

The Utilisation of Textbook in Teaching and Learning Mathematics among Primary School Mathematics Teachers

Li Jin Hwa Julie, Siti Mistima Maat

Faculty of Education, University Kebangsaan Malaysia.

Email: p105822@siswa.ukm.edu.my, sitimistima@ukm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v10-i2/10174>

DOI:10.6007/IJARPED/v10-i2/10174

Published Online: 28 June 2021

Abstract

Mathematics textbook is commonly used in Malaysia education system as one of the free learning resources provided by the Ministry of Education of Malaysia over decades. However, not many researchers had investigated the utility of textbook among Malaysian primary school teachers in teaching mathematics. Hence, this paper aimed to investigate to what extend do Malaysian primary Mathematics teachers use textbooks in preparing their lesson plans and implement textbooks approach in teaching Mathematics. 50 mathematics teachers from nine states all over Malaysia participated in this survey via web-based questionnaire designed with Google Form. The questionnaire used in this study was adapted from Lepik (2015) and the findings of the study were analysed descriptively. The result shown that mathematics teachers had high reliability on textbook in preparing their lesson plan. Besides that, they also implemented textbook approach actively in the process of teaching Mathematics In general, most of the teachers had fully utilised mathematics textbook throughout teaching and learning of mathematics. Except for one, most teachers were found to skip certain topics in mathematics textbooks. This is an interesting issue that could be investigated by future researchers. This study is hoped to contribute to the development of textbooks utility in mathematics education.

Keywords: Utilisation of Textbooks, Teaching Mathematics, Lesson Planning, Primary School Teachers, Survey

Introduction

The use of textbooks as one of the important resources for teaching and learning in Mathematics has been acknowledged worldwide and documented in lots of mathematics education researches (Lepik, 2015). In fact, textbooks in mathematics classroom is considered as “education artefacts” or “tools” for the teachers and it could impact the classroom instruction as well as the pedagogy of a Mathematics teacher such as the teaching styles and strategies (Pepin & Gueudet, 2014). In addition to that, previous researches indicate that the primary school teachers have a higher dependency on the use of Mathematics textbook in teaching activity compared to the other subjects (Jamieson-Proctor & Carmen, 2008; McNaught, 2005). The study of Tarr et al. (2015) also shows that textbooks had being used

by Mathematics teachers regularly as one of the primary resources in the teaching and learning context. In short, the dominant role of textbooks in the process of teaching and learning Mathematics had been acknowledged historically until today (Tarr et al., 2008).

In Malaysia, textbooks are one of the free learning resources for all pupils in public primary schools as well as public secondary schools. The Ministry of Education (MOE) Malaysia had been providing free-borrowing textbook system (*Skim Pinjaman Buku Teks*) since 1975 to all public government schools and government aided schools. This system benefits all the children age 7 to 17. All pupils are treated equally and given equal chance to receive quality education before they enter higher learning institutes. In addition to that, there's a wide range of textbooks provided throughout the whole primary and secondary school levels in Malaysia. In the primary levels, MOE Malaysia has been providing textbooks of four main languages (Chinese, Malays, English and Tamil), two core subjects (Mathematics and Science) and five elective subjects (Physical and Health Education, History, Moral Education and Islamic Education, Arts and Music) to all pupils. Hence, it's undeniable that textbooks play an important role in Malaysia education system. In addition to that, quite a number of educational researches had been done from time to time to improve the content of the textbooks to keep it updated with the current needs and trends in global. This is important as mathematics textbooks hold enormous potential for supporting learning and teaching in the classroom (Chang & Silalahi, 2017).

Surprisingly, there's not many researches that investigate the utility of textbook among Malaysian primary school teachers in teaching and learning of Mathematics. Instead, it's found that most of the researchers emphasized on the content analysis of mathematics textbooks. In Malaysia, numerous studies focusing on content analysis of Malaysian mathematics textbooks and different countries had been carried out (Abdullah & Shin, 2019; Dollah et al., 2019; Johansson, 2003; Lessani, 2015; Singh et al., 2020; Tan et al., 2018). In 2020, a study focusing on teachers' perceptions of primary school mathematics textbooks had been carried out (Asyrani Abdul Samat & Roslinda Rosli, 2020). The study focused on teachers' perceptions toward usage level, content, activities and exercises, graphic style and illustration of mathematics textbooks among Malaysian primary teachers. Study shown that teachers had high perceptions toward Malaysia mathematics textbooks. However, none of the studies mentioned above focused on the usage of mathematics textbooks in preparing and conducting lesson. Therefore, it is one of the aspects awaiting to be discovered and explored by researchers. This is because the utility of mathematics textbooks might vary according to the teachers' preference even the same textbooks were used as the instructional tools (Lepik et al., 2015). This leads to the focus of this study, which is the utility of mathematics textbooks in lesson preparing and textbook approach implementation of mathematics classroom.

In order to grasp clearly on the influence of textbook approach implementation toward teaching and learning of mathematics, it's crucial to look into the education system of the mathematically high-performance countries. In this study, there are two main criteria in choosing the relevant countries. Firstly, the students' performance in international mathematics assessment. In respect with this, result of the Programme for International Student Assessment (PISA) of 2018 would be taken into account. Secondly, the implementation of textbook approach by mathematics teachers in teaching and learning would be focused. After assessing both criteria, there are three mathematically high-

performance countries being chosen. The later discussion would focus on the use of mathematics textbook in China, which ranked on the top in PISA 2018. Followed by the implementation of textbooks approach in Estonia, which ranked on the 5th place in PISA 2018 and also the United States of America that ranked on the 13th place.

The Use of Textbooks in Mathematics Teaching and Learning in China

Previous studies shows that Chinese pupils generally are high achiever in international tests such as Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA) (Cai, 1995, 2000; *PISA 2018 U.S. Results*, 2018). In 2018, China was ranked as top achiever among 79 countries and economies (the Organisation for Economic Co-operation and Development) that participated. The effective presentation of Chinese textbooks may be one of the factors that contributed to the achievements (Chen & Ding, 2018; Li, 2020). At the same time, studies also emphasize that the implementation fidelity of “textbook-centred” approach practised by the Chinese teachers also impact the mathematical learning of pupils in China (Ding & Carlson, 2013). In addition to that, teachers in China uses mathematics textbooks as their primary resources in teaching mathematics. In short, teachers are provided the teaching content, lesson structure and homework materials. However, they usually would study and make necessary changes to fit their pupils needs (Ding & Carlson, 2013).

The Use of Textbooks in Mathematics Teaching and Learning in Estonia

Estonia, a country located in the Northern of Europe shown great performance in the PISA 2018 and ranked in the 5th among the participated countries. In order to understand how did the Estonia pupils master excellent mathematics literacy compared to the other countries, it's necessary to look into the teaching and learning approach of Estonian mathematics teachers. This leads to the use of Mathematics textbooks in Estonia, which has been a long history in Estonia. Instead of standardise the types of textbooks used in classroom, the Estonian teachers are given opportunity to choose the most suitable and appropriate textbooks series based on the school levels (Lepik, 2015). In the order words, there are a variety of textbooks available on the market as the Estonians has being developing their own mathematical textbooks. In the study conducted by Lepik (2015), textbooks serve as a central instructional tools and exercise book in Estonian mathematics classes. The textbooks were only used actively in about half of the lesson time. The result shows the use of textbooks is not fully utilised as multifaceted resources in the teaching and learning process of Mathematics. In conclusion, Mathematics textbooks are not maximised yet among Estonian primary school Mathematics teachers as the approaches to textbook use seems remained unchanged over decades.

The Use of Textbooks in Mathematics Teaching and Learning in the U.S.

The U.S. was ranked in 13th in PISA 2018 and it had been identified as one of the high-achieving countries in Mathematics years ago. Previous studies show that the teachers in the U.S. (the United States) are found to use textbooks as the main resource in mathematics teaching (Ding, 2016), which is alike to the heavy use and high dependency on textbooks in China and Estonia. However, it is found that the mathematics textbooks in the U.S. generally lacked coherence and focus as compared to the countries that show high performance in international tests. This might be because of there is no national curriculum in the U.S. Therefore, the state or education district in the U.S. learnt to develop their own curriculum,

assessment policies and procedures (Adu, 2018). In addition to that, the physical features of Mathematics textbooks are also being criticized by some of the researches due to its large size (Alajmi, 2012). Besides that, it is found that the mathematics textbooks used in standards-based U.S. high school do not provide balance learning opportunity for typical and reverse between-concept connections and most of the task were in the symbolic as compared to the Chinese textbooks. Anyhow, the National Council for Teaching Mathematics (NCTM) insists that Mathematics has to be taught as an activity, thus a set of principles and standards had been developed to encourage the effective learning of mathematics.

In general, it's found that mathematics teachers from different countries showed various level of utilisation of textbooks in teaching mathematics. The teachers in China had utilised mathematics textbook thoroughly throughout their lesson. On the hand, Estonian primary teachers implemented textbook approach and depended heavily not it in planning lesson. But they had not maximised the utilisation of mathematics textbook yet due to the traditional approaches to textbook. In contra, teachers in the U.S. did not depend heavily to the use of mathematics textbooks as the use of mathematics textbooks in the U.S. is not centralized nor generalised by the government. In a nut shell, the use of mathematics textbook among mathematics teachers across different country was not generalisable as it might be influenced by other factors. In line with that, a study of Jamieson-Proctor & Carmen (2008) shows that there's a particularly strong belief held by teachers about the educational value of the textbook in teaching and learning mathematics.

In fact, half the teachers involved in the study acknowledge the value of textbooks as one of the sources for pupils to practise mathematical skills. The belief of teachers toward the use of textbooks is continued investigated by Jamieson-Proctor & Carmen (2008) and the result shows that there's a positive relationship between teachers' belief about external influences and frequency they use textbooks in mathematics lessons. The external influences faced by the teachers included pressure from heavy workload, high expectancy from the parents (Jamieson-Proctor & Carmen, 2008), apart from internal factors such as low self-confidence and competency in teaching mathematics (Chambliss & Calfee, 1998). However, the pedagogical belief of a teacher, which is the conception in teaching mathematics is said to incorporate with the teacher's roles, actions and classroom activities (Lamichhane, 2017). This is supported by previous study of Stipek et al (2001) that teachers with higher self-efficacy in mathematics education are less dependent on the use of textbook in teaching mathematics. Instead, they would modify or be selective on the materials provided in the textbook by adjusting to the needs of their students. In conclusion, mathematics teachers would develop their own beliefs in mathematics textbooks due to different external and internal factors, which made it unpredictable.

Research Question

This study focuses on the utility of Mathematics textbooks. The purpose of this study is to examine to what extent do primary Mathematics teachers use textbooks in teaching and learning mathematics. Besides, this study also aims to explore to what extent do Malaysia primary Mathematics teachers implement textbook approach in teaching Mathematics. The following questions were addressed:

1. To what extent do Malaysia primary Mathematics teachers use textbooks in preparing their lesson plan?
2. To what extent do Malaysia primary Mathematics teachers implement textbooks approach in teaching Mathematics?

Methodology

The usage of textbook in mathematics classrooms in Malaysia has not been studied systematically. Hence, a survey of utility primary mathematics teachers was carried out. The tools used in this survey is web-based questionnaire, which is designed with Google Form application. One of the advantages of using web-based questionnaire is it can be used nationally to survey many participants across a large geographic area (Creswell, 2012). This enables the involvement of mathematics teachers from different states in Malaysia. In addition, survey is useful for assessing information at one point in a time, apart from examine current practices (Creswell, 2012) of the targeted sampel. Hence, a bigger picture on the usage of textbook in teaching and learning mathematics could be achieved.

The questionnaire used in the survey is adapted from Lepik (2015) which consisted of three constructs and 21 items. The first construct is made up of 7 items that collected the background and demography data of the respondents. The second construct is made up of 7 statements that focus on the role of textbook in planning and preparing a lesson. The respondents had to respond to the items in second construct accordingly to the Likert Scale provided, which is *Strongly Agree*, *Agree*, *Quite Agree*, *Disagree* and *Strongly Disagree*. On the other hand, the third construct focused on classroom practices that implement the textbook-approach. There are 7 statements stated in the third construct. In this construct, respondent had to choose a scale that indicates the frequency of using Mathematics text in the given context. The scale of frequency used in the third construct is *never*, *once in a week*, *twice in a week*, *three times a week* and *almost every time*. The adaptation of questionnaire from Lepik (2015) used in second and third construct was shown in Table 2.

Table 1.

Adaptation of questionnaire from Iepik (2015) used in second and third construct.

Second Construct	Third Construct
Choose your answer based on the scale provided:	How often do students in your class use textbook for the following activities:
Overall, I'm satisfied with the textbooks I use.	Solve tasks from textbook
The textbook is the main tool to plan the yearly scheme of work.	Solve tasks not from the textbook
The textbook is the primary tool to plan and prepare my lessons.	Have homework as tasks from the textbook
In the majority of lessons, I tend to use textbook and workbook materials.	Have homework as tasks from other sources
Tasks for the lesson I choose mainly from the textbook.	Solve repetition tasks at the end of the chapter in the textbook
I skip some topics presented in the textbook.	Read the description of a concept or a rule from the textbook
My teaching approaches are often derived by instructional approaches of the textbook.	Study new material from the textbook individually

By using the sample size formula, 50 respondents were chosen purposively in this study. The invitation to participate was sent to 50 primary school mathematics teachers via the link provided. By the end of May, all of the mathematics teachers responded to the questionnaire. The respond rate of the respondents was 100%.

Result

Background of the Respondents

The data collected in the questionnaire were analysed descriptively. There are 31 female respondents (62%) and 19 male respondents (38%) participated in the research. The distribution of the gender of respondents were shown in Table 2.

The respondents of the study can be categorized into novice teachers and experienced teachers according to the years of teaching. Respondents with 5 years or less experience in teaching would be categorised as novice teacher, while teachers with more than 5 years of teaching experience would be categorised as experienced teachers (Berliner, 2004). As can be seen in Table 2, the respondents with different length of teaching experience are participated in this research. 44% of the respondents are teacher with less than 5 years of teaching experience in Mathematics, which represent the novice mathematics. On the other hand, 56% of the respondents are teachers with more than 5 years of teaching experience. The rate of distribution among the novice teachers and experienced teachers are quite well distributed in the sample.

As all of the respondents were chosen purposively, 42% of the respondents are lower primary mathematics teachers and 58% of them are upper primary mathematics teachers. This ensured that all respondents were relevant to the study and helped to increase the reliability of the study. According to the analysis of the demographic, 34% of the respondents were from Wilayah Persekutuan Kuala Lumpur, followed by 26% of Sarawakians and 8% of respondents from Johor and Selangor respectively. Generally, this study involves 50

respondents from nine states in Malaysia. The background of respondents was shown in Table 2.

Table 2.

The background of respondents.

		Number of Respondents	Percentage (%)
Gender	Male	19	38
	Female	31	62
Experience in Teaching Mathematics	1 – 5 years	22	44
	6 – 10 years	9	18
	11 – 15 years	6	12
	16 – 20 years	10	20
	21 years and above	3	6
Mathematics Class	Lower primary	21	42
	Upper primary	29	58
Geographical location	Johor	4	8
	Kedah	3	6
	Negeri Sembilan	1	2
	Pahang	3	6
	Pulau Pinang	3	6
	Sabah	2	4
	Sarawak	13	26
	Selangor	4	8
	Wilayah Persekutuan Kuala Lumpur	17	34

The Role of Textbook in Planning and Preparing a Lesson

The second construct of the questionnaire focuses on the role of textbook in planning and preparing a lesson. The analysis is based on the response of respondents to the statements in second construct. The purposed the presented analysis is to shed light on the extent to which teachers rely on textbooks in preparing and planning their lessons. The findings of this construct would lead to answer for the first research questions. The distribution of respondents' response to the role of text book is characterised in Table 3.

Table 3.

Distribution of respondents' response to the role of textbook

Statements	Distributions of response (%)				
	Strongly disagree	Disagree	Quite agree	Agree	Strongly agree
Overall, I'm satisfied with the textbooks I use.	2	12	24	48	14
The textbook is the main tool to plan the yearly scheme of work.	2	10	22	36	30
The textbook is the primary tool to plan and prepare my lessons.	2	2	28	40	28
In the majority of lessons, I tend to use textbook and workbook materials.	0	10	28	38	24
Tasks for the lesson I choose mainly from the textbook.	2	12	20	48	18
I skip some topics presented in the textbook.	8	18	40	30	4
My teaching approaches are often derived by instructional approaches of the textbook.	4	16	32	38	10

As can be seen in Table 4, 86% of the respondents claimed that they were satisfied with the textbook provided. Apart from that, 88% of the respondents used textbook as their main tool to plan the yearly scheme of work and prepare their lesson. At the same time, 90% of the respondents agreed that the material from textbook and workbook were used in majority of the lesson. None of the respondents strongly disagree with the use of textbook and workbook materials in their lesson. These finding show that the respondents were highly satisfied with the content of the textbook and had high reliability on textbook in the proses of planning mathematics lesson.

As the textbook was heavily dependent in planning the lesson, the findings also showed that 86% of the respondents chosen the tasks mainly from the textbook. This indicated there might be a limited variety of tasks assigned by the teachers during the mathematics lesson. In addition to that, 24% of the respondents disagreed that they skipped some topics in the textbook, while 76% of the respondents relatively agreed that they would skips some of the topics in the textbook. This might be because of there are 56% of the respondents were experienced teachers as they tended to choose a certain topic which is considered important and is a must to be mastered by pupils based on their experienced.

On the other hand, 80% of the respondents agreed that their teaching approaches are often derived by instructional approaches of the textbook. In this case only 20% of the teachers disagreed with this statement and claimed did not use textbook approach in the mathematics lesson. This shows that even though half of the respondents are experienced teachers with more than 5 years of teaching experience, most of them still chose to use textbook approach as their main approach in teaching mathematics. Hence, the respondents

showed very high dependency on the use of textbook in delivering the mathematics concepts and lesson.

Classroom Practices that Implement the Textbook-approach

On the other hand, the findings in the third construct would be used to provide answer for the second research question that focuses on the frequency of textbooks approach implementation in teaching Mathematics among primary school teachers. The distribution of respondents' response to the frequency of textbook approach implementation were shown in Table 3 below.

Table 4.

Distribution of respondents' response to the frequency of textbook approach implementation

Statements	Distributions of response (%)				
	Never	Once in a week	Twice a week	Three times a week	Almost every time
How often do students in your class use textbook for the following activities:					
Solve tasks from textbook	6	14	26	18	36
Solve tasks not from the textbook	2	20	18	38	22
Have homework as tasks from the textbook	12	16	20	28	24
Have homework as tasks from other sources	0	16	30	30	24
Solve repetition tasks at the end of the chapter in the textbook	2	18	24	32	24
Read the description of a concept or a rule from the textbook	4	10	14	32	40
Study new material from the textbook individually	2	18	24	26	30

As seen as table 4, mathematics textbook is widely used in teaching and learning of mathematics among primary school teachers. This is because there are at least 96% of the respondents implement the textbook approach once in a week in their teaching approach. This shows a strong reliance on tasks from a textbook by teachers in the survey. First of all, only 6% of the respondents never solve tasks from the textbook while 36% of the teachers guides pupils to solve tasks in the textbook in almost every lesson. Overall, there is 94% of respondents assign tasks from textbook to be solved by the pupils at least once in a week. On the other hand, the survey also shows that only 2% of the respondents never solve tasks which are not from textbook. Hence, this finding supported the previous analysis that indicates the strong reliance on tasks from textbook.

However, there were 12% of respondents who never assigned task from textbook as homework. This indicated that 88% of the respondent assigned at least one time of task from textbook as homework. Despite of this, none of the respondents claimed to never assign task from other source than textbook as homework for pupils. On the other words, 100% of the

respondents would assign at least one time of task from other source a homework every week. At the same, the survey showed an equal percentage of respondents that used task from textbook once a week and respondents who use task from other sources than textbook once a week are 16% respectively. These showed that all of the respondents had taken their own initiative to assign homework from the other sources, instead of fully dependent on the task from textbook.

In addition to that, the survey also showed that there were 2% of the respondents never solve repetition tasks at the end of the chapter in the textbook nor study new material from the textbook individually respectively. These were followed by 18% of respondents who did both of them once in a week respectively. Thus, there were 80% of the respondents solve tasks at the end of the chapter in the textbook and study new material from the textbook individually at least twice a week respectively.

Besides that, the survey also showed the highest number of respondents would read the description of a concept or a rule from the textbook in almost every mathematics lesson, which indicates 40% of them. The data analysis is shown in Table 5. Meanwhile, there was only 4% of the respondents never read the description of a concept or a rule from the textbook. This showed that an overall of 96% of the respondents showed concern towards understanding the mathematical concept and rule stated in the textbook.

Discussion

To what extent do Malaysia primary Mathematics teachers use textbooks in preparing their lesson plan?

The finding of study shows that primary mathematics teachers depended heavily on textbooks in preparing their lesson plan. Firstly, the satisfactory of the use of textbook is acknowledged by most of the mathematics teachers. It is found that the mathematics teachers widely agreed the use of mathematics textbooks as their primary tool in planning yearly scheme of work, apart from preparing the lesson plan. This situation is similar to the high dependency on the use of mathematics textbooks in Estonia (Lepik, 2015). At the same time, the previous study of (Fan et al., 2013; Johansson, 2003; Leshota, 2020) also highlighted high reliability between the use of textbook and lesson preparing process.

Secondly, it's found that nearly 80% of the teachers agree that their teaching approaches are often derived by instructional approaches of the textbook. Hence, it's undeniable that the use of textbook in teaching and learning context would influence the teacher's decision regarding the instructional approaches used in the classroom (Adu, 2018). This is coherent with the study conducted by Adu (2018) as the mathematics teachers in London districts agreed that mathematics textbooks were used as a method of teaching in the class. A strong relationship between the teacher's pedagogical approaches and the textbook was evident. This might be expected in the current teaching and learning context in Malaysia as the textbooks used have been improvised and aligned with the curriculum. At the same time, the textbooks were published and distributed by the Ministry of Education of Malaysia. Hence, the textbooks are suitable to be used by teachers as their main reference in planning and preparing lesson, which directly influence their teaching and learning approaches. Hence, it is shown that mathematics teachers show high dependency on textbook in term of preparing and planning lesson.

Except for one, majority of the teachers skipped some topics presented in the textbook even though they highly satisfied with the textbook. This indicates that only a quarter of the teachers did not skip some topics presented in the textbook. On the other hands, the study by Leshota (2020) also shows similar situation whereby the teachers overlooked some of the contents in the textbooks. Instead, they were found to draw most of the content in the lessons from external resources. In other words, those mathematics teachers might disagree with some of the content or the topics in the textbooks. This might be an interesting issue to be investigated by future researchers.

To what extend do Malaysia primary Mathematics teachers implement textbooks approach in teaching Mathematics?

The findings of the study show that textbooks approach has been implemented in teaching and learning of Mathematics in primary schools. The analysis revealed that textbooks serve as the central instructional tool in Malaysia primary schools as well as Estonia lower secondary mathematics classes (Lepik, 2015). Both Malaysian and Estonian mathematics teachers used textbooks as the task books actively. In Malaysia, more than half of the mathematics teachers used mathematics textbooks as a source of task and homework at least three times a week. The mathematics textbooks had been actively used in problem-solving and task-based learning situation. In general, the repetition task, concepts and rules as well as new material provided in the mathematics textbooks were used as learning materials actively.

Even though this study is adapted from the study of Lepik (2015), the findings in engaging pupils with textbook task is in the opposite way. The result of Lepik (2015) study revealed limited use of text in the textbook in the learning situations. In contra, Malaysian primary teachers engaged pupils with the task and learning situations in the classroom actively. This is in line with the study of Adu (2018) where the teachers in London district used to engaged the pupils with exercise from the textbook. In this context, pupils were given opportunity to work the exercise on the board one after the others based on the examples given. The utilisation of learning materials in the mathematics textbooks in England is similar to the learning context in Malaysia. This can be shown as majority of the Malaysian primary school teachers also engaged pupils with the descriptions of mathematics concepts and rules in almost every mathematics class. Besides that, almost all of the Malaysians mathematics primary teachers also used the new materials from the textbooks as independent learning materials among pupils. Hence, the engagement of pupils to the learning materials in textbooks is similar in England and Malaysia. In general, this might be resulted from the complete and effective characteristics of the Malaysia Mathematics textbooks, which were revised and updated to the latest curriculum according to the learners' needs. Hence, the textbooks would be a great instruments for teachers to give quick homework and assignments to the pupils, and discharge their work effectively (Adu, 2018).

In comparison to the scale of the respondents involved in the study. This study involved a small scale of mathematics teachers in nine different states in Malaysia. Participants were chosen purposively. The criteria of sample selection in this study is similar to the study of Lepik (2015), which involves only mathematics teachers. However, the study of Lepik (2015) involved a larger scale of sampel, which is 164 lower secondary teachers from 128 schools. On the other hand, this study only involved 50 teachers, which was made up of both lower primary and upper primary school mathematics teachers. The focus of this study

would be the emphasize of utility of mathematics textbooks among primary school teachers. Hence, it is hope that this study could be useful to future researchers in exploring the utility of mathematics textbook in primary schools and secondary schools in Malaysia.

Contribution of the Research

It is hoped that this research could shed light on the research about utility of textbook among Malaysian primary school teachers in teaching and learning of Mathematics, especially the use textbooks in preparing their lesson plan and implementation of textbooks approach in teaching Mathematics.

Future Work

As more than half of the teachers agreed that they skipped some topics in the mathematics textbook even if they show high dependency on the textbook. It's one of the issues that could be explored in the future study in order to identify the hidden reasons. In addition, it's suggested to increase the sample size of the research and use more than one instrument to collect data to increase the validity of the result.

Limitation

There are a few limitations constrain in this study. First of all, the number of mathematics teachers from nine states were selected in a purposive way. As random sampling method was not applied in this study, the sample of teachers is not representative of all mathematics teachers in Malaysia. Second, the sample size of teachers and schools was small as the respondent consent is considered. As a result, not all mathematics teachers took part in the study. Therefore, the findings of this study are not suitable to be generalised to the population of mathematics teachers in Malaysia. Thirdly, only one type of instrument was used in this study, which is the questionnaire form. Hence, the opinion and voice of the teachers were not included in this study.

References

- Abdullah, A. H., & Shin, B. (2019). A comparative study of quadrilaterals topic content in mathematics textbooks between Malaysia and South Korea. *Journal on Mathematics Education, 10*(3), 315–340. <https://doi.org/10.22342/jme.10.3.7572.315-340>
- Adu, K. O. (2018). *the Use of Textbooks By Teachers in Teaching Mathematics At Selected Primary Schools in East London Education District*.
- Alajmi, A. H. (2012). How do elementary textbooks address fractions? A review of mathematics textbooks in the USA, Japan, and Kuwait. *Educational Studies in Mathematics, 79*(2), 239–261. <https://doi.org/10.1007/s10649-011-9342-1>
- Samat, A. A., & Rosli, R. (2020). Exploring Teachers' Perceptions of Primary School Mathematics Textbook. *International Journal of Academic Research in Progressive Education and Development, 9*(1286–300). <https://doi.org/10.6007/IJARPED/v9-i1/7043>
- Cai, J. (1995). A Cognitive Analysis of U. S. and Chinese Students' Mathematical Performance on Tasks Involving Computation, Simple Problem Solving, and Complex Problem Solving. *Journal for Research in Mathematics Education. Monograph, 7*, i. <https://doi.org/10.2307/749940>
- Cai, J. (2000). A Cognitive Analysis of U. S. and Chinese Students' Mathematical Performance on Tasks Involving Computation, Simple Problem Solving, and Complex Problem Solving. *Journal for Research in Mathematics Education. Monograph, 2*(4), 309–340. <https://doi.org/10.2307/749940>
- Chambliss, M., & Calfee, R. (1998). Textbooks for learning: Nurturing children's minds. Oxford: Blackwell Publishers
- Chang, C. C., & Silalahi, S. M. (2017). A review and content analysis of mathematics textbooks in educational research. *Problems of Education in the 21st Century, 75*(3), 235–251. <https://doi.org/10.33225/pec/17.75.235>
- Chen, W., & Ding, M. (2018). Transition from Textbook to Classroom Instruction in Mathematics: The Case of an Expert Chinese Teacher. *Frontiers of Education in China, 13*(4), 601–632. <https://doi.org/10.1007/s11516-018-0031-z>
- Creswell, J. (2012). Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research (4th ed.). Boston: Pearson
- Ding, M. (2016). Opportunities to Learn: Inverse Relations in U.S. and Chinese Textbooks. *Mathematical Thinking and Learning, 18*(1), 45–68. <https://doi.org/10.1080/10986065.2016.1107819>
- Ding, M., & Carlson, M. A. (2013). Elementary teachers learning to construct high-quality mathematics lesson plans: A use of the IES recommendations. *Elementary School Journal, 113*(3), 359–385. <https://doi.org/10.1086/668505>
- Dollah, M. U., Widjaja, W., Zabit, M. N. M., & Omar, T. Z. Z. (2019). A Comparison of Values of Progress Conveyed in Mathematics Textbook in Malaysia and Australia. *International Journal of Asian Social Science, 9*(2), 179–188. <https://doi.org/10.18488/journal.1.2019.92.179.188>
- Fan, L., Zhu, Y., & Miao, Z. (2013). Textbook research in mathematics education: Development status and directions. *ZDM - International Journal on Mathematics Education, 45*(5), 633–646. <https://doi.org/10.1007/s11858-013-0539-x>
- Jamieson-Proctor, R., & Carmen, B. (2008). Primary Teachers' Beliefs About the Use of Mathematics Textbooks. *Navigating Currents and Charting Directions (Proceedings of the 31st Annual Conference of the Mathematics Education Research Group of Australasia)*, 295–302.

- Johansson, M. (2003). Textbooks in Mathematics Education: A Study of Textbooks as the Potentially Implemented Curriculum. *Licentiate Thesis Lulea University of Technology*.
- Lamichhane, B. R. (2017). Teachers' Beliefs about Mathematics and Instructional Practices. *Saptagandaki Journal*, 8(February), 14–22. <https://doi.org/10.3126/sj.v8i0.18458>
- Lepik, M. (2015). Analyzing the use of textbook in mathematics education: the case of Estonia. *Acta Paedagogica Vilnensia*, 35, 90–102.
- Lepik, M., Grevholm, B., & Viholainen, A. (2015). Using textbooks in the mathematics classroom – the teachers' view. *Nordic Studies in Mathematics Education*, 20(3–4), 129–156.
- Leshota, M. (2020). Teacher–Textbook Relationships in Mathematics in Contexts of Limited Resources. *African Journal of Research in Mathematics, Science and Technology Education*, 24(3), 375–386. <https://doi.org/10.1080/18117295.2020.1847833>
- Lessani, A. (2015). Implementation of Secondary School Mathematics Curriculum by Teachers in Two Malaysian School. In *University Putra Malaysia* (Vol. 151). <https://doi.org/10.1145/3132847.3132886>
- Li, S. (2020). *A Comparative Study of Directional Connections in Popular U . S . and Chinese High School Mathematics Textbook Problems Shuhui Li Submitted in partial fulfillment of requirements for the degree of Doctor of Philosophy under the Executive Committee of the.*
- McNaught, K. (2005). Texts as Resources, Not Programs. *Australian Primary Mathematics Classroom*, 10(1), 9–11.
- Pepin, B., & Gueudet, G. (2014). Curriculum Resources and Textbooks in Mathematics Education. *Encyclopedia of Mathematics Education*, 132–135. https://doi.org/10.1007/978-94-007-4978-8_40
- PISA 2018 U.S. Results. (2018). National Center for Educational Statistics. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020166>
- Singh, P., Yusoff, N. M., & Hoon, T. S. (2020). Content analysis of primary school mathematics textbooks and its relationship with pupils achievement. *Asian Journal of University Education*, 16(2), 15–25. <https://doi.org/10.24191/AJUE.V16I2.10286>
- Stipek, D. J., Givvin, K. B., Salmon, J. M., & MacGyvers, V. L. (2001). Teachers' beliefs and practices related to mathematics instruction. *Teaching and Teacher Education*, 17(2), 213–226. [https://doi.org/10.1016/S0742-051X\(00\)00052-4](https://doi.org/10.1016/S0742-051X(00)00052-4)
- Tan, K. J., Ismail, Z., & Abidin, M. (2018). A comparative analysis on cognitive domain for the Malaysian primary four textbook series. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(4), 1273–1286. <https://doi.org/10.29333/ejmste/82625>
- Tarr, J. E., Reys, R. E., Reys, B. J., & Chávez, Ó. (2008). The Impact of Middle-Grades Mathematics Curricula and the Classroom Learning Environment on Student Achievement. *Journal for Research in Mathematics Education*, 39(3), 247–280. <https://doi.org/10.2307/30034970>