

Conceptualizing Teachers' Readiness: What's there for Mastery Learning

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Abstract: This study aimed to find out the readiness of teachers who taught principles of accounting subject at secondary schools in terms of knowledge, skills and attitudes towards the mastery learning teaching approach. A set of questionnaires was used in this study to measure their readiness. The samples were 80 teachers who taught principles of accounting subject from secondary schools in Negri Sembilan state of the Peninsular Malaysia. They were randomly selected from all the secondary schools in the state. The descriptive and inferential statistical tests were used such as frequency, mean score, percentage, t-test and analysis of variance at the significant level of $p < 0.05$. The mean scores showed that the readiness of the teachers from the aspect of knowledge was low, the level of skills was high and the attitude was positive. The t-test result showed that there was no significant difference in the attitude towards using mastery learning teaching approach based on gender. The one-way ANOVA test showed that there was no significant difference in the teachers' attitude towards mastery learning based on age and options and significantly different based on number of years in teaching. The post-hoc LSD test showed that teachers who had taught >15 years have positive attitude towards the mastery learning approach. The implications of this study is teachers need to be provided with proper knowledge of mastery learning teaching approach because their readiness level in terms of teaching skills and attitudes were good.

Key words: Mastery learning, knowledge, teaching skills and attitude, principles of accounting subject, implications, principles of accounting

INTRODUCTION

Potential students need to be guided by teachers to give them the exposure and knowledge to ensure that they can contribute towards the economic development of Malaysia. For this reason, Malaysia needs to prepare skilled workers like accountants, lawyers and a lot more semi-skilled workers in a short period of time. Thus, education has become one of the most important avenues for preparing quality human capital. One of the responsible agents in education is teachers in schools. Effective teachers are those who are well trained in teaching methodologies. There are several teaching methodologies that effective teachers could use in their classrooms.

One of them is mastery learning teaching method that is considered as easy to apply in many teaching and learning settings. However, the success of a mastery learning depends on the how teachers implement them. Based on a study by Hanuni on 215 students and 20 teachers who taught the Principles of Accounting subject found that 52.8% of the students having serious problems in learning the subject. One of the reasons for that was

during the process of teaching and learning, 18.3% of the students stated that they did not understand the lessons taught and 60.5% of the teachers did not use more active teaching techniques. They usually used lecture, drill and doing a lot of exercises methods. According to Mohd Majid Konting, teachers should change their exam-oriented teaching strategies to strategies that are more appropriate to the needs of students. Zahara also stated that teachers should adopt various teaching methods to encourage active involvement among students in the teaching and learning process.

Mohd Salleh and Ang Huat Bin both agreed that effective teaching strategies were necessary in realizing the different abilities of students. The mastery learning teaching method used by teachers could help them to gauge the level of skills that students have acquired before they can advance to a higher level of skills. Thus in learning a subject matter, students must 1st learn the terminologies, the basic concepts and the procedures before applying those basic ingredients to novel problems in daily life. This concept of mastery learning was introduced by Benjamin Bloom in the 1960s based on the principles of a learner can master knowledge if he or she

is given enough time to learn it and if the teaching and learning process used to teach it is appropriate. Bloom states that if a learner proves that he or she is able to complete a given task, chances are he or she can do the following task with success too.

The ability to complete one task to another will motivate and increase his or her confidence to keep learning the next task. Block then identified three main characteristics of mastery learning such as encourage learners to move on to the next learning task, provide learners with the time they need to master a knowledge and lastly inform learners their level of achievement and what to expect in the next step.

The mastery learning method divides subject matter into units that have predetermined objectives or unit expectations. Students, alone or in groups, work through each unit in an organized fashion. Students must demonstrate mastery on unit exams, typically 80% before moving on to new material. Students who do not achieve mastery receive remediation through tutoring, peer monitoring, small group discussions or additional homework. Additional time for learning is prescribed for those requiring remediation. Students continue the cycle of studying and testing until mastery is met. Block states that students with minimal prior knowledge of material have higher achievement through mastery learning than with traditional methods of instruction.

According to the Curriculum Development Department in the Ministry of Education, Malaysia (2003) mastery learning allows a normal learner to learn what is taught to them with ease because their teachers will divide learning tasks into a few small units of learning activities. There are various models of mastery learning put forward by researchers such as Block (1973) and Bloom (1968). In general, they are almost the same and follow some general steps. Mastery learning consists of several steps for teachers to implement in the classroom. The 1st step involves determining the learning outcomes that teachers want students to achieve at the end of each mastery learning unit.

The purpose of this step is to help the students to be clear of what he or she has to master or acquire and focus on specific content to learn. In the 2nd step, teachers, they should plan specific teaching strategies or techniques for the particular unit and prepare relevant formative and summative test. Besides, teachers must show their interest in the students learning effort and try to encourage them to go through each unit with success. In the 3rd step, teachers should evaluate students' achievement at the end of each unit of mastery learning. In the 4th step, teachers should identify those students who have not achieved the predetermined learning

outcome for the purpose of providing remedial activities. However, those students who had achieved the learning outcome should be given enrichment activities. Dick and Reiser pointed out that learners need to be provided with extra activities to allow them more chance to master a knowledge. Thus, teachers should prepare themselves with more challenging activities to encourage students to think and solve their learning problems. Lucas and Mladenovic (2004) supported this view by adding that teachers should provide students with a variety of learning tasks to direct them to a learning goal. Consequently, students should be evaluated to determine the extent of their learning status.

The purpose of mastery learning is to set a learning target for a student to achieve. Therefore, teachers should prepare a teaching and learning process which allows students to progress from one learning objective to another. In other words, teachers should structure his or her teaching materials according to the time needed to master a knowledge and the level of ability of the students. In principle, mastery learning teaching strategy should allow students to achieve a learning objective if given the same topic and tasks if given flexible time to learn if learn according to individual ability and pace if given structured learning tasks and if monitored appropriately and given constant feedback. In mastery learning teaching method, a teacher should aim students to achieve 80% of the total marks.

He or she can start with 50% 1st while slowly increasing the achieving marks to 80%. In planning this kind of teaching method, teachers can use several strategies according to the needs of the students such as inquiry, constructivism, contextual learning, interactive learning, cooperative learning, experiments, discussion, simulation, project or field work. Carpenter and Schulz (1991) strongly suggests that cooperative learning strategy should be used in the mastery learning teaching method because students can master a knowledge in groups rather than individually. Joseph Low had proven in his study that cooperative learning was effective in a mastery learning session. As Bloom said:

No student is to proceed to new material
until basic prerequisite material is mastered

He also proposes that mastery learning is more effective if used in the teaching of science and mathematics because the contents are more organized and sequenced. Several research had been conducted on mastery learning teaching method's effectiveness and the results were sometimes contradicted. For example, Slavin (1991) reported that the students' learning success was due to the cooperative learning strategy that was

integrated in the mastery learning method. However, Noraini Atan reported that it was the mastery learning method that was effective in allowing students' to achieve better.

Mohd Salleh on the hand believed that the structured and sequenced learning tasks in the mastery learning are effective for self-paced learning on the part of the students. Anderson and Block stated that there are two approaches that can be used in teaching using mastery learning method. They are group-based and teacher-paced approach and individual-based and learner-paced approach. In the group-based and teacher-paced approach, students learn in a cooperative manner while the teacher controls his or her teaching pace.

In the individual-based and learner-paced approach, students learn on their own while controlling the pace of their own learning. This approach is based on the Personalized System of Instruction (PSI) as introduced by Keller. Guskey and Gates (1986) did a meta-analysis study of mastery learning on 27 research relating to students' achievements, students' enhancements, time factor on students' learning and also teacher factor conclude that students who went through mastery learning programs at all levels showed an increased in their learning compared to students in the traditional learning method. Furthermore, their analysis found out that mastery learning allows students to like the subject matter better to have good self-esteem to have more self-confidence about their academic achievements to feel that the subject matter they are learning is important to take responsibility of their own learning and finally to have positive attitudes towards what they have to learn.

In another case, Guskey and Pigott (1988) studied one thousand research articles relating to group-based mastery learning. They finally came down to 46 articles with the conclusion that there were certain criteria for a group-based mastery learning to be successful. Those criteria were teachers must provide very clear steps how to do group-based mastery learning and students' learning outcome must be measured. Fuchs *et al.* (1986) studied the effectiveness of mastery learning on students with low achievements found out that the experimental group treated with the method scored better than the control group.

In Malaysian setting, mastery learning teaching method was 1st introduced by the Curriculum Development Center (CDC) at the Ministry of Education in 1997. CDC had prepared a series of guidelines on how to conduct mastery learning teaching method in the classroom for teachers. However, research relating to the effectiveness of mastery learning in Malaysian classrooms is still lacking. The few existing ones had

shown that mastery learning is effective in increasing students' learning achievements. Faridah had conducted an action research on eighty form five students in three different classes of a high school for learning science subjects. She found out that the students' interest towards the subject matter increased after using mastery learning teaching method on them. She realized that the students interest increased when they could understand the subject matter through the mastery learning units. They were motivated to move on to the next unit when they had finished the earlier unit with better test results. Norma studied the effectiveness of mastery learning on two special children with learning disability. She also found out these two students were more interested in learning the mathematics subject than before. Marina on the other hand studied the same situation on 63 form four students for learning Physics subject. She also found out that the experimental group scored higher than the control group who received traditional method of teaching.

Teachers readiness to use a certain method is measured based on his or her knowledge, skills and attitude towards it. Shulman outlines seven categories of knowledge that teachers should acquire before they can implement a certain method of teaching. The categories are knowledge of the content of a subject, general pedagogical knowledge, knowledge about the curriculum of a subject such as what should be taught, what materials should be used and what prerequisite knowledge that students should know, specific pedagogical content knowledge, students' characteristics, knowledge about the educational context involved and knowledge about the purpose, values and philosophy of education.

Aminah stated that teachers who have a repertoire of pedagogical knowledge will be able to choose which method is suitable for which topic of teaching and what objectives of learning to be achieved. Grossman also pointed out that the combining the concept of pedagogical content knowledge and teachers' professionalism based on their knowledge of subject matter content, curriculum, general pedagogy, students' characteristics and educational context and purpose could produced a very effective teacher.

MATERIALS AND METHODS

The design of this study was a survey method. A questionnaire was developed to measure the teachers' readiness in using mastery learning approach when teaching the Principles of Accounting subject. The questionnaire consists of four different sections such as the demography, teachers' readiness level in terms of

knowledge, skills and attitude towards mastery learning approach in teaching. A Likert scale of 1-5 was used for each item responses where appropriate. The population of the study consists of 125 teachers who taught the Principles of Accounting subject in all the secondary schools in Negri Sembilan. However, 80 teachers teaching the subject were randomly selected from the 85 secondary schools within the 7 districts in the state of Negri Sembilan. This state is located in the middle of the Peninsular Malaysia.

The following hypotheses were developed to find out teachers' readiness in using the mastery learning approach for teaching the Principles of Accounting subject at secondary schools:

- H₀1: There is no significant difference in the readiness level of the Principles of Accounting teachers' attitude towards mastery learning approach based on gender
- H₀2: There is no significant difference in the readiness level of the Principles of Accounting teachers' attitude towards mastery learning approach based on age
- H₀3: There is no significant difference in the readiness level of the Principles of Accounting teachers' attitude towards mastery learning approach based on teaching options
- H₀4: There is no significant difference in the readiness level of the Principles of Accounting teachers' attitude towards mastery learning approach based on years of teaching experience

RESULTS

This study discussed the finding of a study on several hypotheses to find out to what extend Malaysian teachers are ready to implement the mastery learning method for teaching the Principles of Accounting subject. Specifically whether gender, age, attitude and experiences make a difference in contributing to their readiness to implement mastery learning teaching method. This study used survey design. The respondents of this study consists of 80 teachers who taught the Principles of Accounting subject in several secondary schools in one of the states in Malaysia.

In terms of the profile of the respondents, 23.8% of the teachers were men and the rest 76.2% were women teachers. From the total number of the respondents, 73.8% were Malays, 20.0% were Chinese and 6.2% were Indians. The racial percentage showed that the Malay teachers

made up the highest number of teachers teaching the subject. As for the age groups, those <35 years were 30.0% whereas those between 36-40 years old were 37.5% and >41 years are 32.5%. The percentage showed that the most number of teachers teaching the subject was in the age group between 36-40 years. In terms of academic qualifications, most of the teachers that is 88.8% were undergraduate degree holders followed by master degree holders which is 6.3%, diploma holders which is 3.8% and high school qualifications which is 1.3%.

About 72.5% of the teachers had been exposed to mastery learning teaching method while 27.5% had not. In terms of their teaching experiences, 45.0% of the teachers had taught for 10-14 years followed by 22.5% had taught >15 years, 20.0% had taught between 5-9 years and 12.5% had taught <5 years of experience. Finally, 47.5% of the teachers were majored in Accounting while 20.0% were majored in Business Studies and 32.5% in other areas (Table 1).

Teachers readiness was 1st measured based on their knowledge about the mastery learning teaching method. A little bit >10% of the teachers that was 11.2% scored 75-100 on a test administered by the researchers. In fact, those who scored between 0-49 marks had the highest percentage of the total number of teachers that is 46.3%. Those who scored on the average that was between 50-74 marks was 42.5% of the total numbers.

Table 1: Profile of respondents

Profiles	Frequency (N = 80)	Percent
Gender		
Male	19	23.80
Female	61	76.20
Race		
Malays	59	73.80
Chinese	16	20.00
Indians	5	6.20
Age		
<35 years	24	30.00
36-40 years	30	37.50
>41 years	26	32.20
Academic qualifications		
Higher school certificate	1	1.30
Diploma	3	3.80
1st degree	71	88.80
Master degree	5	6.30
Exposure to mastery learning		
Yes	58	72.50
No	22	27.50
Teaching experience		
<5 years	10	12.50
5-9 years	16	20.00
10-14 years	36	45.00
>15 years	18	22.56
Options: Accounting	38	47.50
Business studies	16	20.00
Others	26	32.50

Table 2: Readiness level based on teachers' knowledge of the mastery learning approach

Scores	Frequency (N = 80)	Percent	Levels
0-49	37	46.3	Low
50-74	34	42.5	Average
75-100	9	11.2	High

Table 3: Readiness level based on skills towards mastery learning teaching approach

Scores	Frequency (N = 80)	Percent	Levels
0-49	6	7.5	Low
50-74	35	43.8	Average
75-100	39	48.7	High

Table 4: Mean scores of the readiness level of teachers' knowledge and skills towards mastery learning teaching approach

Levels	N	Mean
Knowledge	80	51.8
Skills	80	71.0

Secondly, teachers' readiness was measured based on their ability to use mastery learning teaching method in the classrooms. About 48.7% of the teachers had the skills of using mastery learning teaching method in their classrooms with the score between 75-100 marks. This was followed by 43.8% of them who on the average scored between 50-74 marks.

Lastly, only 7.5% score the lowest (between 0-49) on the mastery learning skills test. These results showed that most of the Principles of Accounting teachers had the skills of teaching using mastery learning method. In comparing the teachers' readiness between their knowledge level and skill level, it seems that the teachers thought that they acquired the skills better than the knowledge about the mastery learning. This was due to their perception that they did not understand the concept and principles of mastery learning.

Thus implying that teachers of the Principles of Accounting subject use mastery learning in teaching without having an in depth knowledge of the concepts and principles of the approach (Table 2-4). The t-test was used to find out if there is a significance difference of the teachers' attitude towards mastery learning teaching method based on gender. The results showed $t(78) = 1.222$ and the significant value, $p = 0.225$ at significant level of $p < 0.05$. Thus, there was a significant difference of the teachers' attitude towards mastery learning method based on gender. Based on the one-way ANOVA test, there were significant differences of the teachers' attitude based on age. For example, the results showed that with $F(2, 77) = 1.696$, $p = 0.146$ at the significant level $p < 0.05$. However, using the one-way ANOVA test with the results of $F(2, 77) = 0.003$, $p = 0.007$ at the significant level of $p < 0.05$, there were no significant difference of the teachers' attitude based on those who had accounting degree and those who did not have the degree.

Table 5: T-test result for the readiness level of teachers' attitude based gender

Gender	Means±SD	df	t-test	Sig.
Male	4.30±0.235	76	1.222	0.225
Female	4.21±0.313	-	-	-

*Significant level $p < 0.05$

Table 6: One-way ANOVA test result for the readiness level of teachers' attitude based on age

Variables	df	SS	MS	F-test	Sig.
Between groups	2	0.651	0.325	1.696	0.146
Within groups	77	5.683	0.073	-	-
Total	79	6.334	-	-	-

*Significant level $p < 0.05$

Table 7: One-way ANOVA test results for the readiness level of the teachers' attitude based on teaching options

Variables	df	SS	MS	F-test	Sig.
Between groups	2	0.000	0.000	0.003	0.997
Within groups	72	6.334	0.082	-	-
Total	79	6.334	-	-	-

Table 8: One-way ANOVA test results for the readiness level of the teachers' attitude based on years of teaching experience

Variables	df	SS	MS	F-test	Sig.
Between groups	3	0.697	0.232	3.134	0.030
Within groups	76	5.637	0.074	-	-
Total	79	6.334	-	-	-

*Significant level $p < 0.05$

With the same statistical test, the results showed that there was significance difference of the teachers' attitude towards the mastery learning method based on the number of years of teaching experiences ($F(3, 76) = 3.134$, $p = 0.030$ at significant level of $p < 0.05$). Based on the analysis, the findings showed that the teachers who taught the Principles of Accounting subject had a low readiness level on the knowledge of concepts and principles of mastery learning method. This suggests that teachers need be given more exposure and information about the subject matter (Table 5-8).

DISCUSSION

According to Shaharuddin, the knowledge aspect of readiness is vital for teachers to convey and transfer necessary knowledge of a subject matter to their students. Yusrina in agreeing with Shaharuddin states that the low and moderate readiness level of teachers' knowledge of a subject matter could influence their own attitude and capabilities in using the mastery learning method in the classrooms. Peters *et al.* (1963) stresses that a good lesson depends on the knowledge and methods of teaching used by teachers in their classrooms. Fuchs *et al.* (1986), Faridah, Yusrina and Marina agree that mastery learning method is effective in increasing the performance of students. Despite having the low level of readiness in terms of the knowledge of mastery learning

method, the Principles of Accounting teachers had a high readiness level in terms of the skills of implementing the mastery learning method in the classrooms. This showed that teachers often used mastery learning method in their classrooms despite not understanding its concepts and principles. The teachers' readiness level in terms of attitude was good in general based on gender, age and experiences of teaching. For example, the more number of years of teaching the subject matter, the better attitude they had towards using the mastery learning method in their classrooms.

CONCLUSION

This study shows that teachers' readiness should include measuring their ability to do mastery learning teaching method effectively in their classrooms. This is because mastery learning method has received positive attention by most parties involve in education discipline. It is well accepted that mastery learning method is effective in terms of increasing students' motivation to learn and consequently their achievements. The literature indicates positive effects of mastery learning on students especially in the areas of achievement, attitudes toward learning and the retention of content. School systems that have implemented mastery learning have found it to be a very effective teaching and learning method. The developers of mastery learning assert that it is most useful with basic skills and slow learners at both elementary and secondary levels. Group instruction is often given to the entire class by the instructor with individual time for learning provided until mastery is met. The goal of mastery learning is success for the student.

Several meta-analyses of mastery learning programs (Martinez and Martinez, 1999) examined the impact on student achievement, retention, student affect and teacher issues. They found that achievement results were positive. Students in mastery learning programs at all levels showed increased gains in achievement over those in traditional instruction programs (Davis and Sorrell, 1995). Students also retained what they learned longer and required less remediation overtime. Further, students developed more positive attitudes about learning and their ability to learn. Finally, teachers implementing mastery learning developed more positive attitudes about teaching, held higher expectations for students and took more responsibility for meeting learning outcomes. Martinez and Martinez (1999) found a positive relationship between student attitudes toward instruction and content of mastery learning programs. The benefits from mastery learning were found to be enduring, not short term. After several weeks of instruction students

continued to have higher mastery scores than those of students in traditional classes. The data found that low aptitude students had greater gains than high aptitude students. It is asserted that success in achievement, attitude and motivation in the education or learning environment makes learning more effective. In summary, mastery learning is not a new method of instruction. It is based on the concept that all students can learn when provided with conditions appropriate to their situation. The student must reach a predetermined level of mastery on one unit before they are allowed to progress to the next. In a mastery learning setting, students are given specific feedback about their learning progress at regular intervals throughout the instructional period.

This feedback, helps students identify what they have learned well and what they have not learned well. Areas that were not learned well are allotted more time to achieve mastery. Only grades of A and B are permitted because these are the accepted standards of mastery. Traditional instruction holds time constant and allows mastery to vary while mastery learning or systematic instruction holds mastery constant and allows time to vary (Carpenter and Schulz, 1991). Research on implementing mastery learning for the most part endorses the mastery learning method and the claims of the mastery learning developers. Keeping the research in mind, it is necessary to look at school systems that have implemented mastery learning programs.

School administrators, classroom teachers and others involved in educational decision-making must be made aware of the research findings. The information obtained from research and implementation studies can be used to develop restructuring plans in school systems willing to meet the changing world climate. Based on these many good claims of mastery learning method all teachers in Malaysia (in this case teachers of the Principles of Accounting subject is taken as an example) need to be equipped with the knowledge and skills of mastery learning teaching method during their teaching training period. Teachers' professionalization process should include ensuring this aspect of their ability.

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