

Learning about Healthy Food through Interactive Game

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Abstract — Food education is very important to our life as it gives knowledge, skills and enables kids to make decisions on choosing the food that they must consume on daily life. Kids nowadays are not aware of their daily food consumption. Junk foods always be the favorites to the kids because of the flavor and some additional ingredients such as MSG that are added to the food. When the kids are addicted towards its taste, they might do not care about the quantity they consumed daily. Thus, Game of Food Block is created based on food pyramid and as an early education for kids to know about food pyramid. This interactive learning is created to entertain the children about the importance of a healthy lifestyle through food pyramid and spread the awareness about the bad of junk foods. Game of Food Block is one way to make food education become more fun and easier to learn especially for kids from the age of 3 to 12 years old because the fact says that kids learn faster than adult. This Food Block is the combination of puzzles and education, this method used because kids are highly attracted to the colorful images and moving media in games such as puzzle because it can develop problem-solving skills and strategies on how to solve the problems. This product is made for parents and teachers as a teaching tool to teach kids about the food education. Game of Food Block also can be the guideline for the kids to help them in their food consumption.

Keywords: food education, food pyramid, game, healthy lifestyle, kids.

I. INTRODUCTION

In accordance to National Review of Health and Morbidity (NHMS) III in 2016, one of every five children in Malaysia has nutritional problems. This problem caused by the over-eating and nutrient deficiency [1]. This is because most children only eat the foods that were given to them by their parents without knowing the nutrition contains in the foods. Moreover, children nowadays are picky in their food consumption and do not want to eat green foods because of its taste then only want to eat junk foods. Thus, parents

should teach the children to eat healthy foods based on food pyramid to their children [10]. This is because healthy foods provide energy and nutrients to the body and allows the body to function ideally. Children should eat up the right amount of nutrients, such as carbohydrates, protein, fats, vitamins and minerals, according to their age and have optimum growth [2].

In [3], Dr. Kurt Squire says studying games can contribute hugely in education sector to the digital age students. Digital age students consist of millennial and generation Z who have used comfortably internet and technology since very young age. Games also have particular potential in teaching and learning, comparing to other medium. Squire has no doubt that play implements the intellectual and social growth of the children for the long term and absorb into their learning repertory.

II. LITERATURE REVIEW

The findings from Malaysia's National Health and Morbidity Survey (NHMS) 2016 disclosed that there was still a high prevalence of stunting, 20.7%, and underweight, 13.7%, in youngsters below five years old, whereas the prevalence of overweight has magnified to 6.4% [1]. Poor eating habits comprise under- or over-eating, not having enough of healthy food we'd like daily, or overwhelming too many varieties of food and drink, that square measure low in fiber or high in fat, salt and sugar. Poor nutrition will impair our daily health, welfare and lessen the ability to guide a pleasant and active life. In the short period, poor nutrition will contribute to worry, weariness and our capability to work and over time. It will contribute to the chance of developing some diseases and different health issues, such as obesity, high blood pressure, high cholesterol and some cancers [4]. Thus, parents should actively care about their children's daily meals. Every meal

should contain every nutrient based on food pyramid, such as carbohydrate, protein, vitamin, and dairy products. This is because eating healthy food with the right amount can avoid serious illness and also avoid high amount of added salt or sugar in every meal. Other than avoid serious illness, eating healthily can help each child to lose weight and reduce the risk of chronic conditions. Moreover, unhealthy foods will lead to obesity, which can increase a human risk of developing cancer. Deliberation inside a healthful vary could cut back this risk [5].

In order to make children understand more about the healthy food, game-based learning principle is applied. Game-based learning (GBL) may be a branch of significant games that deals with applications that have been outlined learning outcomes. GBL balances subject material learning and game play with the objectives of retentive and applying aforementioned subject material within the world [6-7]. It has been agreed that children should not allocate each single second of their day by looking at a computer screen. Notwithstanding, education and online gaming actually are not enemies either. In fact, taking part in online plays is also one thing which may enhance a child's learning and development. First and foremost, games will increase a child's memory capacity as every child need to keep in mind aspects so as to resolve the game, memorize crucial sequences, or track narrative components. In addition, games also can help with fast strategic thinking and problem solving. This is because every child needs to exploit his/her logic to assume three steps ahead so as to unravel problems and complete each level. It will help the children later in their life as they develop their logic, accuracy and ability to determine on their own shoes and out of the box [8-9].

III. METHODS

Game of Food Block is described as interactive game because its combine of puzzles and education. As Dr. Kurt Squire says studying games can contribute hugely in education sector to the millennial and generation Z especially because they are more comfortable with advanced technology [3]. Thus, Game of Food Block can help the kids to understand about healthy food that they need to consume daily in order to avoid serious illness. Quantitative approach had been used in order to support this study. The questionnaires are given to the parents living in Peninsular Malaysia, as it is related to parents' opinion on this study of —Learning about Healthy Food through Interactive Gamel. As a result, 72 data have been collected and manually keyed in through SPSS version 22.0 then analyzed. The hypotheses were tested using frequency analysis.

IV. RESULTS AND FINDINGS

Respondents' Demographic Profiles

Table 1.1: Frequency and percentage distribution by demographic profile

Demographic	N	%
Gender		
Male	32	44.4
Female	40	55.6
Total	72	100

Age	N	%
3 years old and below	32	44.5
4 to 6 years old	18	25.0
7 to 9 years old	7	9.7
9 to 12 years old	15	20.8
Total	72	100

A total of 72 respondents participated in this study and has been summarized in Table 1.1 as above. The demographic for gender of respondents' child was female is 55.6 percent, while only 44.4 percent were male. For the age of the respondents' child are mostly 3 years old and below, holding 44.5 percent. 25.0 percent were 4 to 6 years old, 20.8 percent were 9 to 12 years old, while 9.7 percent were 7 to 9 years old.

Frequency Analysis

Table 1.2: Frequency and percentage distribution by questions

Questions	N	%
Have you ever experienced any interactive games on healthy food using gadget?		
Yes	31	43.1
No	41	56.9
Total	72	100
What is your opinion about learning from games through gadget?		
Strongly Agree	10	13.9
Agree	31	43.1
Average	19	26.4
Disagree	6	8.3
Strongly Disagree	6	8.3
Total	72	100
Do you agree Kementerian Pelajaran Malaysia should encourage teachers to be more creative to use games in teaching kids?		
Strongly Agree	23	31.9
Agree	29	40.3
Average	12	16.7
Disagree	4	5.6
Strongly Disagree	4	5.6
Total	72	100
Do you agree with some parents believing kids could not achieve the learning objective while playing interactive games?		
Strongly Agree	3	4.2
Agree	14	19.4
Average	26	36.1
Disagree	22	30.6
Strongly Disagree	7	9.7
Total	72	100

Table 1.2 summarizes the result of frequency and percentage by each question. When the respondents were asked about their experiences of interactive games on healthy food, majority had no experience which is 56.9 percent, while 43.1 percent has been exposed with this kind of interactive games. Next, they were asked about their opinions on learning from games through gadget.

43.1 percent of respondents agreed with the technology and 13.9 percent were strongly agree. However, there were 26.4 percent indicate average and there were equal percentage of respondents disagree and strongly disagree, which were 8.3 percent.

A further question is about parents' opinions if they agree that *Kementerian Pelajaran Malaysia* (KPM) should encourage teachers to be more creative to use games in teaching kids. Majority of the respondents were agreed to support KPM, 40.3 percent were agreed and 31.9 percent were strongly agreed. 16.7 percent indicate average and they were also 5.6 percent disagree and strongly disagree. Finally, only 4.2 percent respondents strongly agree with some parents that believe kids could not achieve the learning objective while playing interactive games and 19.4 percent were agree. It has been opposed by 30.6 percent that disagree and 9.7 percent were strongly disagree, however 36.1 percent indicate average.

V. CONCLUSIONS

Game of Food Block is the best alternative for the parents and educators to teach the millennial and generation Z about the healthy food through interactive game. The idea of Game of Food Block is related to the Industrial Revolution 4.0 where most activities are done by technology. The time that the kids spent on the gadgets is more beneficial as they will gain a new knowledge and also help them to have a healthy lifestyle through this interactive game. This interactive game requires effort, energy and time from all parents, educators and kids in order to fulfill the objectives of this project, Game of Food Block. Thus, it is important to teach our young generation to use technology wisely and bring the good impact to their life.

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