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E-MODULE *ABRA-Maths* - EARLY MATHEMATICS LEARNING VIA MINI TENNIS

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ABSTRACT

Since play activities in the teaching and learning process in school can benefit children in terms of development, learning and motivation as well as fun to play, the researchers plan to introduce the technique of learning basic mathematics for children through a mini tennis game called *ABRA-Maths*. This technique can be a guide and guidance to instructors who will teach the basics of maths to children through tennis game practice. To ensure that *ABRA-Maths* learning techniques can be mastered among teachers through school activities, a systematic learning method is introduced. *ABRA-Maths* e-module is a digitally developed basic mathematics learning module aimed at helping teachers master basic mathematics teaching methods through tennis mini-games. The proposed e-module contains instructions and videos showing how the training process or activity should be carried out.

Keywords: ABRA-Maths, mini tennis, e-module, basic mathematics learning.

INTRODUCTION

In Datuk Dr Mohd Radzi Md Jidin's speech on 28 April 2021, the Primary School Achievement Test (UPSR) was completely abolished starting this year. With the abolition of the UPSR, the Ministry of Education Malaysia will strengthen Classroom Assessment (PBD) starting this year as a method of student assessment. Among the main reasons for the abolition of UPSR is to help teachers to focus more on students being in various fields while students will have various tendencies. In line with the decision of KPM, researchers from the

School of Quantitative Sciences, UUM took steps to participate in providing guidance to teachers based on the expertise possessed by academics in shaping the students' potential to strengthen the basics of mathematics through mini tennis training. Mathematics is often considered a difficult and boring subject for most children because its use in daily activities is not given proper emphasis. While the activity of playing through physical movement is the most preferred activity by children. Therefore, an approach should be taken to build a relationship between mathematics learning and physical activity such as games so that children can gain skills in both areas simultaneously and can save time, energy and human resource. To apply these two elements of learning to students, teachers play an important role in imparting relevant knowledge to students. Until now, there has not been a mathematics teaching module based on mini tennis training developed in Malaysia. Therefore, this study is proposed to complement the aspirations of the Ministry of Education Malaysia in promoting mathematics learning among students in the form of experiments or play activities such as STEM learning needs. The results of this study are expected to help the Ministry of Education Malaysia in applying a variety of skills to students in the early stages of their learning and act to help Malaysia in providing healthy human resources, intelligent thinking and have high mental and physical resilience.

Most researchers agree the use of games can improve the achievement of mathematics subjects among children (Radford, 2020; Reikeras, 2020; Tsamir et al., 2020). Tsamir et al. (2020) stated that games are a positive method in improving achievement. According to them, children who are given the opportunity to play have a clear purpose, use materials to solve problems and require action to achieve goals, give children opportunities to relate play materials and provide space for children to imagine. The study of Tirosh et al., (2020) use the effects of training and transfer the executive function of preschool children, they found that playing repetitive games can improve the memory of working children. Tennis is a sport that requires repetitive shot practice. Therefore, this study chooses the sport of tennis as a game related to this theory in addition to the researcher's expertise in this field of play. Now tennis has been innovated so that the children can acquire the basics of playing skills in a short period of time as early as 2-3 months. This effort was made by modifying tennis balls to be slower in movement and tennis courts for children to be smaller in size. Changes to the structure of this tennis sport to children are called mini tennis.



Figure 1. Mini Tennis for Kids

Studies involving children’s learning of mathematics through play are common but studies involving children’s learning of mathematics through the sport of tennis are a relatively new one. A game is a one off event while a sport is an event that involves continuous training to acquire the skills of the sport. This module applies mathematics learning along with tennis playing skills so that children are able to acquire both skills in a faster period of time. Result testing the effectiveness of the *ABRA-Maths* method were presented at the ‘International Conference of Computing, Mathematics and Statistics 2021, UiTM 3-4 August 2021.

In terms of tennis playing skills, RAHIM training method introduced by Rahizam (2017) in his PhD thesis is used. The RAHIM model emphasizes the concepts of R-Repetition, A-Attitude, H-High intensity, I-Independence, M-Movement. The combination of *ABRA-Maths* and RAHIM Training method has successfully produced two junior tennis players who have won the National level tennis singles champion. The e-module developed contains both *ABRA-Maths* techniques and RAHIM Training model.



Figure 2: Subject Achievement

ABRA-Maths

Since play activities in the teaching and learning process in school can benefit children in terms of development, learning and motivation as well as fun to play, the researcher plans to introduce the technique of learning basic mathematics for children through a mini tennis game called *ABRA-Maths*. This technique can be a guide and guidance to instructors who will teach the basics of maths to children through tennis game practice. *ABRA* is the abbreviation of the name of the founder of the children's tennis game training technique, namely Encik Abdul Rahim Bin Ismail, which was founded around the 1960s in Jitra, Kedah. The techniques practiced by him have proven successful in producing human beings with high self-esteem. These techniques will be absorbed according to the suitability of the current generation, technology and education.

ABRA-Maths E-MODULE

To ensure that *ABRA-Maths* learning techniques can be mastered among teachers who act as learning guides through school activities, a systematic learning method needs to be introduced. *ABRA-Maths* e-module is a digitally developed basic mathematics learning module aimed at helping teachers master basic mathematics teaching methods through mini

tennis games. The diagrams below show a portion of the e-module pages where each page contains instructions and a video showing how the training process or activity should be carried out.

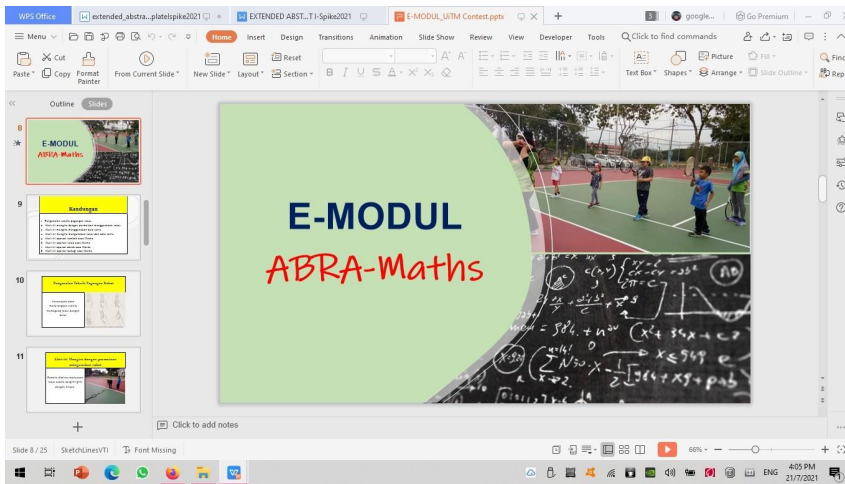


Figure 1. Front page E-Module ABRA-Maths

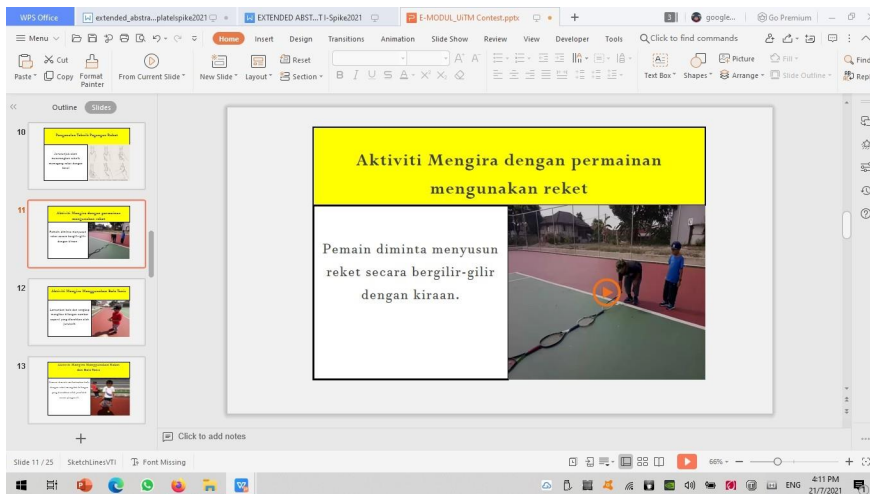


Figure 2. Page in E-Module includes instructions and video

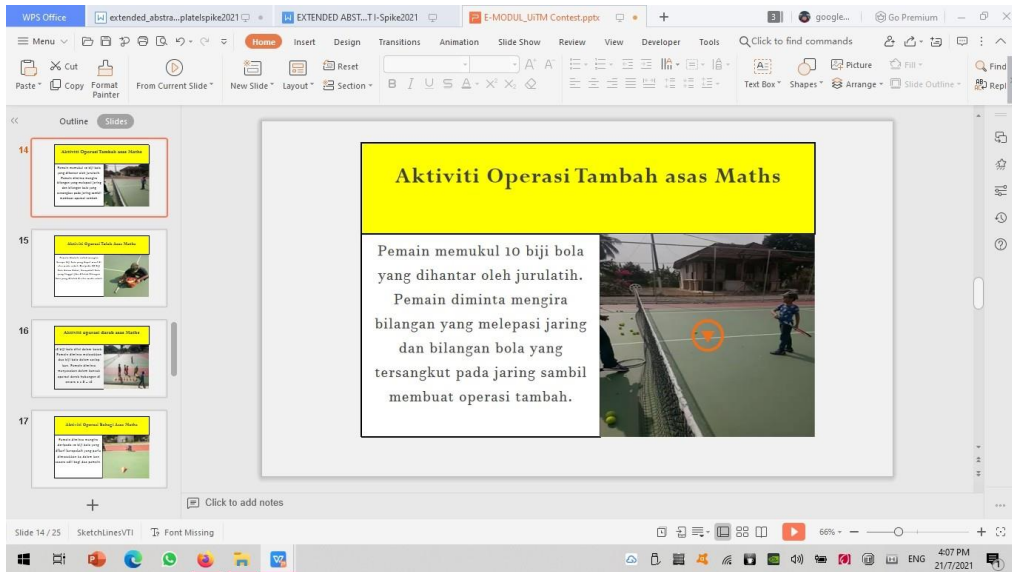


Figure 3. Page in E-Module includes instructions and video

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