

OOLALAMATHS:AN INNOVATIVE EDUCATIONAL MATHEMATICS CARD GAME FOR KIDS

Siti Rosiah Mohamed^{1*}, Norlaila Mohd Din², Nor Habibah Mohd Rosli³,
Roziana Bujang⁴, Ainun Hafizah Mohd⁵

^{1,5}*Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Pahang,
Bandar Tun Abdul Razak Jengka, Pahang, Malaysia*

²*Faculty of Accountancy, Universiti Teknologi MARA Pahang, Bandar Tun Abdul Razak
Jengka, Pahang, Malaysia*

^{3,4}*Faculty of Applied Sciences, Universiti Teknologi MARA Pahang, Bandar Tun Abdul Razak
Jengka, Pahang, Malaysia*

*Corresponding author: sitised2013@gmail.com

Abstract

Interactive learning in multiplication games is crucial among primary and secondary students to attract their interest in the learning process. Some of the students are weak in multiplication, which results in less interest in Mathematics subjects. The factors that contributed to this issue are the widely used of calculator device, the difficulty for students to memorize the basic multiplication numbers, the problem faced by the students to understanding the process or operation of calculation involved and also the traditional methods of teaching are less impressive. The objectives of the papers are to develop the enthusiasm of learning Mathematics using card games, to help students improve their focus and memory skills in multiplication subject and to share the card games ideas for learners and educators. The proposed game refers to Oolalamaths which was designed as an innovative perspective of learning while playing and memorizing. This game used as a teaching aid that was designed to help students acquire multiplication skill in a fun and easy way. The concept of this game is interactive learning, fun, and can be played in group. Oolalamaths consists of four Flashmaths Oolala multiplication table cards, 15 purple cards of the miracle of eleven, 20 green cards, 40 red cards and 12 green shape (geometry) cards that consist of figures that used to score in the games. The content of Oolalamaths helps students to master basic multiplication and other mathematical concepts. It is hoped that the design of the Oolalamaths educational game is useful and easily adopted not only for kids but also adults.

Keywords: interactive teaching aid, mathematics, multiplication

Introduction

Designing the mathematical multiplication teaching aids is aimed to stimulate the thinking ability, skills and to acquire new knowledge in the decision-making process. Tuning the strategies from traditional teaching to interactive education may develop the style of teaching in mathematics multiplication more exciting and also encouraging the students to understand the multiplication concepts in real life easily. It is also essential for their mathematics achievement to start from the beginning level to higher-level learning. Selvianiresa and Prabawanto (2017) stated understanding of early materials such as multiplication in Mathematics is one of the prerequisites in learning next materials. There are many teaching aid tools proposed by Mathematics educators in multiplication that students could use, learn and

interact physically. For example, they use board, pencils, dice, book, picture, maps, computer, audiovisual such as videos, radio, tape recorders, and others to help improve the learning of mathematics arithmetic.

In reality, especially in primary schools, many of the students are weak in multiplication topics and say they hate Mathematics. Mathematics is a complex subject because it includes a variety of different domains such as algebra, statistics, geometry, arithmetics and the list goes on. Ability to understand these may acquires a students to have basic abilities associated with the sense of memory, quantity, symbols decoding, logic and a lot more. Students with difficulties in any of the these abilities, may experience mathematical learning difficulties (Karagiannakis et al, 2014).

This perception can affects the students motivation, persistence and achievement that will contribute low interest in Mathematics (Zimmerman, Bandura & Martinez-Pons, 1992; Liu & Koirala, 2009). Therefore, many teachers and educators come up with several great ideas to overcome these issues. Some of the methods have been shared to teach multiplication such as flip some bottle caps, play multiplication war, have a back to challenge, play a round of baseball multiplication, put a mathematics twist on an old favorite, line up some dominoes, Roll'em Vegas style, Flash card, Bingo, Slapjack, multiplication wheel, multiplication star, lane up multiplication and others. With many creative educational methods introduced, it is hope that it can help the students to improve their number sense especially in solving multiplication number.

According to Jong et al. (2013) the activities of playing which include games can encourage the children to develop their logical thinking skill and understand the mathematical process. Therefore, due to these circumstances, this paper aims to introduce one of the excitements of mathematical interactive teaching aid which is called Oolalamaths card game. The game, Oolalamaths is created after there is an evidence that the conventional methods on learning multiplication rule has become unpopular among youngsters and the availability of the calculator make the skill of multiplication worst. The objectives of the papers are to develop the enthusiasm of learning mathematics using card games, to help students improving their focus and memory skills in multiplication subject and to share the Oolalamaths card game ideas for learners and educators.

Literature Review

Having a good basic in Mathematics at an early stage must be developed for children to acquire mathematical knowledge and problem-solving competencies (Douglas et al., 2016). Learning mathematics is good for the brain because in solving mathematical problems it involves cognitive tasks (Fauziah et al., 2019). The use of the educational game as an interactive learning tool is one of the right ways to improve students creative thinking skills especially in Mathematics. This educational game is expected to eliminate boredom and fear to learn Mathematics and facilitate the interesting learning process (Kartika et al., 2019). Conventional teaching methods such as chalk and talk method and reading text books, leads to a minima impact and in fact, the situation will not even be able to help improving the skills to think critically and creatively (Takim, 2014). Conventional learning methods could be replaced by more effective learning which it is hoped that it can improve student understanding. Nevertheless, the conventional teaching methods could be as effective as the other advanced methods because according to Vadakedath et al (2018), the key is the attitude of both the teachers and students to ensure the process of learning is fun and attractive which lead to success.

Teaching digital natives nowadays is challenging because they are born and raised in constant interaction with gadgets such as smartphones, videogames and others. Their learning process can be hindered if teachers especially those who are older generation are not considering the

significant differences on how information is accessed and processed (Esdras, 2018). One of the strategies that can be applied is teaching using a game. It offers greater engagement of students in classroom and helps in boosting their motivation (Luma et al., 2006; Marco et al., 2015; Esdras, 2018).

Hassan (2004) through his research also proved that student achievement increases when using learning aid in teaching and learning process. There are variety of internal and external factors that are often associated with student achievements such as personality, gender, socio-economic, interests, attitudes, motivation, learning styles and teaching methods (Ahmad et al. 2012). In fact, the use of the learning aid is expected to impact interest, fun and enthusiastic including improving student achievement in academics (Hassan, 2004). The use of learning aid in the learning aid process not only attracts students but it also can improve student understanding.

Research Methodology

Oolalamaths card games

Oolalamaths is colorful card game that consists of 40 red cards, 20 green cards, 8 purple cards of miracle of eleven, 19-geometry green card such as cylinder, cuboids, sphere, circle, and others and 4 Flashmaths Oolala multiplication table as a guideline for the students if they do not remember the basic multiplication number. Figure 1 below shows all the Oolalamaths cards and Figure 2 shows the multiplication table.

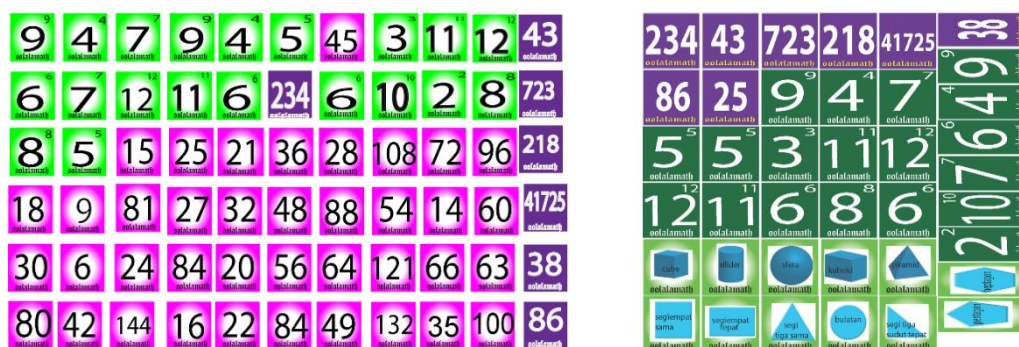


Figure 1 Oolalamaths cards

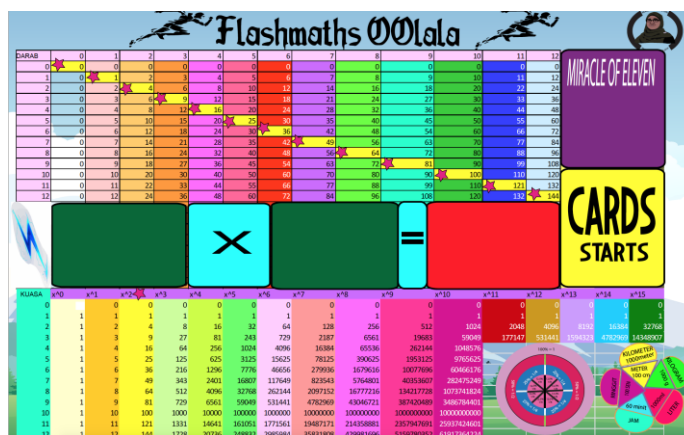
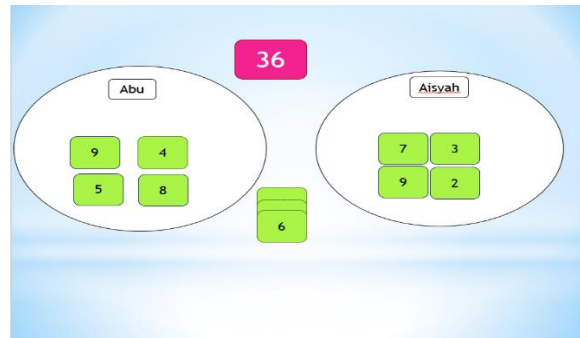


Figure 2 Flashmaths Oolala Multiplication table as a guideline for students

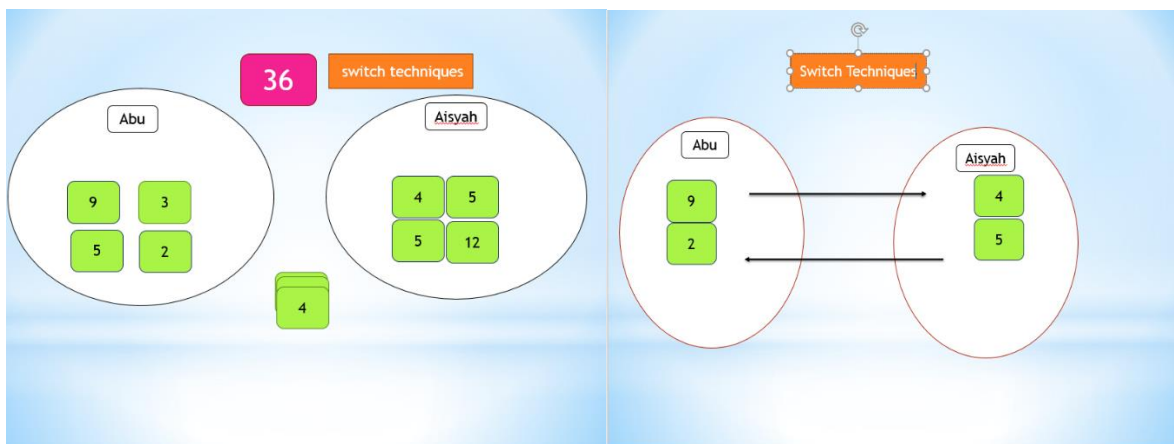
How to play Oolalamaths card games

The Oolamaths card game is suitable to be played by two and up to six players. The steps to play the card as shown below:



Step 1: Put green, red and purple cards in the space provided.

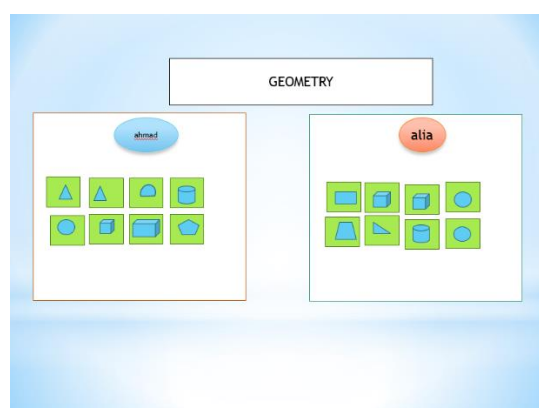
Step 2: The green cards will be distributed to all players evenly. The red and green cards will be ready to be taken by the winner. The groups of red card with particular number stated on it will be taken out randomly, then each player will try to match with their green cards number. The player with correct combination numbers on multiplication rule will win the red cards and also entitled one extra green cards from the groups of green cards.



Step 3: If the player has only one green card and another player has another green card, they can switch the cards between each other to get the right card at random.



Step 4: After all the red cards won by the plays, the next step is to play with purple cards with numbers. Each player must calculate the multiplication on the number stated on the purple cards with eleven. Any player who is able to calculate the multiplication of eleven will win the purple card. Each purple card has different numbers and the cards will be taken out from its group sequentially.



Step 5: When all the purple cards finished taken by success player then proceed with green shape(geometry) cards. The green shape card is where every player will take a turn to show all his shape cards to all players. Then the player will take at random 3 cards. The next player will take a guess which shapes on the 3 cards. If one shape is correct, the successful player will get all the shape cards and the process will continue to the next player.

In order to determine the winner, the marks earned by each player will have to be calculated. The green card is 1 mark, the red is 2 marks and the purple is 4 marks. The highest score is the winner.

The Implementation of Oolalamaths card games to enhance multiplication sense of children in school

The implementation of creative math game in improving the multiplication sense of children in school. Figures 3, 4, 5 and 6 are the documentation of the implementation of Oolalamath game.



Figure 3 Prototype of Oolalamaths Game.



Figure 4 View from the application among primary school children 1



Figure 5 View from the application among primary school children 2.



Figure 6 View from the application among university students.

Conclusion

Oolalamaths card game is an innovative teaching and learning method which includes problem solving, practice, memorizing and very useful in allowing students to improve their multiplication skills without having difficulty. The perceived fun learning Oolalamaths card game hopefully may have influenced a learner to focus on the development of knowledge and understandings the concept of multiplication without using a calculator. The Oolalamaths card game is useful and it could stimulate multiplication number sense among children not only for schools but also for home and community. However, the analysis of data regarding Oolalamaths card game cannot be shown in this paper as the first objective of having the workshop using Oolalamaths with the students who are weak in multiplication number and highly depend on the calculators in order to do the calculation is without data collection. Therefore, for future research, the analysis of data to showing the effective of Oolalamaths card game will be included.

Acknowledgement

The authors would like to thank Universiti Teknologi MARA Pahang for providing facilities to carry out the work and Ms. Norhidayah Md Yusof from Academy of Language Studies for the cooperation in making this research a success.

Conflict of interests

Authors hereby declare that there is no conflict of interests with any organization or financial body for supporting this research.

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