) study, the objective of the study was to determine the effectiveness of practicing lessons in teaching and learning. Studies show that teaching practice has a positive effect on improving the quality of teaching. Lim et al. (2016) carried out a study on the implementation of the Lesson Study in two countries, Australia and Malaysia. Lesson Study in Malaysia requires teachers who teach mathematics at primary school. This study uses the approach of Lesson Study to help teachers improve their teaching. After two cycles of the Lesson Study, teachers realised that they needed to incorporate everyday life experiences into their teaching so that students could see the importance of computing and solve their problems.The objective of Implementing Lesson Study in Australia is to help teachers who teach mathematics develop a good teaching plan while at the same time providing a better understanding of math among their students. The Lesson Study Trial Program was implemented in Australia, which included only three schools in 2001, and then increased to 200 schools in 2004.

Zanaton et.al (2015) conducted a review to look at the Japanese and Malaysian comparative analysis of lesson research. Observations were conducted at two schools which conducted open public lessons, and interviews were held in Japan with teachers and school administrators. During the workshop dissemination workshop in two districts, observations on the implementation of a lesson study were carried out in Malaysia. The findings of the comparative study of lessons in Malaysia and Japan focus on the process of teaching planning, teaching implementation, reflection and modification of teaching. Lessons have been studied in Japan for a long time, whereas in Malaysia, only about five years old, beginning in 2011, the lessons in Malaysia are still in the process of being disseminated and introduced at school level. Thus there is a major difference in its implementation as the lesson study has become a strong teacher work practice and culture in Japan compared to its implementation in Malaysia attempting to introduce the lesson study based on a study by the Ministry of Education which found that this approach can improve

teacher professionalism while improving the quality of the students to produce. In their research, Munirah & Nurhana (2013) found that the level of effectiveness of teacher teaching and the level of effectiveness of student learning are very high level. The findings of their study were found to be helpful in encouraging specific parties to refine lesson study practices in order to develop strategies and interventions appropriate to the educational context in Malaysia so that the programme could improve the quality of teachers and improve the quality of education of the nation.

Method

Qualitative research is the research design that the researcher uses. The study method is an action research that focuses on teachers teaching English and involved on lesson study implementation in school. In the afternoon session, a total of seven ML teachers participated in the study.

Participants
The respondent were three male and four female teachers, aged 28 to 54 years. Teaching experience is between 5 and 30 years old. It consists of two Malays, three Chinese, a bidayuh and one Iban.
Respondent Coding Profile
P1: Female,28 years old, Chinese, 5 years experience
P2: Male, 38 year old, Iban, 14 years experience
P3: Female, 40 year old, Malay, 16 years experience
P4: Male,44 years old, Chinese, 21years experience
P5: Female, 48 Year old, Malay,25 years experience
P6: Male, 50 Year old, Chinese, 27 years experience
P7: Female, 32 Year old, Bidayuh, 5 years experience

Measurement
Two aspects have been explored in order to answer the research questions, namely nurturing HOTS and the attitude of the teacher towards the implementation on lesson study in school.

Data Analysis
Information is obtained through a triangulation method which includes interviews, observations and analysis of documents. Interview data with participants were analysed and transcribed in a verbatim manner. The duration of the study is based on the action research cycle, in which the researcher needed two rounds of study to complete the study. The actual duration of this research study is three months.

Results and Discussion

The purpose of this study is to identify the effective inclusion of teachers in teaching and attitude towards carrying out lesson study at school.

Is there HOTS practises in teaching ML subject among teachers ?
The results of the research are based on open ended interviews and two cycle of observations. In the first cycle of observation, researcher uses constructivism teaching and learning strategies. Constructivism strategies have been chosen on the basis of the ability of constructivism techniques to improve student readiness for a variety of new situations, applying the techniques and abilities available to them to solve problems in their learning. Daily lesson plans are carefully planned and structured systematically. Teaching begins with induction sets,student learning activities and closure aspect.Teacher's discussion and self-reflection session shall be held at the end of the lesson session. This reflection is important in order to improve the second lesson of the study.
The lessons learned in the second cycle of the study are based on the 5E constructivism model strategy. The 5E Teaching Model consists of five phases of engagement, exploration, explanation, elaboration and evaluation. Respondent designed the lesson plan by taking into account improvement through the 5E constructivism model. At this stage, the activity is more challenging for students. The results of the reflection indicate that there is an element in every student activity.
Interview sessions with participants showed that ML teachers through a variety of activities shown below;

Teacher 1:
I am using non-routine questions or situations, including questioning techniques.
(TB1, C1, B: 26-27)

Teacher 3:
I'm going to provide a variety of non-routine questions for students to try as a group. Do activities such as exploration, investigation, problem solving and proofreading.
(TB3, C3, B: 33-35)

The findings of this study showed that nurturing HOTS during teaching and learning process had happened. In fact, a variety of activities can develop the skills of the pupils and encourage curiosity in the pupils themselves. In line with the findings of Bakry et al (2013) suggested a number of classroom activities that could be used for nurturing HOTS which is;
(a) Teacher developing problem-based learning models,
(b) Students centred learning,
(c) Asking students non-routine & complex questions,
(d) Brainstorming and discussing all teaching and learning activities.

What is the attitude of ML teachers to the Lesson Study?
The second question concerns the attitude of the teacher towards the implementation of the lesson study. The researcher found that the study participants were actually well prepared and very positive about the implementation of the lesson study, even though it was relatively new. Zanaton et.al (2015) implementation of the lessons study focused on the process of implementation of the lessons study in Malaysia and Japan, which includes lesson planning, teaching implementation, reflection and modification of teaching. Lesson study in Malaysia is only about five years old, starting in 2011, so the lessons study in Malaysia is still in the process of being disseminated and introduced at school level.
The methodology used by the researcher to evaluate the teacher's attitude to the teaching study is more focused on the process of interviewing and evaluating the contribution made by the participants in the course of this study. At the beginning of the study, it was found that the participants in the study were given early exposure to the lesson study by a consultant who was a teacher friend who had attended a course related to the lesson study. Increased exposure to and benefits from the implementation of a lesson study in the world of education. This disclosure is necessary in order to familiarize the study participants with the knowledge of the implementation of the study. It is, in fact, a continuous learning of teachers in order to enhance teaching professionalism. This finding reinforces the theory of constructivism put forward by Lev Vygotsky (1896-1934). He argues that guidance from others is needed in order to build individual knowledge and learning (Ornstein & Hunkins 2009). Accordingly, expert exposures refer to the participants in this study to help them build knowledge of the study of lessons.
Lesson Study is a collaborative practice of teachers in the design of the Daily Teaching Plan while teaching in the classroom and reflecting on the teacher-teaching session. Lesson Study is considered as one of the staff development programmes for teachers to work together to design, teach, absorb and reflect on teaching. This situation shows that teaching and teaching among teachers takes place in collaboration with teachers. Study participants applied the practice throughout the course of this study. Researcher's observations found that the participants in the study were highly committed to implementing the lesson study. The results of the study participants' interviews also reflected the attitude of the teacher towards the study of the lessons.

Teacher 2:
Ready ... if I'm not burdened with any other side tasks.
(TB2, C2, B: 45)

Teacher 6:
That's ... ready, but the teacher needs to be told more clearly how the lessons are to be learned. Cooperation also needs to take place within the members of the group.

(TB6, C6, B: 49-50)
Teacher 7:
It's ready ... because lesson study can help teachers to discover the weaknesses in teaching through peer peer observation. But ... it takes time to adjust because there are so many challenges and problems that come with teaching lessons, especially without the cooperation of the teachers themselves.
(TB7, C7, B: 59-62)
The findings of this study show that teachers are prepared and positive for the lesson study. Although there are some who are less prepared for the burden of side tasks, they are both external and temporary. The

study also found that the study of lessons facilitated collaboration between teachers in the planning of lesson plan, activities and preparation of student learning aids and teaching aids. Observations, evaluations and discussions, as well as reflections, are undertaken to identify weaknesses and to improve subsequent teaching. Teachers' mastery can also be enhanced by learning lessons.

Discussion

The findings showed that teachers are strongly included in teaching through a range of student learning activities and forms of non-routine questions for students to try out. Create activities for students, such as exploration, investigation, problem solving, and proofreading. Teachers are also seen to be capable of delivering teaching well and can be applied in students' daily lives. Student learning helps with the learning materials available in the student environment to facilitate the acceptance and understanding of fractional concepts teaching by students. Morrison et.al (2011) argues that teaching that is well-communicated, accepted, understood and remembered and that it can be applied in the daily life of students is the most effective teaching approach. This finding is supported by the findings of Bakry et.al (2013) reported that classroom activities that can develop;

(a) Teachers engaged in problem-based learning models,
(b) Teacher-centered learning,
(c) Asked irregular questions & complex for students,
(d) Brainstorming and discussing every teaching and learning activity.

The lesson can be concluded as a study or study of the teaching of a teacher in the classroom. Lesson Study that emphasis collaborative practice with a view to identifying best teaching strategies to improve student achievement. Teachers are always open-minded in this context by receiving constructive criticism, establishing dialogue on reflection, self-assessment and discussing teaching and student learning issues together. Findings from the study by Lim et al. (2005) on the implementation of the Lesson Study in two countries, Australia and Malaysia. Lesson Study in Malaysia involves teachers who teach mathematics at primary school. The study uses the Lesson Study approach to help teachers improve their teaching. After two cycles of the Lesson Study, teachers realized that they had to integrate daily life experiences into their teaching so that students could see the importance of computing and solve their problems. The findings of the Zanaton et al study (2013) also support the development of a teaching study that can shape the skills of teachers in lesson preparation and teaching. The study findings show the integration of Lesson Study into micro-teaching, allowing teachers to develop their assessment skills based on lesson plans, teaching approaches and student behaviour.

Conclusion

The findings of this study are intended to show that there is a strong correlations in teaching and a teacher's readiness to lesson study in schools. The lesson improvement can be applied across the curriculum through a variety of new educational activities and innovations. Lesson study makes teachers more collaborative, open to criticism and willing to address any identified weaknesses.Indirectly, the novice teacher can be integrated with the subjects being taught.Teachers understanding is seen as important because teachers are the ones who deliver the curriculum and disseminate knowledge to students.Teacher's proficiency and knowledge will make students confident and master their HOTS skills. Overall, the researcher found that the nurturing HOTS via lesson study is a catalyst for students thinking skill and depends largely on the activities planned and carried out during teaching and student learning. Teachers need to act as guides and facilitators during the classroom learning process. Indirect lesson plays an immense role in the world of education. The authorities should therefore look at any weaknesses in their implementation in order to improve them.

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