

THE EFFECTIVENESS OF MOBILE AUGMENTED REALITY
(MAR) TO IMPROVE PUPILS MOTIVATIONAL LEVEL
AND PERFORMANCE IN MATHEMATICS

HEMA D/O RENGASAMY

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Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia

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DEDICATION

This project report is dedicated to my father and mother for their great support even when things were so tough for, they constant kept on encouraging me to work extra hard and entire family members, for their patience, support, love and encouragement throughout my studies.

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ABSTRACT

Geometry is considered as an essential component to be mastered in the primary school mathematics curriculum. However, it is classified as a difficult topic among lower primary pupils as it requires them to have a clear understanding in order to be expert in shapes and spaces. In line with this, a research has been conducted among Year 3 pupils to see the effectiveness of Mobile Augmented Reality (MAR) to improve pupils' motivational level and performance in Mathematics. The use of Mobile Augmented Reality (MAR) supports the idea of 21st century learning, which is a major aspect of the Malaysian Education Blueprint. Mobile augmented reality (MAR) is one of the most advanced technology in the education sector tailored for 21st Century learning. It is a technology that combines two-dimensional (2D) and three-dimensional (3D) virtual objects into a real three-dimensional environment and projects those virtual objects in real time with mobile phones. MAR helps pupils to visualize the shapes and enable them to identify the features of shapes more accurately. The use of MAR as a teaching aid seen to be stimulates the interest of the pupils to learn the topic and pupils were more interested and engaged during the lesson. The effectiveness of Mobile Augmented Reality (MAR) in improving the pupil's performance is measured with pre-test and post-test. Questionnaires were provided to investigate the effectiveness of Mobile Augmented Reality (MAR) in improving the pupil's motivational level. The analyses were also used to identify the significant relationship between pupils' motivational level and performance and the level of master of pupils in learning the features after the use of MAR. Findings indicate that the performance and level of mastery the topic of pupil were better in the post test and they were highly motivated. Besides, this research shows that there is significant relationship between motivational level and performance. It is hoped that the finding of the research will insight teachers and educators about the use and importance of Mobile Augmented Reality (MAR) in Mathematics especially for Geometry.

ABSTRAK

Geometri merupakan satu topik yang penting dan dikuasai dalam kurikulum matematik sekolah rendah. Walau bagaimanapun, ia diklasifikasikan sebagai topik yang sukar dalam kalangan murid sekolah rendah kerana murid perlu mempunyai pemahaman yang jelas dan mendalam untuk menjadi pakar dalam topik bentuk dan ruang. Sejajar dengan ini, satu kajian telah dijalankan dalam kalangan murid-murid Tahun 3 untuk melihat keberkesanan Mobile Augmented Reality (MAR) untuk meningkatkan tahap motivasi dan prestasi murid bagi subjek Matematik. Penggunaan Mobile Augmented Reality (MAR) menyokong idea pembelajaran abad ke-21, di mana merupakan suatu aspek utama dalam Pelan Pembangunan Pendidikan Malaysia. Mobile Augmented Reality (MAR) adalah salah satu teknologi yang paling maju dalam sektor pendidikan dan sesuai untuk pembelajaran abad ke-21. MAR adalah teknologi yang menggabungkan objek maya dua dimensi (2D) dan tiga dimensi (3D) ke dalam persekitaran tiga dimensi sebenar dan menunjukkan objek maya tersebut dalam masa nyata dengan telefon bimbit. MAR membantu murid untuk menggambarkan sesuatu objek dalam bentuk tiga dimensi dan membolehkan mereka mengenal pasti ciri-ciri bentuk dengan lebih tepat. Penggunaan MAR sebagai alat bantu mengajar dapat merangsang minat murid untuk mempelajari topik tersebut dan murid lebih berminat serta mengambil bahagian dalam pembelajaran secara aktif. Keberkesanan Mobile Augmented Reality (MAR) dalam meningkatkan prestasi murid diukur dengan ujian pra dan pasca. Soal selidik juga telah disediakan untuk mengkaji keberkesanan Mobile Augmented Reality (MAR) dalam meningkatkan tahap motivasi murid. Analisis yang sama telah digunakan untuk mengenal pasti hubungan signifikan antara tahap motivasi dan prestasi murid dengan tahap penguasaan murid dalam mempelajari ciri-ciri bentuk setelah penggunaan MAR. Dapatan menunjukkan bahawa prestasi dan tahap penguasaan topik murid lebih baik dalam ujian pos dan mereka kelihatan lebih bermotivasi. Selain itu, kajian ini menunjukkan bahawa terdapat hubungan signifikan antara tahap motivasi dan prestasi. Diharapkan keputusan kajian ini dapat memberi kesedaran kepada guru dan pendidik mengenai penggunaan dan kepentingan Mobile Augmented Reality (MAR) dalam subjek Matematik terutamanya bagi topik geometri.

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LIST OF ABBREVIATIONS

MAR	-	Mobile Augmented Reality
AR	-	Augmented Reality
MOE	-	Ministry of Education
VR	-	Virtual Reality
AI	-	Artificial Intelligence
IR	-	Industrial Revolution
IoT	-	Internet of Things
2D	-	Two Dimensions
3D	-	Three Dimensions
ICT	-	Information and Communication Technology

LIST OF SYMBOLS

- r - Pearson correlation
 P - Alpha value

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This global world was being dominated by technology, with almost every second society using technology by managing everything at their fingertips. As a result of the high rise in technological inventions, people's lives changed tremendously after the 21st Century because technology facilitates 24/7 learning and builds skills needed in the future. Martin et al (2011), also proved technologies have improved drastically our teaching and learning. In addition, it can't be denied that the uniqueness of the use of technology can also be associated with the teaching and learning (T&L) process.

According to Barbaux (2006), the generation of digital pupils brings a radically different approach to learning. They have several and instantaneous access to information sources, multitasking and social links via mobile devices. As we are aware, mobile devices are cheaper than a laptop or computer and are being used by everyone because mobiles are necessary in this digital world and it's affordable too. The research of Taleb & Sohrabi (2012), recent advancements in mobile and wireless technology have enabled a new style of learning called as Mobile Learning (M-learning).

According to Savill-Smith & Kent (2003), the use of a mobile device in learning can help in improving pupil's motivation, improve organizational skills,

encourage feelings of responsibility toward studies, encourage collaborative learning especially in the group task, and helps check pupils progress faster and more efficiently. Ivan Sutherland initially developed Augmented Reality (AR) technologies for mobile platforms in 1968 in order to improve the reality of virtual learning environments on mobile devices. Later, the term Mobile Augmented Reality (MAR) was introduced. MAR provides a new opportunity for learners and teachers to experiment with innovative pedagogy.

David Warlick, an early adopter of technology in education, author, and educator quoted “We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world”. This quote means that the usage of technology in the classroom can improve and speed up the process of human growth. For example, the future of learning is believed to be dependent on technologies of modern age such as Mobile Learning (M-Learning), Augmented Reality (AR), Virtual Reality (VR) and Artificial Intelligence (AI) thus schools are advised to implement them in the curriculum to improve learning outcomes.

As we know our country, Malaysia is one of the Industrial Revolution (IR) 4.0 nations involved in globalization. Economic growth is the primary reason for changing into a technology-driven country. It enables digital technologies by using the Internet of Things (IoT), big data, virtual and augmented reality, artificial intelligence, and other IT concepts that are driving most sectors. It has become the very core of future education 4.0 due to its advantageous influence to the current trends in gaining skills and knowledge. This self-directed and flexible learning system made lifelong learning and skills possible and can be attempted every time and everywhere. Figure 1.1 shows Malaysia Education 4.0 Revolution.

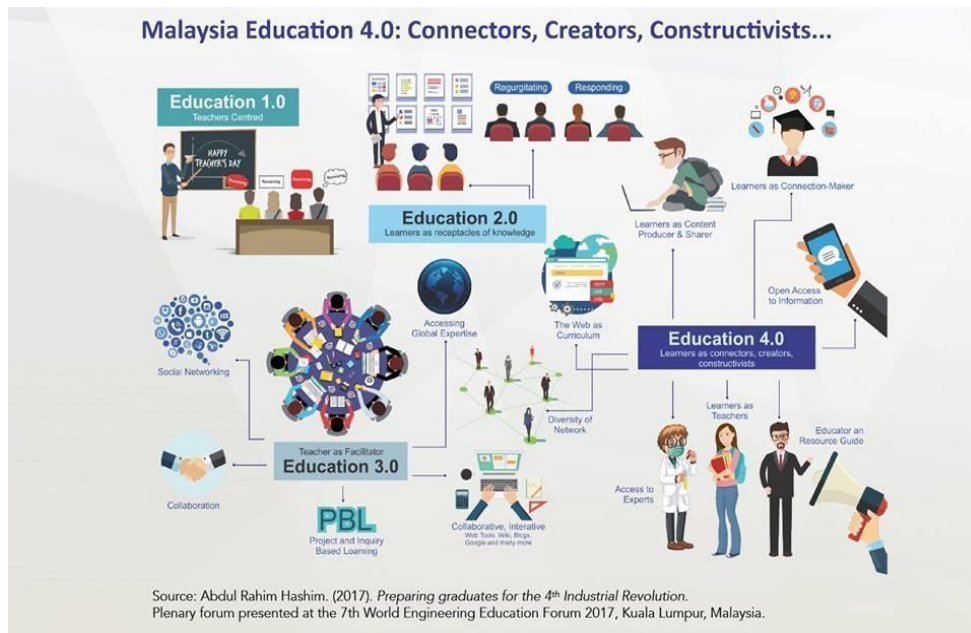


Figure 1.1: Malaysia Education 4.0 (Abdul Rahim Hashim, 2017).

Mobile augmented reality (MAR) is one of the most advanced technology in the education sector tailored for 21st Century learning. Huizenga et al., 2009, stated that, it is an efficient teaching aid with the best interactivity and produces a better understanding of any subject than traditional pedagogy approach because primarily games or simulation are the main focus and mobile device abilities have the characteristics and qualities such as individuality, social interactivity, portability, sensitivity and accessibility. Moreover, using mobile augmented reality (MAR) to aid teaching is an outstanding way to engage pupils and ensure their full involvement as they are not strangers to technology. According to Savill-Smith & Kent, 2003, the use of a mobile device in learning can help in improving motivation for pupils, improve organizational skills, encourage feelings responsible toward studies, encourage collaborative learning especially in the group task, and help check pupils progress faster and more efficiently.

Based on a research conducted by Denk et al. (2007), it has been found that mobile devices play an important role in education nowadays and sees the effect and benefits of these devices in regard to the potential for pedagogy. Another researcher

clearly mentioned that a huge number of participants who had never experienced an Augmented Reality AR and Mobile Augmented Reality MAR before also felt inspired, motivated, enjoyed and participants received a positive educational impact which leads pupils to a greater degree of engagement in learning performance. Therefore, there are chances to increase student motivational level and performance level in Mathematics through using Mobile Augmented Reality (MAR) as a teaching aid.

Malaysia has embarked on several initiatives to help improve its educational system by focusing on the improvement of learning and teaching of science, technology, engineering, and mathematics (STEM) subjects. However, most of the pupil's perception towards mathematical subjects is contestable as pupils have problems understanding basic concepts and in applying mathematical concepts they have learned. It is no wonder that the pupils lose interest in mathematics.

Motivation of pupils towards a subject is very important to get pupils actively involved in justifying mathematical problems. Most researchers have proved that M-learning helps to teach a topic in various ways, and it has been increasing the motivation level of pupils besides facilitating the comprehension of mathematical concepts. Mobile Augmented Reality (MAR) is one of the best multimedia technologies which lead to better pupils' motivation level.

With the proven benefits of mobile augmented reality as a teaching aid and the problems that have risen in teaching mathematics in an attractive way, it is a prudent step to try to tackle the problem with this interactive methodology.

1.2 Background of Study

In the Malaysian context, the primary coil of education is divided into two stages which are stage one referring to year 1, 2 and 3 and stage two referring to year 4, 5 and 6. Generally, primary school is to prepare pupils with a good foundation before enrolling in secondary school. Primary school is a place where pupils were able to learn a variety of skills which helps to prepare individuals to be more successful in life.

In Malaysia, the Mathematics curriculum underwent a new revolution in 2018, known as the Standard Based Curriculum for Primary Schools (KSSR) syllabus. The new restructured and improved Malaysian primary school mathematics curriculum intends to develop the required knowledge, skills and values to face and resolve the challenges of today's world among pupils. The focus of primary school mathematics is mentioned clearly in DSKP that pupils should form and explore mathematical ideas in depth through a variety of learning opportunities and experiences.

Besides that, awareness should be nurtured and developed among pupils that mathematical ideas are interrelated, and mathematics is a comprehensive knowledge; not isolated pieces of knowledge. With such awareness and understanding, the understanding of mathematical ideas becomes more meaningful, and in turn can enhance pupils' ability to apply mathematics. Based on the understanding and understanding formed, pupils are able to make connections and apply mathematical ideas, thus making pupils more confident to explore and apply mathematics. The use of teaching aids, technological equipment and the implementation of assignments / practical / project work should be included in the learning experience provided for pupils. It can be said that the KSSR curriculum seemed to be even more focused on making learning fun and meaningful for young learners.

In 2014, the University of Iowa conducted a study in which researchers claimed that participants remember things they see or touch well compared to the things that they hear (James Bigelow & Amy Poremba, 2014). But in school textbooks are mainly implemented by teachers. This doesn't improve pupil's motivation and performance in the geometry topic because to learn geometry pupils need to see the object or shape from every angle. It is impossible through textbooks. Besides, there are many shapes with different properties. To make sure pupils remember everything, teachers must implement visual or hand on experience. Therefore, to learn geometry pupils need something which can show a shape from every angle. This is where the use of MAR needed.

In Malaysia, technology has become a major component in the system of education. Technology-based learning is among the main areas of focus of Malaysia's education ministry because it is believed technology will improve the quality of education in our country. Moreover, our society is also obsessed with developments in technology in the area of education. There are a number of reasons why implementing technology in schools is so important in learning. One of the reasons is because digital learning makes this process more fun and user-friendly. 'Eyes function better than ears' is the mantra behind these instruments' widespread use. The use of graphics simplifies complex subject topics such as mathematics, biology, chemistry, physics. It increases the dedication and enthusiasm of the student and accelerates learning. Besides that, in the world of today, it is believed that using technology in classrooms has a positive influence towards the motivational level in approaching lessons and performance level of pupils.

Shape and space or geometry is an important component in the primary school mathematics curriculum. Geometry has many practical applications in real life, from the most common to the most advanced phenomena in life. Knowledge and skills in this topic and their application in related topics is useful in everyday life. Improving understanding in this topic helps pupils to effectively solve problems in geometry in future. At the same time, pupils can also improve their visual skills and appreciate the

aesthetic value of shapes and space. However, understanding shapes and solving geometry problems continues to be a vital part of Malaysia's elementary mathematical curriculum (Ministry of Education Malaysia, 2010).

According to Ozdamli, Dervis Karabey, Besime, Nizamoglu, 2012, Mathematics is not only for science, but it also plays an important role in solving the problems in our daily lives. Therefore, mastering in geometry is very important in the lower primary, particularly for the year 3 pupils. It is because in year 2 pupils learn to recognize the shapes only. When it comes to curriculum year 3, pupils need to identify the shapes in more detail. By the first grade, pupils begin to learn geometry concepts, and by the third grade, they are required to have learned knowledge and skills related to shapes and space such as recognising the properties of shapes and two dimensions (2D) and three dimensions (3D). The content of the topic gets difficult from year 3 onwards. Thus, having a good foundation from the basics is very important since there are a lot of geometric properties that have to be remembered by the pupils. In Geometry, it is important for pupils to visualize, and understand the construction of shapes in order to connect them with related facts (Shadaan et al., 2013). Therefore, pupils must be able to see a clear picture of the shapes to get a better understanding about the topic. Teachers, as the medium of dissemination, feel the mounting pressure to explore ways to facilitate the learning process for this topic. This is where Mobile Augmented Reality (MAR) comes in.

1.3 Problem Statement

In general, pupils associate solving geometry problems with learning new concepts and relationships. The teacher's interest, passion, and engaging instruction are also crucial for effective mathematics education and establishing a positive

perception among pupils toward mathematics. There are many elements that may be used to improve the efficiency of mathematics teaching and learning in schools such as teaching material, special tools, guidance as part of mathematics instruction, and so on. From the above, it is clear that those pupils and teachers who have been teaching-learning Mathematics have a variety of issues to cope with. Geometry is an important mathematical concept from the elementary level to the advanced stage. The main reason for quitting this topic in school and failing this topic is poor performance in mathematics. Geometry is the topic in mathematics that is blamed for pupils' failure and poor performance. According to the majority of pupils, geometry is the most boring and difficult topic of the mathematics subject.

Learning geometry is an important part of learning mathematics because it helps pupils to analyse and explain the world, they live in. According to Healy & Hoyles (2000), many researchers experimented with different teaching methods and found that geometry learners have serious problems. Healy and Hawes (1998), explain that geometric instructions are usually more complex than numerical operations. As an educator in a lower primary mathematics classroom, researcher faced the exact challenge in improving pupil's geometry knowledge.

Researcher have tried different strategies to motivate them to master the geometry topic including draw and colour the shapes and do origami for the shapes but the approaches were unsuccessful as pupils were more focused on colouring and not seeing the shapes visually. Researcher tried using a Quizizz game during geometry lessons, but most of them were jaded. According to Dunlosky et al. (2013), teachers should provide pupils with activities that are motivating and new to them. During a technology course Researcher was introduced with a Mobile Augmented Reality application for science subjects. To my surprise, all the participants enjoyed the class. This technique allows pupils to take initiative to explore more and increase motivation and confidence in performing. Therefore, this approach was chosen to be tried on my Year 3 pupils to improve their motivation and performance level in Mathematics.

1.4 Research Objectives

As mentioned, Industrial Revolution (IR) 4.0 has paved the path for a rising issue, the performance of pupils in mathematics. Thus, there is a need for teachers to go beyond the conventional methods and delve into the world of technology. This is where mobile augmented reality (MAR) comes in. Therefore, the objectives of this research are to:

- i. To investigate the pupils' motivational level when using Mobile Augmented Reality (MAR) in learning Mathematics.
- ii. To investigate the pupils' performance level when using Mobile Augmented Reality (MAR) in learning Mathematics.
- iii. To examine the relationship between pupils' motivational level and pupil's performance.
- iv. To identify the features that are difficult for the pupils to master the topic.

1.5 Research Questions

Guided by the research objectives stated earlier, this research aims to answer the following questions.

- i. What are the pupils' motivational level when using Mobile Augmented Reality (MAR) in learning Mathematics?

- ii. What are the pupils' performance level when using Mobile Augmented Reality (MAR) in learning Mathematics?
- iii. Is there any relationship between pupils' motivational level and pupil's performance?
- iv. What are the features that are difficult for the pupils to master the topic?

1.6 Purpose of the Study

The main objective of the study is to investigate the effectiveness of mobile augmented reality (MAR) as a teaching aid in improving pupils' motivational level and performance in mathematics. The finding will help to prove the effectiveness of mobile augmented reality (MAR) as a teaching aid in teaching Mathematics in the Malaysian primary school context.

1.7 Scope of the Study

This study focuses on the effectiveness of mobile augmented reality (MAR) in improving pupils' motivational level and performance in mathematics. In the context of this research, a total of 32 year 3 pupils in one primary school in Kota Tinggi, Johor have been identified as learners who have still not mastered the geometry topic where they required to recognise, describe and label prism and non-prism according to their geometric properties such as surfaces, base, vertices and edges which is known as one

of the important topics to be learned in Year 3 Mathematics. These learners are low performing learners in this topic because there are a lot of elements to remember. Therefore, this research is only focused on the subtopic mentioned even though there are few more subtopics. In addition, this research will use an available Mobile Augmented Reality (MAR) app which is known as 3D Shapes AR that have been identified by T.Zakeya Maki Al.Wedaie, (2019).

1.8 Conceptual Framework

The conceptual framework in this study was formed to illustrate the major aspects to be studied. The conceptual framework of this research is studying the effectiveness of Mobile Augmented Reality (MAR) to improve pupils' motivational level and performance in mathematics. Only one experimental group will be involved in this study. They will be tested after a pre-test. Pupils will be tested with an available Mobile Augmented Reality (MAR) app which is known as 3D Shapes AR that have been identified by T.Zakeya Maki Al.Wedaie. The effectiveness of this Mobile Augmented Reality (MAR) application can be seen through the dependent variable that is the increase of motivational level and performance of the pupils. Pupils' intrinsic motivational level only will be studied in this study. Besides, the pupil's overall performance and level of mastering the features of shapes after the use of Mobile Augmented Reality (MAR) also will be studied. In addition, it also will study the relationship between motivation level and performance after use of the MAR. Positive changes in the motivational level and performance level of pupils will indicate whether the Mobile Augmented Reality (MAR) application can help to improve the pupil's motivational level and performance level in Mathematics or not. Figure 1.2 show the overall research framework of this study.

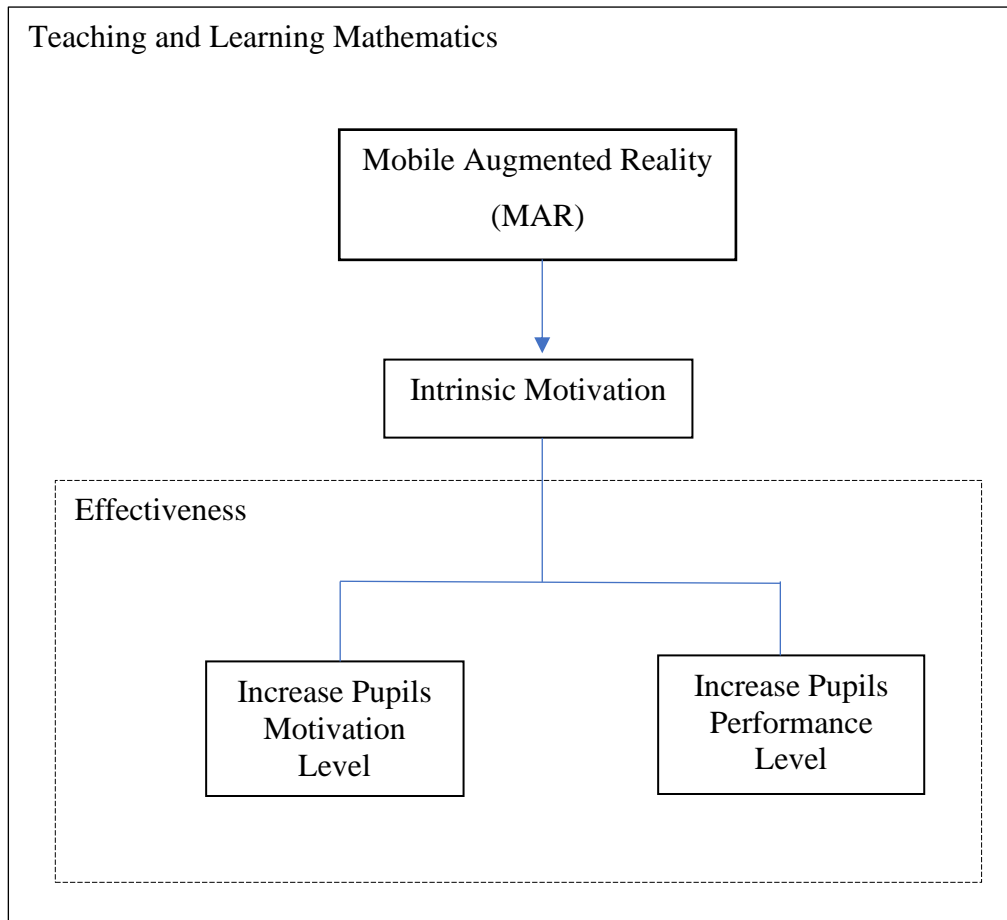


Figure 1.2: Research Conceptual Framework

1.9 Research Importance

This study sought to establish the effectiveness of Mobile Augmented Reality (MAR) to improve pupils' motivational level and performance in mathematics. Findings of this study will be helpful for pupils who are finding difficulties in learning geometry topic. Through this study, pupils will be exposed with a new teaching aid to learn geometry. Besides, it is hoped that the outcomes of this study will primarily contribute to the field of education, particularly lower primary education.

1.9.1 Pupils

This study will give an overview on the use of Mobile Augmented Reality in learning mathematics. Pupils will try to use Mobile Augmented Reality applications by themselves at home to learn geometry. Pupils will also perform well in their assessment. Besides that, the use of Mobile Augmented Reality application will motivate the pupils to participate in the teaching and learning process. Pupils will also take initiative to explore more on the topics. Indirectly they will show involvement in Mathematic class.

1.9.2 Educator

Advances in the Information and Communication Technology (ICT), changed the roles of teacher and learners. This study result will enhance educators' plan on teaching mathematics in a fun and effective way using technology. Educators will get an idea regarding the use of Mobile Augmented Reality in education. MAR applications are recommended for teaching mathematics as they are very practical and time saving with the presence of a teacher as a facilitator to monitor pupils' progress and clarify instructions. Besides, through this study, educators will learn that during use of MAR in lessons, pupils will be active participants in the learning process rather than being passive recipients. This will help the educator to motivate the pupils in class engagement and make the pupils learn the knowledge.

1.9.3 Ministry of Education (MOE)

The results of this study are expected to help Ministry of Education to come up with new teaching approach with the integration of Mobile Augmented Reality. Based on the result, it is believed that Ministry of Education able to make improvements by providing appropriate and effective teaching materials to assist pupils to learn Mathematics and can be supplied it to all teachers and schools throughout Malaysia.

1.9.4 Parents

This study is considered important for parents as well since parents are also playing an important part in educating their kids. Parents are human beings who are closer to the child than anyone else, and they are more responsible for the success of their children. According to Chris and Rosemary (2004), involvement, parental support, and the provision of appropriate learning resources can increase pupils' self-study abilities. MAR is a technology which can be used by anyone. Therefore, it is believed that parents can assist their kids at home through the app if pupils had difficulties with geometry when they're at home.

1.10 Operational Definition of Terms

The operational definitions of research terms have been described in this section. The terms defined are as follows:

1.10.1 Augmented Reality

Augmented reality (AR) is defined as technology which brings the real and virtual items together in a real environment with the use of digital visual elements, sound, or other sensory stimuli. According to Oxford Languages, Augmented Reality is a technology that visualises a computer-generated image over a user's perspective of the real world, creating a composite vision. Akçayır & Akçayır (2016), stated that Augmented Reality emerges between virtual and physical worlds. In this study, Augmented Reality is defined as viewing two-dimensional (2D) and three-dimensional (3D) shapes through the camera in a more real, customizable, and creative way.

1.10.2 Mobile Augmented Reality

Mobile Augmented Reality is a form of mobile application that includes and complements built-in components in a mobile phone, delivering a specialised application to offer reality-based services and functionalities (IGI Global). In this study, Mobile Augmented Reality is defined as an interactive application or tool used to improve a pupils motivation level and performance in Mathematics especially in geometric topic where pupils need to see and understand the shapes and properties such as number of flat surfaces, curves, edges, straight lines etc.

1.10.3 Geometry

According to Oxford Learner's Dictionary, geometry is defined as the branch of mathematics that deals with the measurements and relationships of lines, angles, surfaces, and solids. In this study, geometry is one of the topics studied by year 3 pupils in Mathematics. Pupils of year 3 will learn only one subtopic which is to sort two-

dimensional shapes and three-dimensional shapes according to their geometric properties of cube, cuboid, sphere, pyramid, cone and cylinder.

1.10.4 Effectiveness

The degree to which something is successful in producing a desired result; success (Oxford Learner's Dictionary of Academic English). In this study, effectiveness is defined as the efficiency of Mobile Augmented Reality to improve pupil's motivation and performance in learning Mathematics using Mobile Augmented Reality (MAR).

1.10.5 Motivation

Motivation is the feeling of wanting to do something, especially something that involves hard work and effort (Oxford Learner's Dictionary of Academic English). According to Hanus & Fox (2015), motivation is an internal force that can mobilize humans and prompt them to take action to achieve their goals. In this study, motivation is defined as an intrinsic reaction that will influence learning and performance of pupils. Intrinsic motivation is defined as motivation that is driven by interest or pleasure in one's own tasks and exists within the individual rather than being influenced by outside forces. Intrinsic motivation will also lead the pupils to explore the main ideas, topics discussed, how those ideas are closely related to others and so on (Alderson, 2000). This, study investigates pupils' intrinsic motivation level after using Mobile Augmented Reality application in Mathematics geometry topic.

1.10.6 Performance

Oxford Learner's Dictionary of Academic English defined performance as how effective something or someone is at doing a good job. Pupils' self-evaluation in understanding and knowledge obtained, skills developed, and their interest to explore more about the lesson is defined as learning performance by (Young et al., 2003). In this study, performance defined as pupils result before and after the use of MAR in teaching and learning.

1.11 Summary

This chapter has chronicled the background of the study and what it aims to achieve in its research. It has outlined the purpose of the study and presented the questions that need to be answered. The purpose of the study is to identify the effectiveness of Mobile Augmented Reality to improve pupils' motivational level and performance in Mathematics. Besides, this study also aimed to identify the relationship between pupils' motivational level and performance when using Mobile Augmented Reality (MAR) in Mathematics. The level of mastery of pupils in learning features of shapes also will be studied in this research. The chapter has also rationalized the significance of this study in terms of pedagogical approaches and how the findings will aid in the decisions of future policy makers. The next chapter will review the literature related to the importance of teaching literature and the elements that will tie the research questions with the methodology chosen.

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