e-Bangi Faculty of Social Sciences and Humanities Universiti Kebangsaan Malaysia
Journal of Social Sciences and Humanities

Vol. 17, No.2 (2020), 156-170. ISSN: 1823-884x

TEXTBOOK UTILISATION IN TEACHING MATHEMATICS IN SELECTED PRIMARY SCHOOLS IN EAST LONDON EDUCATION DISTRICT

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ABSTRACT

Although Mathematics is considered groundwork for the economic and technological development anticipated to assist in hastening economic, technology and social growth, its teaching is still a challenge in some societies. This study set out to examines the use of textbooks by teachers in teaching Mathematics at selected primary schools in East London Education district. The study adopted the interpretivist paradigm in the qualitative approach to investigate the phenomenon. Semi-structured interviews and observation were used to elicit information from the six mathematics teachers and three heads of department purposively selected. Data were thematically analysed from the research questions after transcribing, sorting and categorizing them. The findings revealed that the participants had no influence or choice in the adoption of textbooks but used the prescribed CAPS documents. The study concluded that use of textbooks for planning and lesson delivery should be carefully and professionally executed. The study recommends use of various other resources for effective teaching and learning of Mathematics.

Key words: Curriculum**,** Mathematics, Teacher, Learner, textbook

INTRODUCTION

A good Mathematics textbook is critical in promoting discovery by presenting life-like tasks and problems to be solved, as well as popularizing Mathematics amongst the learners. Hence besides being keen Mathematics scientists, textbook authors ought to be knowledgeable in pedagogy. They ought to be cognizant of the purposes of textbooks (Manolescu 2004; Karlovitz 2005; Kojanitz 2005), and of the prerequisites they must meet, so that the primary school learners might use good Mathematics textbooks. Though some studies have scrutinized the part played by new technologies in terms of tools used (Lerman 2006), the use of the Mathematics textbook as a tool for teaching and learning activities has not gained ample consideration. This far, several scholars have studied on how teachers use the Mathematics textbooks (Haggarty & Pepin 2002; Johansson 2006; Pepin & Haggarty 2001; Remillard 2005) but there still is scarcity of research into the use of Mathematics textbooks by learners. This chapter explores international and national use of Mathematics textbooks by the primary school teachers, which the study relates to the South Africa context.

It has been asserted that Mathematics helps in accelerating social, economic and technological progress of any society (Azuka 2014). The Primary school level is crucial in laying foundation for any educational system, because any inadequacies at this level permeate to other levels of the education system (Kolawole 2010). According to Michael (2013), Mathematics can

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be broadly interpreted as something a person does to solve problems in Science, Geography and in real life situations. In the teaching and learning of Mathematics at the primary school level, the teacher has a wide choice of materials that are appropriate for the level of the learners being taught. Of these various materials, textbooks are germane, as they facilitate the teaching and learning process at whatever level of instruction (Michael 2013).

Being the most important artefact in Mathematics education "The textbook should arouse learners' interest in learning, help them to study actively, develop their potential in creativity through the process of learning basic knowledge, improve mathematical thinking, and raise students' awareness to apply Mathematics knowledge in everyday lives" (Lepik 2015:6) Curriculum materials such as textbooks are an essential part of teachers' day-to-day work, and offer continuing support for pedagogy and subject matter throughout the complete school year (Collopy 2003). The textbook is a commonly used and reliable curriculum material that is directly linked to teaching and learning activities (Beaton et al. 2006). Even though the term 'curriculum materials' has a universal meaning concerning diverse resources; this study focused on the use of Mathematics textbooks and complementary student workbooks, teacher's handbooks, and other available written resources for use by teachers.

Research has revealed that teachers interrelate with curriculum resources in dynamic and constructive ways, rather than in a forthright process (Brown 2009; Davis & Krajcik 2005; Remillard 2005). Teachers often make variations to the curriculum purposes and adjust them according to the structure and the purpose of lessons. In the adaptation to these changes, the accessibility, quality, and plasticity of the curriculum materials play a vital role in teachers' decisions. Generally, teachers renovate the curriculum ideas, lesson plans, and mathematical tasks into actual classroom events (Remillard 2005) allowing effective teaching and learning to enhance desired outcome.

The worth of textbooks in teaching Mathematics in primary school education is hotly contested (Zevenbergen, Dole & Wright 2004), yet more than any other subject area, Mathematics depends heavily on their use as pseudo curricula (McNaught 2005; Jamieson-Proctor & Byrne 2008). While quality textbooks are typically produced with teacher-manuals, which afford an array of teaching activities, usually, these manuals may not be available for teachers creating a crisis in teaching Mathematics (McNaught 2005).

The teaching of Mathematics in the South African schools seems to be the worst in the world. In 2011, research by the Trends in International Mathematics and Science Study (TIMSS) in 21 middle-income countries that participated, South African students had the lowest mathematic achievement (McCarthy & Oliphant 2013). One of the reasons was attributed to inadequate textbooks, hence, the desperate need for textbooks to be used in teaching and learning of Mathematics. In the light of this, objectives of the study were, (a) to assess how teachers use textbooks in teaching Mathematics and (b) to establish how textbooks enhance Mathematics lesson planning in primary schools.

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LITERATURE REVIEW

The Value of textbooks

A textbook is defined as a manual detailing instruction in any field of study. Textbooks are designed as per the demands of educational institutions and are used in schools (Sapire 2012). The worth of Mathematics textbooks in primary school education is highly contested (Zevenbergen, Dole & Wright 2004) because more than other learning areas, teachers profoundly rely on their use (Johansson cited in Jamieson-Proctor & Byrne 2008). The authorized use of a prescribed textbook series in all Grades or classes in a school is not unusual in Australia; with some institutions engaging them as pseudo-curricula (McNaught 2005). Whereas quality textbooks are typically published with manuals that provide a variety of teaching activities it is unusual for these manuals to be unobtainable for teachers hence the textbook becomes the base for Mathematics lessons (McNaught 2005).

Traditionally, textbooks are connected to a transmission model of teaching (Alsup 2003; Boaler 2008) which focuses on a technical approach to the teaching of Mathematics rather than theoretical understanding of Mathematics. It however has limited value when learners are placed in unfamiliar conditions (Boaler 2008). This method also emphasises on the production of accurate solutions rather than the thoughtful processes involved in coming up with a solution (Wood, Williams, & McNeal 2006). It often assumes that the culture of the Mathematics classroom is embodied in accuracy, precision, swift recall, and prompt task completion (Bauersfeld 2002).

Generally, the Mathematics curriculum resources such as textbooks, texts, computer software, and geo-boards are assembled into scientific and instructional intents and possibilities for schools (Adler 2001). Mathematics curriculum materials are critical learning content resources and teachers' instructional choices and teachers are accustomed to using them to guide instruction (Stein & Kim 2009). Therefore, it makes sense that teachers use the textbook "as a resource with problem and exercises to solve them, as reference books, and as a teacher in themselves" (Howson 1995: 25). Teachers often depend heavily on textbooks on what content to teach; how to impart the knowledge, and what kinds of tasks and exercises to give to their learners (Robitaille & Travers 2002).

It is reasonable to agree that the Mathematics textbooks important and useful as they are, can create challenges to both teachers and learners, and have limitations that can frustrate teachers leading to learners' low performance in Mathematics. Basturkmen (2010:149) highlighted that since textbooks are often prepared for national or global markets, they may fail to address local mathematical relevance or appropriateness. Furthermore, the language used maybe inauthentic making learners unable to comprehend the texts, discourses and other aspects of the content.

Features of textbook

The textbook is as defined a document that carries information and allows it to be processed (Fodor 2015). It gives direction and guidance to the teacher while the learner uses it as the main tool for scientific learning and discovery. Mathematics textbooks must align with the subject curriculum that encompasses the pedagogical content offered for the subject. For the textbooks to fulfill their actual use, they must meet five important criteria which are: suitable look/design (esthetical

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criterion), style, correct and high- quality language use, structure, as well as content and approach (Karlovitz 2005; Kojanitz 2005).

The accessibility of educational recources like textbooks and manuals, is another issue that influences education quality. Several studies in Africa indicate that textbooks have a strong positive effect on learning achievement (Mingat & Suchaut 2000; Pôle de Dakar 2002; UNESCO 2004). Research has established that planning and teaching of mathematics is based on textbook in mainstream of classrooms (Moffett and Corcoran 2011) confirming the asserting by Jamieson-Proctor and Byrne (2008) that textbooks are a modern-day reality and backbone in primary school mathematics teaching in schools. McNaught (2005) projected that ninety percent of mathematics lessons are based on textbooks, making them synonymous with mathematics education and achievement. However, poorly written textbooks may not assist learners in bridging their experiences and intellectual with the abstract mathematical system. To this effect, O'Keeffe & O'Donoghue (2014) emphasised that the language used in mathematics textbooks universally plays critical role in the learning and comprehension of mathematics.

Use of textbooks in Mathematics teaching in African primary school

In Nigeria, the monitoring of learning successes in Mathematics involves the procedures of testing, measuring, assessing and evaluating which is derived from textbooks. It stands to reason that the availability of textbooks is crucial. Despite its expediency to learning, Okwilagwe (1999) quantified the general textbook availability to be approximately 10% on average at all levels of education signifying the low accessibility of textbooks to the teachers and learners. Okwilagwe, (2001) testified that the scarcity of textbooks in Nigerian schools is negatively upsetting the standard of education while Adesina (1990) in Okwilagwe (2001) characterised the textbook status quo as an anomalous one.

Zimbabwe considered Mathematics, as one of the core subjects in the transformation of not only the education system but the national economy as well (Rudhumbu 2014). It is a compulsory subject from primary to 'O'Level. Both teachers and learners use the textbooks as the main learning resource despite the new technologies that could be more effective in teaching Mathematics. According to Ncube (2013), effective Mathematics teaching is more prevalent in private schools than in public schools where learners have more textbooks at their disposal. This confirms the study by Makopa (2011) which found a strong relationship between adequate school resources to increased achievement in Mathematics test in the Zimbabwe's Metropolitan Provinces (Harare and Bulawayo) more prominent than the rural schools.

The situation is predominantly acute in most schools in Cameroon and the Central African Republic where 13 pupils share only 1 Mathematics textbook and in the Central African Republic, on average eight learners share the same reading or Mathematics textbook (Kojanitz 2005). Learners have limited reference to the textbook in normal classroom work making it worse in doing homework without the assistance of the textbook. In Cape Verde and Mauritius, the Education Ministries reported that Mathematics textbooks are freely provided to pupils in all Grades of primary schools. In Burkina Faso, Guinea, Madagascar, Mali, Niger and Rwanda, schools have adequate Mathematics textbook for every learner. However, while national-level information may indicate that all pupils have access to books in these countries, sub-national disparities may be concealed. For example, learners in some schools may each have a textbook, while scarcities may persist in others (Burger, Sukhdeep & Trucano 2015).

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Effect of textbook shortage on learning

Research has increasingly highlighted the significance of suitable textbooks in improving quality in education since the 1990s (Burger, Sukhdeep & Trucano 2015). Literature showing evidence confirming that textbooks are pivotal in accelerating student achievement has influenced educational policies. For instance, Swaziland has been providing free textbooks to all primary school learners since 2003 (Burger, et al. 2015). Other countries, such as Guatemala and Nicaragua, followed suit by introducing free textbook programmes targeting the most disadvantaged. An impact evaluation programme in Ghana showed supporting basic education with textbooks improved the progress in Mathematics and English test scores between 1988 and 2003 (Burger et al. 2015). Zuze & Reddy (2014) noted that South African students, especially girls, performed better in reading tests when they have personal copies of textbooks

A cross-country scrutiny founded on information from assessments in 22 sub-Saharan African countries displays that pedagogical materials, particularly textbooks meant for core subjects such as Reading and Mathematics, have been found to be effective in improving learning. Provision of one textbook to every learner in a classroom improved literacy scores by 5–20% (Burger et al. 2015). In countries such as Burkina Faso, Cameroon, Côte d'Ivoire, Madagascar and Senegal, even when few pupils had access to textbooks in the classroom, their literacy skills improve with the help of knowledge sharing from peers who have textbooks (Burger et al. 2015). However, while the above assertion might be factual if pupil-to-textbook ratio moves from 1:1 to 1:2, a study conducted by the World Bank reveal the negative impact on learning to be far more significant when moving from a ratio of 1:2 to 1:3. Based on the aforementioned, the researchers found it imperative to examine how textbooks are used by teachers in the teaching of Mathematics in primary schools in East London education district.

The use of text books in South African schools

In South Africa curricular changes have run parallel with fluctuating views on the development and use of textbook as resources for teaching and learning in schools because have not always been beneficial in improving learners' performance. Between 1996 and 1998, Curriculum 2005 compelled educators to develop their own materials rather than commercially developed resources which regrettably led to resistance when the implementation of the National Curriculum Statements (NCS) encouraged the use of resources was once again. In his report Taylor (2008) asked "what's wrong with South African Schools? Teachers have turned their backs on what is common practice around the world – [the use of school textbooks]" (2008:24). Furthermore Taylor (2008) strongly encouraged schools to use the text books pointing out their worth: "A good textbook contains, in a single source, a comprehensive study programme for the year; it lays the curriculum out systematically; providing expositions of the concepts, definitions of the terms and symbols of the subject in question, worked examples of standard and non-standard problems with lots of graded exercises, and answers" (Taylor 2008:19). Textbooks can simplify the teacher's job effectively because they afford guidance on curriculum content coverage; enable assessment coverage, and offer appropriate pacing and weighting of content, and assist teachers with lesson and year planning.

Textbooks are designed to complement the teacher's effort in the delivery of instruction. As suggested by the United Nations Educational and Scientific Organization (UNESCO) (2016),

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textbooks are particularly relevant to improving performance of the learners, especially those from poor countries with over bloated classrooms, several unqualified teachers, coupled with shortage of instructional materials and time. Mathematics textbooks, as all other learning resources, must be designed in harmony with the subject curriculum. The subject curriculum contains the pedagogical content and serves as the basis of the work schedule design (Baranyai & Stark 2011).

Selection of textbooks

A study conducted by National Science Teachers' Association (NSTA 2005), observed that selecting a suitable textbook for use in the science classroom is a very daunting task. Tarr, Barbara, Reys, Baker and Billstein (2006) enumerate three key dimensions that offer a general framework for swotting and choosing Mathematics textbooks. They stressed on content emphasis, instructional attention and teacher support. The emphasis on the content includes the alignment with the learning prospects offered in the curriculum, in-depth presentation of topics with cumulative sophistication across the Grades, and a suitable balance of skills development and understanding of ideas and procedures (Tarr et al. 2006; Grossman & Thompson 2008). Yildirim (2008) viewed that in the selecting textbooks for lesson planning, teachers ought to match the textbook to the learners' ability levels and use appropriate teaching methods within the time frames allocated in line with their school context. This forms the integral aspect of effective planning and lesson delivery.

Using textbooks in planning and delivery of lesson

Teachers use textbooks in lesson planning as they provide philosophies and practices which frame classroom activities to achieve goals that they probably would not be accomplished on their own (Brown 2009). Brown (2009) further observed that in lesson planning, teachers accommodate the students' interests, experiences, and limitations. Studies show that teachers spend much time preparing lessons, interacting with textbooks and various teaching and learning materials to determine grade-specific texts and effective ways to present their lesson (Nicol & Crespo 2006). Good textbooks stipulate in detail, the materials to be taught, the design of every lesson and provides the teacher with a balanced, sequential presentation of a lesson (Fredricks 2005). For effective planning, good textbooks must have thoughtful emphasis on content, with rich, extensive explanation, elaboration of concepts with wide-ranging use of images, illustrations, diagrams and figures that capture the essence of significant concepts (Abadzi 2006). A good textbook for lesson planning should provide enough space for repetition and explanation that enables classified upward development. Abadzi (2006) also enumerated that, topics in the textbook should be clearly and efficiently organized, be simple to read, with uncluttered layout that foregrounds meaning.

Use of textbooks in teaching

Textbooks serve as a guide to the teacher in the pedagogical enactment of the content for the entire year. The use of textbooks by teachers in lesson planning has inherent advantages that make lesson delivery easy. Textbooks provide teachers with stimulating and compelling platforms for transmission of information subsequently motivating learners to better understand the concept

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(Phyllis 2011). Textbooks are essential aspects of teaching and learning situations, and they do not simply supplement learning but complement its process.

RESEARCH FRAMEWORK

This study was informed by the Tetrahedron model of textbooks which is founded on the didactical system: the tripod relationship that exists between student, teacher, and Mathematics (Rezart 2010). The Mathematics textbook is useful as a tool on all three sides of the triangle: teachers use textbooks in the preparation and delivery of their lessons, arbitrate textbook use to students, and lastly students learn from textbooks.

Thus, each triangle of the tetrahedron-model signifies an activity system on its own. From an ergonomic perspective, it is contended that artefacts have an influence on these activities; on the one side, they offer certain ways of utilizing the artefacts and on the other side the modalities of the artefacts enforce limitations on their users (Rabardel 2002). Thus, the Mathematics textbook seems to have an influence on the learning of Mathematics as a whole, and that is characterized by the didactical triangle on the bottom of the tetrahedron. The theory is anchored on the tripartite relationship that is between the teacher, student and the textbook, hence; its adaptation for this study. This theory further informs this study because the use of textbooks is very essential for effective lesson planning, delivery and learning.

This theory also shows the relevance of interaction between teachers and students with the textbooks as a medium of communication (Johansson 2006). The conceptualization of student-textbook-interaction based on this theoretical framework provides thought-provoking insights of acquiring more knowledge and understanding of the subject matter during the teaching and learning of Mathematics. This also provides a better understanding of students' use of Mathematics textbooks and reflects students' ways of learning.

Teachers use Mathematics textbooks daily when teaching and parents obviously respect textbooks. However, the question that comes to mind is what is the real influence of textbooks? Describing the role of textbooks in teaching, scholars use terms such as *textbook control* (Johnsen 2014), *textbook impact* (Sikorová 2011), *textbook influence* and *textbook-driven instruction*. Do teachers really follow textbooks? Do they accept the concepts, content and methodical strategies imposed upon them by textbooks?

METHODOLOGY

This study adopted the interpretive paradigm which is based on the idea that people socially and symbolically construct their own organizational realities (Creswell 2014). The paradigm guided the research in exploring the day-to-day teachers' experience in using textbooks as the teaching and learning in Mathematics (Litchman 2013). Founded on the interpretive paradigm the study used a qualitative approach because of its flexibility in collecting and analysing data (McMillan & Schumacher 2006). Qualitative approach provided the researchers with the responses to the questions that sought to gain a clear understanding of how teachers selected Mathematics textbooks for lesson planning and delivery.

A sample of six teachers and three heads of department were purposively selected to provide information through in-depth semi-structured interviews on the selection, use and challenges faced

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in using Mathematics textbooks to plan and deliver lesson at Grade four level. Detailed-oriented probes were used to accurately understand what the respondents meant. Voice-recording devices were used to capture the responses during the one-to-one interview for accuracy with permission from the respondents. Trustworthiness was assured through triangulation and member checking ensured credibility of the study. All the ethical issues were observed, and respondents signed the informed consent forms indicating voluntary participation.

RESEARCH FINDINGS

Prescribed textbook

In selecting primary school textbooks for teaching Mathematics, the participants said that teachers were guided by the prescribed textbook by the Department in the CAPS document. The following were teachers' responses:
TrA1 explained '*I use different textbooks from the prescribed ones by the curriculum and the department'*. Concurring TrA2 said *textbooks are prescribed only by the department.* Similar sentiments were expressed in the other school. For example, TrB1 explained *'As teachers in Grade four we come into agreement that we will all used prescribed textbook, which is Platinum'.* Contrary to the above sentiments, TrB2 said, '*We are not the ones who select textbooks, but the school tells us which textbook to use'.*

Although respondents in school C had a wider range from which to select the textbooks they could use, a clear explanation came from TrC2 who elaborated, '*We have so many Mathematics textbooks such as Oxford, Platinum, Day to Day, Harvest, and Spot on. But we do select the one that has detailed information that suits the level of the learners. However, our selection is dependent on CAPS, meaning that CAPS prescribes the textbook for us to use'.*

All the heads of department reiterated what the teachers said in connection with the selection of Mathematics textbook in their different schools. HoDA explained that, *'We bring the teachers come together, show them samples then teachers pick the one that is CAPS compliant regardless of whether the work given covers what needs to be covered, or whether there are enough exercises in the book. The teachers select the textbook according to CAPS, which is Platinum'.* Concurring HoDB stated that, '*We make sure those textbooks are according to CAPS. Teachers select textbooks according to learners' ability. We have different approved textbooks by the CAPS. We consider the one that has more detailed work'.* In the same manner HoDC assert that, *'Teachers are encouraged to choose according to CAPS specification, and in this school, we are using Focus textbook. Our procedure here is that the SMT will present the selected textbook to SGB and they are the ones to recommend the one to be used'.*

Information deduced from the above interviews indicate teachers' choice of books was limited to what was prescribed by the Department. It also revealed that whether the books were of good quality or not, they could not influence the changes. Obviously, this includes the examination of whether the textbook met the requirements of society, aligned with the education programme of the institution, addressed the needs of the learners, was comprehensive or detailed and flexible. Heads of Departments also confirmed that teachers were compelled conform to the choice made by the department.

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The researchers probed further to find out if teachers had been given the option to choose the textbooks how would they base their choice on. In response TrA1 said that although he could not go beyond the prescribed textbook in his selection but given the choice he would base his selection on the language used in the textbook. TrA2 expressed the similar sentiments, '*I would consider the language used in the textbook, whether it would be easy for me to translate into mother tongue. If the English used in the book is not complicated, I make decision based on it, and the clarity of work in the textbook'.* The opinion of other teachers in school B differed as TrB2 said, '*I would consider the contents, because some books have few questions, whereas we need to give learners more questions. I would be comfortable with the textbook that includes everything laid down in the policy documents. I would base my decision on these two issues'.* However, TrC1 supported what the teachers in school A said about language used in the textbook by stating that *It is obvious that the language used in the textbook is an essential factor to be considered since at Grade four there is need for code-switching*. TrC2 alluded to what TrC1 said about the language used in textbook as a factor she would consider when selecting the textbooks.

Data from these interviews indicate the importance of teachers understanding the language as they would have to translate the concepts to mother tongue. Code-switching becomes a challenge as it may be difficult to explain some mathematical terms in local languages. While code-switching some concepts may be misrepresented and one wonders if children can work independently using textbooks.

Clarity and comprehensiveness

On the aspect of clarity, one respondent alluded to the fact that her choice depended on how detailed the textbooks were. Giving detail on this idea TrB1said, '*I select a very clear textbook that always enhances my learners' success. I also check if the concepts in textbook flows giving more than one example on each item of the lesson'.* Likewise, TrB2 said, '*The platinum textbooks we are using are very clear and detailed. This textbook works well because we considered the clarity in choosing it'.* Sharing the same view TrC2 advanced that, '*I use a textbook that has more diagrams and better illustrations that suit my learners' need'*.

The respondents indicated that they selected textbooks from the prescribed textbooks by the department, which were written clearly according to the Curriculum and Assessment Policy Statement (CAPS). While their choice was limited to the prescribed textbooks the recommended by the Department, they also did not have influence on this selection. Furthermore, teachers liked to use the textbooks that were not complicated, with easy language that they would understand and be able to translate when code-switching in class since they are teaching Grade four. They also indicated they preferred textbooks that are very clear, without confusion, ambiguity and detailed enough to meet the needs of the learners.

The curriculum contents

Lesson planning is one of the basic duties of every teacher in the instructional lesson delivery. It is the outline of a series of course plans that provide direction for a teacher on what is to be taught and how to teach them. The teachers had this to say;

TrA1**:** *Each teacher should have a lesson plan. The content of curriculum does affect how I use the textbook. For example, the content of CAPS is different from that of OBE; the textbook selected*

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is useful for me in my lesson activities, because it is aligned with the curriculum contents. Even though the schools visited did not use the same textbooks, their choice of textbooks was from prescribed books. Concurring TrB1 said, *the contents of the Platinum textbook that we are using in our school are in line with the contents of the curriculum. This works well for my learners because it has very clear examples.* TrB2 was of the view that the content of the curriculum had different divisions which teachers must follow in terms of the duration and exercises, with examples to cover at specific times. Expressing similar opinions TrC1 explained: *We start by checking CAPS and number of time/hours and how many topics are to be covered before we use that to plan, or else we might end up teaching more than what we are not supposed to teach. I plan weekly before preparing my lesson.* Similarly, from another school TrC2 indicated, *I plan according to the topic that have been selected. I prepare the lesson according to CAPS instruction with the help from textbooks.*

Supplementing with other resources

Virtually, all the teachers have supplementary resources to support the Mathematics textbook. Their views are stated below:
TrA1: *The best way to achieve the objectives of each lesson is to add other resources such as computer games, workbooks besides textbooks. We hold group discussions when necessary to share ideas as well as visiting library.* Concurring to this idea TrB1 said, *I supplement the textbook with other related books that I personally buy, especially if I do not find all what I need in a specified textbook.* Likewise, TrB2 stated, *I supplement the Mathematics textbook when I am teaching; I sometimes bring other materials and use them very well. Even though the platinum textbook is detailed, I still use posters and chats to make my teaching hitch-free and smooth.* Similarly, TrC2 explained, *''We have so many supplementary resources that have been prescribed by CAPS like workbooks. We also compare the resources to teach the learners from simple to complex, known to unknown.*

While there is a prescribed mathematics books, respondents indicated the importance of supplementary resource materials which they improvise. It is an indication that one textbook may not sufficiently cover all that needs to be taught

Link between textbook and plan book

The participants also believed that there should be a link between the textbook and the plan book. The plan book must not be different from what is inside the textbook. Hence, the respondents said; TrA1 stated that, *'What comes from Mathematics textbooks is linked to my preparation for lesson and nothing more. When planning I always follow the content of the textbook. I don't organize my different activities but use the activities that are specified by the department'.* Collaborating, TrB1 said, *'The contents of the textbook help me to plan for my lesson. The link between my plan book and the textbook is according to the guidelines. It gives me what I must connect with and the area l must focus on.* TrB2 posit that, *'My plan book is linked to the textbook where I extract all the information. I always quote the exercise and page numbers from the textbook in my plan book and use the terms already mentioned in the textbook to start my lesson'.* In addition, *TrC2 explained that, 'The lesson plan and the textbook go hand in hand. Even if I am absent from school, another*

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teacher can use my lesson plan to teach. In a nutshell, textbooks assist in making lesson plan easy and simple to prepare'.

According to the respondents, for Mathematics textbook to be useful for lesson planning, content should be written in sequential order and aligned properly with the curriculum (CAPS). The participants also indicated that they used other resources like computer assisted programs, games, workbooks and other textbooks to supplement the prescribed Mathematics textbook when they were planning for their lesson.

DISCUSSION

The findings of the study demonstrated that the participants selected the CAPS textbooks that are prescribed by the department in which they had no influence or wide option on the selection. This confirms the explanation by Sanders and Makotsa (2016) that teachers are given prescribed textbooks because of the assumption that such support materials are scientifically accurate. They all said they considered the language used and the types of illustrations, diagrams and activities among the prescribed textbooks to influence their final decision on the textbook to use. The importance of language was also noted by Bolondi, Branchetti and Giberti (2018) who contributed to the general declaration that linguistic disparities can affect scholars' performances.

Code-switching is another factor that came out of the discussion confirming that the language used can negatively impact learners' leaning. Use of code-switching by teachers makes children unable to use textbooks on their own substantiating Johansson's (2016) assertion that textbooks cannot simply be anticipated as a vital tool for the teaching and learning of mathematics, but also as an obstacle especially if the language is more problematic. The findings of this study indicate the importance of reading for learners to use Mathematics textbooks effectively. Without the reading skills, having copies of textbooks for each child is as good as having none.

The findings of this study indicate that teachers mainly use the textbooks in lesson planning and teaching. These findings confirm the results of the study by Trends in International Mathematics and Science (TIMSS) (2011) in which approximately 75% of the primary school teachers relied on the mathematics textbook for their instruction. Although teachers based their lesson planning and teaching on the textbooks they also desired and used supplementary resources that they improvised to augment content in the prescribed textbooks.

CONCLUSION

The study sought to explore the views of Grade four teachers and heads of department in the East London Education District on the use of Mathematics textbooks for lesson planning and delivery. Literature was reviewed on the selection, use of textbooks in lesson planning and delivery, and the challenges inherent in the using of textbooks in teaching Mathematics in primary schools. The tetrahedron model of textbooks based on the fundamental model of didactical system was used to explain the tripod relationship that exists between student, teacher, and textbooks. The study adopted pragmatism which allowed the use of mixed methods in the collection and analysis of data. The main findings of the study were given in the discussion section and the recommendations are detailed here below.

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RECOMMENDATIONS

Based on the findings of this study, the following are recommended;
Teachers should endeavor to be professional and refrain from over-reliance on textbooks as it might be dangerous, making them to be lazy and not innovative. They should plan far ahead and check the exercises in the textbook and match them with their workbook to quickly discover if there are errors, rather than discovering the errors during the class activities. One of the heads of department noticed that some teachers were indifferent to the textbooks the majority selected because of one reason or the other. These indifferences should be handled professionally so as not to affect the learners.

The Department of Education should allow for a variety of textbooks to be used in schools in conjunction with the set one. This will allow teachers to get a wide range of ideas in explaining and solving mathematical concepts. Code-switching should be minimized in Mathematics to encourage learners to read, understand and use mathematics textbooks independently.

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Journal of Social Sciences and Humanities

Vol. 17, No.2 (2020), 156-170. ISSN: 1823-884x

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