

PROCEEDING

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ISIRIEM 2015
University of Wijaya Kusuma
Surabaya

**INTERNATIONAL
SEMINAR**

**Resources, Environment, And Marine
In The Global Challenge**

**“The Role Of Science and Technology
In The Basis Of Environment
To Support Sustainable
Resource Development”**

DITERBITKAN OLEH:
Pusat Pengkajian Hukum dan Pembangunan (PPHP)
Fakultas Hukum Universitas Wijaya Kusuma Surabaya
Jl. Dukuh Keping XXV/54 Surabaya 60225 Telp.: 031-5677577
email: pphp.fh.wks@gmail.com



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WELCOME ADDRESS

Foreword of The Chair of Organizing Committee the 1st ISREM 2015

Assalamualaikum Warrahmatullahi Wabarakatuh
Good Morning.

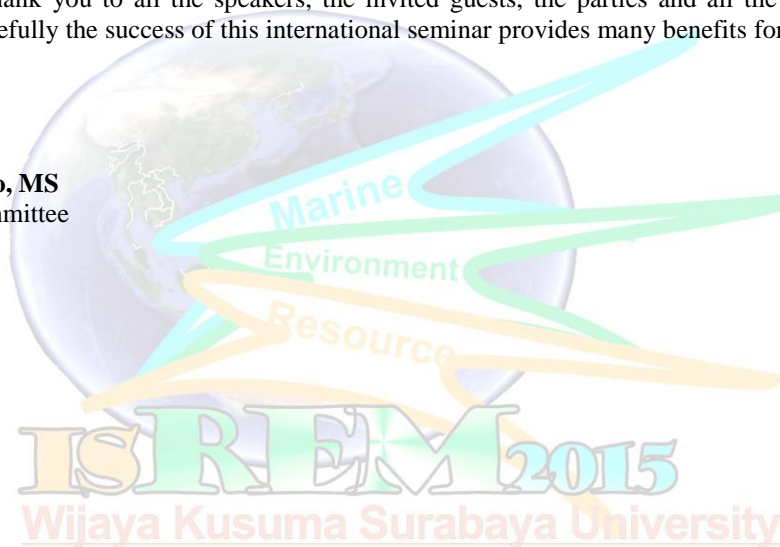
On behalf of the Organizing Committee, we congratulate dating to the speakers, the invited guests and all participants of the first International Seminar Resource, Environment and Marine (ISREM) held by Wijaya Kusuma Surabaya University.

Through the International Seminar, it is expected that there is intertwined interaction, communication and exchange of current research information so as to generate concepts and new thoughts on the role of science and technology in the basis of environment to support sustainable resource development. In addition to publication in the form of proceedings, the best papers presented at this international seminar, to be published in the international journal. The total in the first ISREM is 200 participants consisting of speakers, participants and invited guests.

Finally, we would like to thank you to all the speakers, the invited guests, the parties and all the donors who have supported this event and hopefully the success of this international seminar provides many benefits for us all.

Thank you
Wassalamualaikum Wr Wb

Dr. Ir. Hary Sastrya Wanto, MS
Chair of the Organizing Committee





Wijaya Kusuma Surabaya University, 29-30 September 2015

Rector of Wijaya Kusuma Surabaya

To honorable Ministry of Marine Affairs and Fisheries Indonesia.
To honorable Governor of East Java
To honorable Coordinator of Kopertis
To honorable Kapolda
To honorable Invited Speakers
To honorable Rectors
Ladies and Gentlemen

Assalamualaikum Warrahmatullahi Wabarakatuh
Good Morning.

Praised be to Allah SWT for His love and compassion that today we all gather for the first International Seminar Resource, Environment and Marine (ISREM) held by Wijaya Kusuma Surabaya University.

I would like to thank you for coming to this scholarly forum especially I would like to express my deepest gratitude to the Keynote speaker Ibu Susi Puji Astuti, Ministry of Marine Affairs and Fisheries who has spent time to attend and support this event. I wish to extend sincere gratitude to all respected delegates, invited speakers, presenters and participants for attending this seminar and for becoming our esteemed guests on this occasion. It is indeed a great honor for us to have you all at the seminar.

As we know, the theme "The Role of Science and Technology in the Basis of Environment to Support Sustainable Resource Development" is timely in order to address the issues and concerns about Resource, Environment and Marine in the Global Challenge. Indonesia includes one of the countries which own the biggest natural wealth in the world. If natural resource of Indonesia in mainland is combined with in the sea, so it is only Indonesia which has the biggest natural resources in the world. The utilization of the natural resources in Indonesia tend to economical aspect, while the aspects of ecology, biology, technology, and humanity is still limited. Whereas they have the very high economical value. For that reason, the International Seminar is the event of discussion on ideas, problems and solutions about resources, environment and marine as well as the information result of current research for scientists, observers, entrepreneurs, industrialists and policy makers. Thus, it will create the harmony the research activities with the problems and the real needs. This International Seminar is the 1st ISREM and it is hoped that the next year will be held again the 2nd ISREM and so forth with the specific target.

Ladies and gentlemen

In the same time of this event, it is also held directly MoU among all Higher Education supporting the First ISREM 2015 and it will be established ISREM network. We will cooperate about seminar/ conference, student and lecturer exchange, research together.

Finally, on behalf of Wijaya Kusuma Surabaya University, I would like to take the opportunity to extend my appreciation to the committee, all participants and all sponsors, that have generously assisted us to host this seminar. I hope that we all could gain benefits and insights through this seminar.

Thank you,
Have a wonderful and insightful seminar
Wassalamualaikum Warrahmatullahi Wabarakatuh.

Prof. H. Sri Harmadji., dr., Sp.THT-KL (K)

Rector of Wijaya Kusuma Surabaya University



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Wijaya Kusuma Surabaya University, 29-30 September 2015

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- Member : Staf of SATPAM





SCHEDULE OF AGENDA

TIME	ACTIVITY	PIC
07.30-08.00	Registration	Sections of Secretariat and Registration
08.00-08.20	- Opening Ceremony - The National Anthem of Republic of Indonesia	Sections of Receptionist and Protocol
08.20-08.30	Speech By Chair of The Organizing Committee	Sections of Receptionist and Protocol
08.30-08.45	Speech and Official Opening by Rector of Wijaya Kusuma Surabaya University, Indonesia	Sections of Receptionist and Protocol
08.45-09.45	KEYNOTE SPEAKER The Fishery and Marine Ministry of Indonesia: SUSI PUDJI ASTUTI	Sections of programs, formulator, and taking minute Coordinator
09.45-10.00	MOU (All Higher Education supporting the 1 st ISREM 2015)	Sections of Receptionist and Protocol
10.00-10.15	COFFEE BREAK	Section of Beverages and Meals
10.15-12.30	Invited Speaker	Sections of programs, formulator, and taking minute Coordinator
	Professor Dr. M. Dileep Kumar	
	Rexton F. Chakas, PhD	
	Professor Dr. Basri Rashid	
	Prof. Dr Ruswiati Surya Saputra, SE, MS	
	Prof. Dr. Ir. Achmadi Susilo, MS	
12.30-13.00	LUNCH	Section of Beverages and Meals
13.00-16.00	PARALLEL SESSION	Sections of programs, formulator, and taking minute Coordinator
16.00- Finished	COFFEE BREAK	Section of Beverages and Meals



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INTRODUCTION ENERGY MECHANICAL THROUGH EDUCATIONAL GAMES TO CALCULATE CALORIES SO THAT CHILDREN COULD AVOID DIARRHOEA

Sri Wulan Purwaningrum¹, Nia Saurina², Anang Kukuh Adisusilo³

^{1,2,3} Universitas Wijaya Kusuma Surabaya, Indonesia

¹ sriwulanpurwaningrum@gmail.com, ² niasaurina@gmail.com, ³ anang65@gmail.com

Abstract. Diarrhoea is a disease which still became problem in public health for developing countries, including Indonesia. East Java province have got 1st ranked who have quite high in diarrhoea's prevalence. In 2013 in East Java profile, children in 6-12 years aged got 3,301 children which get diarrhoea.

Purpose of this research is to create media learning base on multimedia in the form of Game Education for children in particular Primary School. Through this game, children can get visualization the energy mechanical needed in their activity. Children can know relationship about speed, time and distance to produce energy mechanical. The activity are given in this game are cycled.

Results of this research is to give lesson to children that cycling with a maximum speed of 20 km / hour by pressing the keypad continuously. Every 60 seconds, game has shown bring a good choice of food and drink hygienic and unhealthy. The child can choose food and drink, and game will calculate the calories of healthy foods chosen by the child of 2.5 cal / kg / hr. The longer a child cycling, the greater the required health level. If the child does not take health foods and drinks, game will automatically display the child with diarrhoea. Conversely, if the child choose healthy foods and beverages that children can complete the game properly.

Keywords: educational game, children, calories, diarrhoea.

Introduction

Diarrhoea, including that of parasitic origin, remains one of the most common illnesses among children and, as reported by the World Health Organization, is one of the major causes of infant and childhood mortality in developing countries (Boschi-Pinto:2008). Diarrhoea is a major cause of childhood morbidity and mortality in socio-economically developing countries. More than one million episodes of Diarrhoea occur every year among children under five years of age causing approximately 2.5million deaths (Kosek M:2003) Various microbial agents have been incriminated in Diarrhoea among which are enteric bacteria, parasites and viruses. Candida, Trichosporon and Geotrichum are fungi that have been reported to cause Diarrhoea. Different groups of viruses have been showed to be responsible for the high incidence of acute viral Diarrhoea among children during their first years of life (Giordano M.O:1990). These viruses include rotavirus, norovirus, adenovirus and astrovirus. The contribution of the various pathogens to Diarrhoea may differ substantially between regions depending on local meteorological, geographic and socio-economic conditions. Underlying reasons for the spread of diarrheal diseases are found in poor hygiene and sanitation, limited access to safe drinking water as well as inadequate education of health care providers and recipients.

In children, intestinal parasitic infections, particularly soil-transmitted helminthiasis is the cause of common health problems in tropical countries. Younger children are predisposed to heavy infections with intestinal parasites since their immune systems are not yet fully developed (O'Ryan M:2005), and they also habitually play in faecal contaminated soil. In addition to considerable mortality and morbidity, infection with intestinal helminths has been found to profoundly affect a child's mental development, growth and physical fitness while also predisposing children to other infectious agents. Several factors like climatic conditions, poor sanitation, unsafe drinking water, and lack of toilet facilities are the main contributors to the high prevalence of intestinal parasites in the tropical and sub-tropical countries (Giordano M.O:1990). Further, lack of awareness about mode of transmission of parasitic infections increases the risk of infection. Hence, a better understanding of the above factors, as well as how social, cultural, behavioural and community awareness affect the epidemiology and control of intestinal parasites may help to design effective control strategies of these diseases.

Diarrheal diseases are leading cause of preventable death, especially among children under five in developing countries. Diarrheal is defined as a child with loose or watery stool for three or more times during a 24-hour's period. The frequency and severity of diarrhoea is aggravated by lack of access to sufficient clean water and sanitary disposal of human waste, inadequate feeding practices and hand washing; poor housing conditions and lack of access to adequate and affordable health care (Kosek M:2000). Studies have been conducted in the past to establish risk factors of diarrhoea. Study conducted in Egypt showed that some socio-demographic characteristics like maternal age and child's age are some determinant factors for the occurrence of episode of diarrheal disease (O'Ryan M:2005) Similarly, study in Ghana showed that water availability, sanitary facilities, hygienic practices, flies infestations and regular consumption of street food are also some predicting factors for the occurrence of diarrheal disease (Henry

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F.G:2004). In Ethiopia, Yohannes and his colleagues found the incidence of diarrhoea to be higher in the second half of the infant's life when inborn immunity is weak and exposure to contaminated weaning foods increases (Babaniyi O.A:1991). Diarrheal diseases account for 1 in 9 child deaths worldwide, making diarrhoea the second leading cause of death among children under the age of 5. For children with HIV, diarrhoea is even more deadly; the death rate for these children is 11 times higher than the rate for children without HIV. Despite these sobering statistics, strides made over the last 20 years have shown that, in addition to rotavirus vaccination and breastfeeding, diarrhoea prevention focused on safe water and improved hygiene and sanitation is not only possible, but cost effective: every \$1 invested yields an average return of \$25.50 (Boschi-Pinto:2008).

One of the biggest causes of child mortality in Indonesia is diarrhoea, which can be prevented with lifestyle clean and healthy as washing hands with soap and brush your teeth. Based on Profile Healthiness in Province of East Java on 2012 shows that 64% of Indonesia children under 12th years get diarrhoea, this condition made Indonesia got 13th level cause of death in the world (Talwar O:1990).

Educational games are developed for many domains, such as social sciences, math, language arts, physics, biology, and logic (Wilhelm I:1990). The question of how effective educational games (including electronic educational games) are has led to many discussions regarding whether and how these games can assist traditional classroom instruction in order to help kids learn while they play in their leisure time. However, only few educational game designers claim that their games are really effective in education, and even fewer support these claims with results from formal empirical studies [10]. Children like learning with fun. Educational game is one of the way to give education to children. However their no study to made educational games to give visualization for children how to prevent children have healthy lifestyle so they are spared from diarrhoea. This research is to made educational game and focused to give knowledge about calorie's needed in the form of educational game.

Literature Review

2.1 Diarrheal

Diarrhoea and malnutrition are known to have a bi-directional relationship, that is, they are potentially causing each other. Diarrhoea may lead to malnutrition due to reduced dietary intake, mal-absorption and mal-digestion. On the other hand, malnutrition may cause and worsen diarrhoea and other infections due to a weakened immune system (Nel, 2010). It has been suggested that poor nutritional status is a risk factor of diarrhoea (Chowdhury et al., 1990; Chen et al., 1981; Schorling et al., 1990). A pooled analysis of nine cohort studies from different countries also indicated that a higher cumulative burden of diarrhoea prior to 24 months of life was associated with an increased prevalence of stunting at 24 months of age (Checkley et al. 2008).

The data suggest that malnutrition is associated with an increased risk of death from diarrhoea and that the risk varies by type of diarrhoea (Table 1). All of the community-based studies reported an increased risk of mortality from diarrhoea among children who had low weight for their age (10–15). A dose–response relation was reported in the studies from India (10, 11), the Philippines (15), and Sudan (13), where the child’s weight for age was stratified into multiple categories. The study in the Philippines also included age-stratified data and reported that the highest risks of mortality from diarrhoea associated with malnutrition occurred among children aged 6–11 months. In the study in Sudan, the risk of mortality was inversely related to children’s height for age and weight for height. A similar trend between malnutrition and an increased risk of mortality was observed in some, but not all, of the hospital-based studies (16–31). These studies examined a range of outcomes, including deaths from isolated diarrhoea, from non-bloody diarrhoea, and from dysentery. Eleven of the 16 studies were conducted in Bangladesh, India, or Pakistan. Most reported malnutrition using a dichotomous classification of the percentage of the median weight for age or weight for height. Estimates of risk varied with one of the highest point estimates (an odds ratio of 8.9) reported in the case–control study of deaths from dysentery in Bangladesh (26).

Table 1. Effectiveness of specific interventions against risks of diarrheic diseases (Curtis & Cairncross 2003)

Intervention	Reduction in diarrhoeal risk (%)
Hand washing with soap	47
Sanitation	36
Hygiene promotion	35
Improve water quantity	20
Improve water quality	16

2.1 Calories Needed For Children

Children aged 7-10 years old need lots of energy and nutrients because they’re still growing. The amount of energy that food and drink contains is measured in both kilojoules (kJ) and kilocalories (kcal) and is commonly referred to as calories.

A healthy balanced diet for children aged 7-10 should include:

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- at least five portions of a variety of fruit and vegetables every day
- meals based on starchy foods, such as potatoes, bread, pasta and rice (choose wholegrain varieties when possible)
- some milk and dairy products (choose low-fat options where you can)
- some foods that are good sources of protein, such as meat, fish, eggs, beans and lentils

School-age children need about 1,600 to 2,500 calories per day. Children between the ages of 5 and 6 need 41 calories per pound of body weight, and those between 7 and 11 need 32 calories per pound. Don't worry too much about your child not eating enough, since children this age usually eat when they are hungry. Serve healthy foods and encourage your child not to eat too many calories if they start to gain extra weight.

Table 2. Calories Needed Each Day for Boys and Man (Curtis & Cairncross 2003)

Age	Not Active	Somewhat Active	Very Active
2–3 years	1,000–1,200 calories	1,000–1,400 calories	1,000–1,400 calories
4–8 years	1,200–1,400 calories	1,400–1,600 calories	1,600–2,000 calories
9–13 years	1,600–2,000 calories	1,800–2,200 calories	2,000–2,600 calories
14–18 years	2,000–2,400 calories	2,400–2,800 calories	2,800–3,200 calories
19–30 years	2,400–2,600 calories	2,600–2,800 calories	3,000 calories
31–50 years	2,200–2,400 calories	2,400–2,600 calories	2,800–3,000 calories
51 years and older	2,000–2,200 calories	2,200–2,400 calories	2,400–2,800 calories

Table 3. Calories Needed Each Day for Girls and Women (Curtis & Cairncross 2003)

Age	Not Active	Somewhat Active	Very Active
2–3 years	1,000 calories	1,000–1,200 calories	1,000–1,400 calories
4–8 years	1,200–1,400 calories	1,400–1,600 calories	1,400–1,800 calories
9–13 years	1,400–1,600 calories	1,600–2,000 calories	1,800–2,200 calories
14–18 years	1,800 calories	2,000 calories	2,400 calories
19–30 years	1,800–2,000 calories	2,000–2,200 calories	2,400 calories
31–50 years	1,800 calories	2,000 calories	2,200 calories
51 years and older	1,600 calories	1,800 calories	2,000–2,200 calories

2.2 Educational Game (eduGame)

Contemporary approaches to game-based learning consider the matching of learning content and game genres, the learning principles that games incorporate, the design of educational games and simulations, the effectiveness, sources, and institutional usage of games, and the design of meaningful play in games. However, these approaches have predominantly focused on the schools, higher education, corporate, and military sectors. The design and pedagogy of games for early childhood presents unique challenges not relevant to other sectors. The predominant and overarching challenge being the developmental level of learners in this age group. The developmental level of learners impacts both the pedagogical approaches that can be used as well as the learning tasks that can reasonably be presented. When considering developmental levels it is important to consider both the innate variability of development between individuals, and also the multiple types of development including cognitive, psychomotor, emotional/social, and psychosexual. To further compound this challenge the types of development can have strong interdependencies such as where psychomotor development can impact social and cognitive development, e.g. muscle development affecting speech and consequent social engagement.

The distinction between play and games is indicated below in Figure 2 whereby games are a form of play with rules. Of the many definitions of what a game is, that offered by below covers the key constituents of conflict, rules, and goals. “A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.”

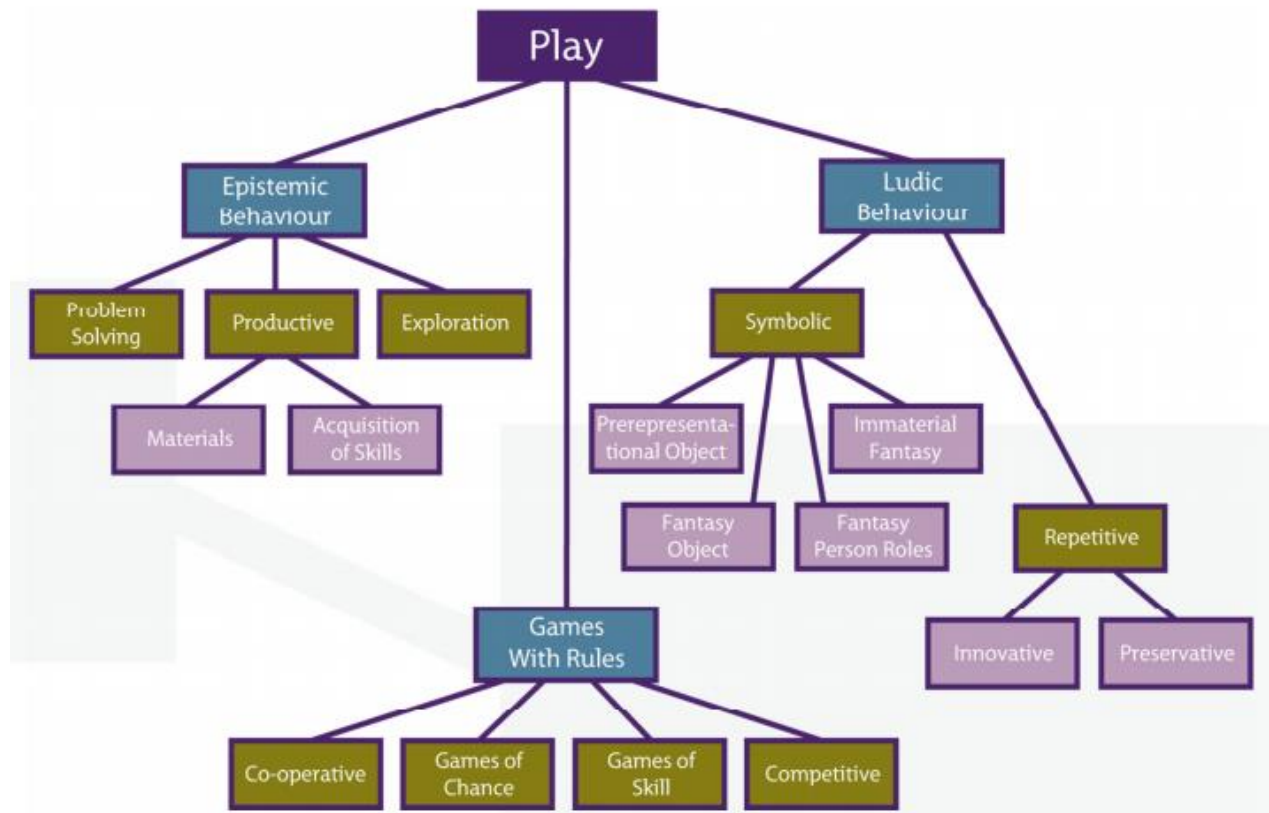


Figure 1. Proposed Taxonomy of Children’s Play (Salen, 2003)

Although the definition of a game is clear, how the conflict, rules, and goals are manifested to leverage the benefits of play, are not. Play in early childhood is known to perform an important role in learning. It is significant in cognitive, psychomotor, emotional, social, and psychosexual development, as is considered in the following sections. However, the transition of these play benefits to digital game-based learning presents questions as to the content areas addressed, appropriate gaming strategies employed, and the underpinning pedagogies applied. In the following sections these questions are addressed with particular reference to the impact of developmental level on the pedagogy and design of educational games.

3. Research Method

Most foods and drinks contain calories. Some foods, such as lettuce, contain few calories (1 cup of shredded lettuce Consuming a healthy diet throughout the life course helps prevent malnutrition in all its forms as well as a range of no communicable diseases and conditions. But the increased production of processed food, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars or salt/sodium, and many do not eat enough fruit, vegetables and dietary fibre such as whole grains has less than 10 calories). Other foods, like peanuts, contain a lot of calories (½ cup of peanuts has 427 calories). Estimated amounts of calories needed to maintain energy balance for various gender and age groups at three different levels of physical activity. The estimates are rounded to the nearest 200 calories and were determined using the Institute of Medicine equation, as seen in Table 3.

Table 3. Calories Needed For Children

Age	Weight (kg)	Height (cm)	Calories Need (gr)
0-6 months	6,0	60	10
7-11 months	8,5	71	16
1-3 years	12,0	90	25
4-6 years	17,0	110	39
7-9 years	25,0	120	45

Cycling is the third most popular recreational activity in the world. An estimated 3.1 million people ride a bicycle each month. As a form of exercise, cycling has broad appeal. Toddlers, pensioners, the able-bodied or people with disabilities can all enjoy cycling if they have the right equipment. Read our guide to cycling for beginners, which includes tips on staying motivated. Cycling is one of the easiest ways to fit exercise into your daily routine because it's also a form of transport. It saves you money, gets you fit and is good for the environment. It's a low-impact type of exercise, so it's easier on your joints than running or other high-impact aerobic activities. But it still helps you get into shape. For example, someone who weighs 80kg (12st 9lb) will burn more than 650 calories with an hour's riding, and tone their legs and bottom. If you ride up hills or off-road, you'll also work your upper body. The best way to build your cardiovascular fitness on the bike is to ride for at least 150 minutes every week. This research choose cycling to give visualization about calories needed for children as seen in Figure 2.

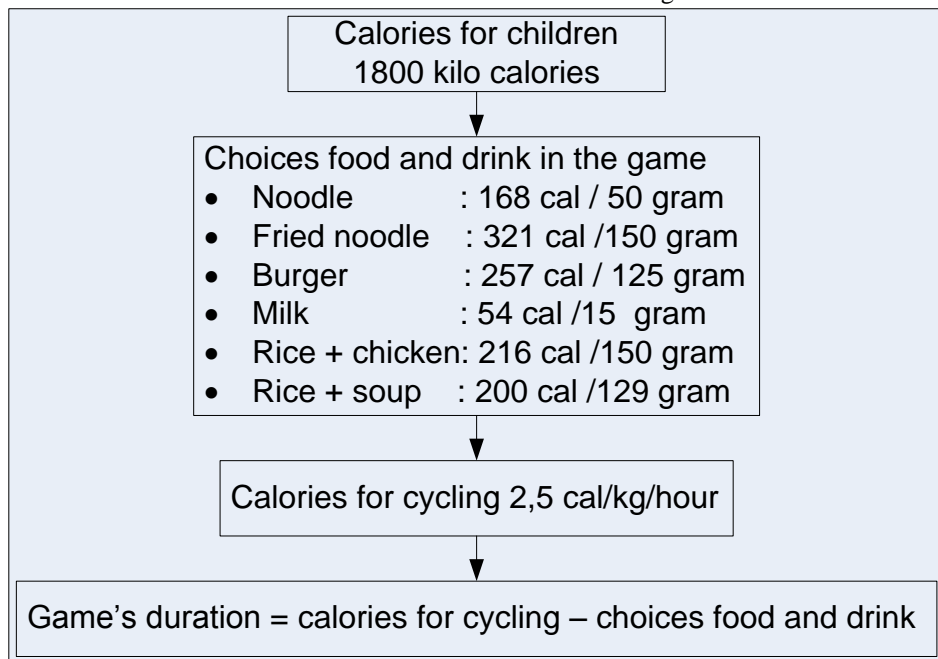


Figure 2. Research Method

Discussion

This section discuss the implementation of educational game. Figure 3 shows the child as players can choose foods and drinks that appear on the screen monitori when they play. The child can press the space bar to move the characters begin play. Food and beverage options that exist in the game is noodles, rice, fried chicken, vegetables. If children choose healthy foods that children get a high-calorie protein. But if children choose unhealthy foods or fast then the game will not last long, this is because the fast food choices have a low protein.



Figure 3. Cycling Game

Figure 4 shows the child can finish the game well. This can happen if players choose nutritious foods and beverages or high protein. The duration of the game adjusted to the maximum distance that can be performed by children aged 7-8 years, which is 5 kilometres and visualized in this game as the length of the game is 10 minutes, with 2 minutes long game equivalent to 2 kilometres distance of cycling.



Figure 4. Finish the Game

Conclusion

This research has conclusion:

- The number of calories needed for cycling children was 2.5 calories / kg / hour.
- Mileage maximum of 7-8 years old children riding a bike is a maximum of 5 kilometers, and in this game is visualized with an old game for 10 minutes indicating 2 minutes to 1 kilometer.
- The game can provide visualization on calorie needs required for children, where children can choose a selection of food and drinks provided. Every food and beverages provided always adds to the needs of calories needed by children to continue cycling.

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Relation of Jouvenile Knowledge Level About Danger of Smoking on their Behavior of Smoking

Dini Mei Widayanti, M.Kep

ABSTRACT

Smoking are toxic substances which give the effect of suggestion relaxed and feel more manly. Behind the usefulness and benefits of cigarettes contained a very big danger for people who smoke and those around smokers who are not cigarettes. The aim in the study was to determine the relationship between the level of adolescent knowledge about the dangers of smoking and smoking behavior.

In this study used the type of *observational analytic* research with *cross sectional* approach . The sample obtained by simple random sampling was 85 teen respondents. The independent variable is the level of adolescent knowledge about the dangers of smoking, the dependent variable is smoking behavior in adolescents. The research instrument used a questionnaire. Data were analyzed by *Spierman Rank (Row)* statistic test $p < 0.05$.

The results of the study showed that from 85 respondents whose level of knowledge was obtained most of the knowledge was lacking, namely 65 respondents (76.5%), while the behavior of light smokers was 65 respondents (76.5%). These results indicate that there is no relationship between the level of adolescent knowledge about the dangers of smoking and smoking behavior with the results of the *Spierman Rank (Row)* test $p = 0.334$.

The conclusion of this study is that there is no correlation between adolescent knowledge on the dangers of smoking and smoking behavior. It is hoped that smokers pay more attention to health, by changing the behavior of smoking.

Keywords: Knowledge of adolescents about the dangers of smoking, and smoking behavior.

Background Problems

Smoking is a cylinder of paper measuring around 120 millimeters with diameter about 10 millimeters which contains tobacco leaves that have been chopped (Hall, Elizabeth Lisa: 2010). Because where are people often found smoking, men, women, small children - elderly, rich - poor, are no different. Usually cigarettes are sold in a box-shaped package or paper packaging that can be easily inserted into the bag. Since the last few years, the package is generally accompanied by a health message that warns smokers of the dangers that can be caused by smoking, such as lung cancer or heart attack (Trim, Bambang: 2006). But in reality there are still many teenagers who smoke in the Bulak village.

Based on data from the World Health Organization WHO (*World health organization*) in 2008, mentions some of the 2/3 of smokers live in 10 countries. At present, Indonesia in 2003-2005 was the largest country of the three cigarette users after China and India. In 2005 there were 5.4 million deaths from smoking or an average of one death every 6 seconds. Even in 2030 it is estimated that the number of deaths will reach 8 million. According to Notoatmodjo (2003: 17), knowledge is a person's response to stimuli or stimuli that are still veiled, while a person's real actions that have not automatically materialized in response to a stimulus are *overt behavior*. Knowledge itself is influenced by the level of education, where health knowledge will influence behavior as a medium-term outcome (*intermediate impact*) of health education, then health behavior will affect the increase in public health indicators as output from education. besides that, work, age, interests, experience, culture of the environment, information, and

economy. From the interviews of teenagers who stated about the dangers of smoking, interviews were conducted with 10 teenagers who smoked data obtained 40% of adolescents' knowledge about the dangers of smoking, (30%) lack of adolescent knowledge about the dangers of smoking, and (30%) sufficient knowledge of the dangers of smoking.

According to Skinner (1938) cited by Notoatmodjo (2005), behavior is an activity or activity of an organism or living organism that is related. Thus human behavior occurs process: stimulus → organism → response. He also explained that behavior (human) is all activities or human activities, both those that can be observed directly and which cannot be observed by outsiders (Notoatmodjo, 2003). while factors - factors that influence smoking behavior are the influence of parents, influence of friends, personality factors, social factors, and social influences. Smoking activities in the environment stimulate teenagers to try the same thing in order to be accepted as members of the environment (Trim, Bambang: 2006). The loss caused by the skirt is very much for health, because in the content of cigarette smoke there are 4000 dangerous chemicals for health, and at least 200 of them are stated to be very dangerous for health. Toxins and carcinogens that arise from burning tobacco can lead to cancer. At first cigarettes contain 8-20 mg of nicotine and after being burned nicotine which enters the blood circulation is only 25 percent. However, this small amount has only 15 seconds to get to the human brain. Nicotine is received by the acetylcholine-nicotinic receptor which then divides it into the reward pathway and the adrenergic pathway. This is what causes smokers very difficult to leave cigarettes, because it is dependent on nicotine. The negative effects of smoking have actually begun to be felt when people

are just starting to smoke cigarettes. In cigarette smoke that smolders from being sucked, tobacco burns imperfectly to produce CO (carbon monoxide), which is in addition to its own smoke, tar and nicotine (which also happens from burning the tobacco) inhaled into the airway. CO, Tar, Nicotine affects the nerves that cause anxiety, trembling hands (*tremor*), and reduced appetite. Various diseases ranging from damage to mucous membranes to malignancies such as cancer can be caused by smoking behaviors such as lung disease, coronary heart disease, impotence, cancer (skin, mouth, lips and congestion), damage the brain and senses (Tri, Bambang: 2006). Smoking behavior that has become their habit is to use cigarettes at all not because of controlling their feelings, but because it really has become a routine habit. Feelings of adolescents when smoking and after smoking are enjoyable, satisfied, calm, ordinary, relaxed, warm, bitter, confident, stylish, sleepy, headache. Factors that influence adolescent smoking are the influence of parents, influence of friends, personality, psychosocial influences, and environment. There are also other factors such as social needs, ease of getting cigarettes, relatively low prices, pocket money, far from family. There are two kinds of effects that affect adolescent smoking, namely the physical impact and psychological impact. The impact of physical smoking on adolescents is the risk of lung cancer, heart attack, stroke, risk of infertility, impotence, early menopause, tooth spots and bad breath. Then the psychological impact of smoking on adolescents is the concentration and learning disorder, dependence, crisis of confidence, poor time management and finance, opening up other bad habits (Trim, Bambang: 2006).

To overcome the problems faced by researchers in an effort to reduce

the number of smokers, besides providing knowledge about the dangers of smoking that can reduce the quality of life due to cigarette use, and adolescents from encouraging the influence of advertising and environment for the initiation of use and dependence on smoking, alertness, raising awareness, ability and community activities against the health hazards of using cigarettes). In these cases the relationship between adolescent knowledge about the dangers of smoking and smoking behavior is closely related because both are related to one another, and influence each other for teenagers who smoke. Community health efforts are to stop smoking so as not to interfere with health and exercise regularly. If we think for a moment, the characteristics of the smoker described earlier may be true. However, before getting to know the characteristics of smokers more deeply, we should first know about the types of smokers. In general the type of smoker is divided into two according to the book written by the Hall, Lisa Elizabet (2010: 45), namely active smokers and passive smokers. Active Smoker is someone who really has a smoking habit. Smoking has become a part of his life, so it feels bad if you don't smoke a day. Therefore, he will do anything to get cigarettes, then smoke. While the number of cigarettes smoked can be in units of rods, packs, pack per day. According to Mu'tadin (2002) Smokers can be divided into 4 groups, namely: a. Light Smoker : Light smokers are called that is when smokers spend about 10 cigarettes a day. b. perokok Medium: ie when cigarette smokers spend around 11-21 stems in a day. c. Smokers It is heavy if smokers spend about 21-30 cigarettes a day. d. Smokers are very heavy that is, if the smoker spends > 31 sticks in a day.

According to Sitepoe, if a cigarette is spent in ten times the smoke, then within a year smokers of a number of sticks (one

pack) per day will experience 70,000 smoked cigarettes. Some chemicals in cigarettes that are harmful to health are cumulative (stockpiled), one day the dose of poison will reach a toxic point so that symptoms will begin to appear (Suheni, 2007).

The purpose of this study was to analyze the relationship between the level of adolescent knowledge about the dangers of smoking and smoking behavior.

Materials and Methods

The design of this study was analytic observational with a cross sectional approach .

The population in this study were all adolescents in BulakRukem Timur Rw 07, Bulak Subdistrict, Bulak Subdistrict, Surabaya as many as 108 people in September 2015 with 85 respondents with criteria for adolescents aged 15 - 20 years, at least elementary education and active smokers

The variables of this study were the level of adolescent knowledge about smoking and smoking behavior in adolescence.

Operational definition

The instrument used in this study is a questionnaire to assess the level of knowledge of adolescents about the dangers of smoking which contains 15 questions about the dangers of smoking using said

good assessment criteria with a score of $\geq 76-100\%$ given code 3 , said to be enough with a score of $\leq 56-76\%$ given code 2 , and a score of 0-55% was stated to be lack of knowledge given a score of 1 and a questionnaire to assess meokok behavior as measured by the number of cigarettes consumed by teenagers in 1 day. To assess smoking behavior: light smokers: spend 10 cigarettes / day, moderate smokers: spend 11-21 cigarettes / day, heavy smokers: spend 21-30

cigarettes / day, smokers are very heavy: spend > 31 cigarettes / day.

Research result

1. Age of Respondents

Based on the data mentioned from 85 respondents there were 60 people (70.6%) aged 19-22 years, 25 people (29.4%) aged 15-18 years.

2. Education Respondents

Based on the data obtained from 85 respondents based on education were 46 people (54.1%) senior high school, 23 people (27.1%) junior high school, 10 people (11.8%) did not go to school, 2 people (2.4%) elementary school, 2 people (2.4%) work in factories, 1 person (1.2%) DI, 1 person (1.2%) DIII.

3. Position of Children in the Family

Based on the data obtained from 85 respondents based on the position of the child in the family are 30 people (35.3%) in the middle child category, 29 people (34.1%) in the youngest category, 26 people (30.6%) in the firstborn category .

4. Your number in the family

Based on the data obtained from 85 respondents based on the number of siblings in the family were 38 people (44.7%) 3-4, 33 people (38.8%) <2, 14 people (16.5%) > 5.

5. Smoking area

Based on the data obtained from 85 respondents based on the place of smoking were 43 people (50.6%) at home, 42 people (49.4) outside the home.

6. Family members who smoke .

Based on data from 85 respondents based on whether there were family members who smoked 73 people (85.9%) category yes, 12 people (14.1) categories no

7. Information Sources about the Dangers of Smoking .

Based on the data obtained from 85 respondents based on sources of information about the dangers of smoking were 45 people (52.9%) from television, 18 people (21.2%) from newspapers, 14 people (16.5%) counseling from health workers, 8 people (9.4%) of leaflets.

8. Level of Knowledge of Adolescents about the Dangers of Smoking.

Based on the data obtained from 85 respondents based on the level of respondents' knowledge about the dangers of smoking in the less category as many as 65 people (76.5%), enough categories as many as 15 people (17.6%) and good categories as many as 5 people (5.9%).

9. Smoking Behavior

Based on the data obtained from 85 respondents based on smoking behavior in the category of light smokers as many as 65 people (76.5%), moderate smokers category as many as 14 people (16.5%), heavy smokers category as many as 5 people (5.9%), categories very heavy smokers of 1 person (1.2%).

10. Relationship between Level of Knowledge and Smoking Behavior in Adolescents .

Based on data shows that respondents with less knowledge as many as 65 people, from 65 people 48 people behave light smokers, 11 people behave moderate smokers, 5 people behave heavily smokers and 1 person behaves very heavily smokers to prevent the occurrence of the dangers of smoking. as many as 15 people, of which 15 people 14 people behaved light smokers, and 1 person behaved moderately smokers to prevent the occurrence of the danger of smoking. And respondents with good knowledge as many as 5 people, of which 5 people 3 people behave lightly smokers, and 2 people behave moderately smokers to prevent the occurrence of the danger of smoking . Statistical test results The

statistical test results using the *Spearman Rank Row* test obtained a significance level = 0.283 at the significance level $p < 0.05$ with a correlation so that H_0 was rejected and H_1 was accepted which meant there was no relationship between the level of knowledge of the dangers of smoking and smoking behavior.

Discussion

1. Level of adolescent knowledge about the dangers of smoking .

The results showed that the average teenage respondent with less educational background was high school education as many as 46 respondents. According to Notoatmodjo (2003: 17), knowledge is a person's response to stimuli or stimuli that are still veiled . Educational factors are very influential on one's knowledge as expressed by Mubarok (2007: 30-31) stating that the higher a person's education the more knowledge he has. In contrast to the low education of adolescents , the lower the information obtained so that it will reduce the level of knowledge of health problems in this study is knowledge about the dangers of smoking.

The results of the study showed that adolescents with a background in age, ie age (19-22 years) showed a lack of knowledge, that is as many as 60 respondents (70.6%). Researchers argue that with age can be said to be above this average the respondents have a level of lack of knowledge because with that age can change, because of the physical aspects and psychological aspects (mental). The level of knowledge is also influenced by age factors in accordance with the statement of Mubarok (2007: 30-31) that is with increasing age a person will change to the psychological or

mental aspects of the level of thinking a person is more mature and mature.

The results of the study show that the level of knowledge of the respondents not only from education or age was also obtained from previous experience. Experience is an event that has been experienced by someone in interacting with their environment (Mubarak, 2007: 30-31). The researcher believes that if your family or friends previously lack knowledge about the dangers of smoking, then indirectly provide information about the dangers of smoking and for further action if there are family members who do not understand can prevent the initial handling of smoking. Therefore health workers should provide more counseling. much about the dangers of smoking so that adolescent knowledge increases and understands the dangers of smoking.

2. Smoking Behavior in Adolescents

Researchers show that the incidence of smoking behavior is much influenced by intrinsic and extrinsic factors. Here the most dominant is extrinsic factors, for example if there are parents who smoke in most of their children, they will also imitate their parents' behavior. According to Atikah (2012) things - things that cause smoking behavior are as follows: Heart disease, vascular disorders, lung cancer, oral cancer, laryngeal cancer, bronchitis, high blood pressure, and pregnancy disorders, and defects in the fetus. Intrinsic factors as follows are friends, and the influence of advertising. Mer okok are toxic substances which give the effect of suggestion relaxed and feel more manly. Behind the usefulness and benefits of cigarettes contained a very big danger for people who smoke and those around smokers who

are not smokers (Jaya, Muhammad 2010 : 14). This is due to the fact that smoking behavior is rarely recognized by adolescents or society so that the handling is often late. For this reason, good knowledge is needed on preventing the occurrence of smoking behavior in adolescents. The researcher argues that smoking behavior is caused by poor adolescent knowledge. Therefore, good knowledge is needed on preventing the occurrence of smoking behavior in adolescents. So that the incidence of smoking behavior can be avoided or even not happen again.

3. Relationship between Knowledge Levels About the Dangers of Smoking and Smoking Behavior in Adolescents .

Based on education, most of the respondents only had high school education, the researchers argued that indeed in the past education upwards was still rare or even still not available for indigenous people. According to statement Mubarok (2007: 30-31) states that the higher a person's education the more knowledge he has. In contrast to the low education of adolescents , the lower the information obtained, the better . Based on the results of educational research in adolescents there is no relationship to the level of knowledge with smoking behavior. Based on age, most of the respondents were 19-22 years old because of that age someone will change very specifically. In accordance with the statement of Mubarok (2007: 30-31) that is with increasing age a person will change to the psychological or mental aspects of thinking a person is getting mature and mature. Based on the results of the study of age in adolescents there is no relationship to the level of knowledge

with smoking behavior. Are there any members of your family who smoke, most of the respondents are yes, because smoking has become a routine habit carried out by people smoking. According to Jaya, Muhammad (2010) cigarettes are toxic objects that give a relaxing effect and suggestions feel more manly. Behind the usefulness and benefits of cigarettes is a very big danger for people who smoke and those around smokers who are not smokers. Based on the results of research whether there are members of your family who smoke in adolescents there is no relationship to the level of knowledge with smoking behavior. Based on the data it was found that the total number of respondents in this study was 85 adolescents. Where adolescents have a level of insufficient knowledge with light smokers of 48 (56.5%), adolescents who have a level of lack of knowledge with moderate smokers number 11 (12.9%), adolescents who have a level of lack of knowledge with heavy smokers are 5 (5.9%), and teenagers who have less knowledge with very heavy smokers are 1 (1.2%). The level of knowledge is sufficient with light smokers as many as 14 (16.5%), the level of knowledge is sufficient with moderate smokers number 1 (1.2%), and the level of knowledge is sufficient with heavy smokers and very heavy smokers. The level of knowledge is good with light smokers by 3 (3.5%), the level of knowledge both with moderate smokers is 2 (2.4%), and the level of knowledge is good with heavy smokers and very heavy smokers is absent. Based on the results of the study showed that smoking behavior is more common in less knowledge compared to good and sufficient knowledge, because knowledge is

less influential on age and education. Most teenagers who have a lot of smoking behavior are caused because they are used to smoking. Even though the respondents' knowledge is less in reality, respondents show behavior towards smoking still have a fear of the dangers of smoking. According to the researchers' opinion, respondents who lack knowledge about smoking behavior, respondents who have knowledge less or no idea about the dangers of smoking. This gives an explanation to the respondent so that the respondent understands the dangers of smoking, so the respondent shows my preference for smoking to have a fear of the danger of smoking. Statistical test results The statistical test results using the *Spearman Rank Row* test obtained a significance level = 0.283 at the significance level $\rho < 0.05$ with a correlation so that H_0 was rejected and H_1 was accepted which means there was no correlation between the level of knowledge of adolescents about the dangers of smoking and smoking behavior in Bulak Rukem Timur RW 07 Bulak Sub-District of Bulak Sub-district Surabaya on February 3 to 2013. The reason that the level of adolescent knowledge about the dangers of smoking is not related to smoking behavior is the presence of variables that cannot be controlled. In this case the variable that cannot be controlled is the action when conducting the research and the respondent is not cooperative. According to Azwar (2009: 95), the reason that the level of knowledge of adolescents about the dangers of smoking is not related to smoking behavior in Bulak Rukem Timur RW 07, Bulak Sub-District, Bulak District Surabaya is because changing attitudes can be learned and

attitudes can change if there are conditions and conditions. certain conditions that include motivation from a friend or closest person, association also affects the attitude of a teenager who likes to imitate and try something new, if the teenager associates with a group of teenagers who do not smoke then the teenager will follow the behavior of a group of teenagers who do not smoke. Adolescence or Adolescence is a phase of dynamic development in the life of an individual. This period is a transition period from childhood to adulthood which is characterized by the acceleration of physical, mental, emotional, and social development and takes place in the second decade of life (Cahyaningsih Sulisty Dwi, 2011: 89). One way to display self-identity to be recognized by peers or their social environment, usually using status symbols in the form of luxury or other pride that can get himself noticed or appear different and individualist in public. From the developmental period a teenager tends to always look for or try something new including trying to smoke and gulp down the liquor until he finds his identity after that the teenager will sort out a behavior that should be done and change the behavior of his life pattern so that he does not disease occurs from the dangers of smoking to smoking behavior itself. According to Notoatmodjo (2003: 17), knowledge is a person's response to stimuli or stimuli that are still veiled, while a person's real actions that have not automatically materialized in response to a stimulus are *overt behavior*. Knowledge itself is influenced by the level of education, where health knowledge will affect behavior as an intermediate outcome (health *intermediate*) of health education, then health behavior will

affect the increase in public health indicators as outputs from education. The researcher argues that the role of health workers is also very important in immediate action as a prevention of the danger of smoking. Through health education can increase a person's knowledge, namely youngwomen, families, and society. Health knowledge can affect health behavior as a medium-term result (*intermediate impact*), then health behavior will affect the increase in public health indicators as outputs from education. This knowledge is needed to know how to prevent the dangers of smoking. By knowing how to prevent the dangers of smoking, it is expected that teenagers and family members can prevent the danger of smoking. Besides counseling about smoking behavior so that adolescents can reduce smoking habits against the dangers of smoking and not late until the initial treatment so as not to arrive at a serious condition or to die. Therefore adolescents need to increase their knowledge to recognize, prevent and change healthy lifestyle patterns so as not to be affected by the dangers of smoking. Based on the concept above, it can be concluded that the level of adolescent knowledge about the dangers of smoking is not related to smoking behavior .

Conclusion

1. The level of adolescent knowledge about the dangers of smoking is largely included in the category of lack of knowledge.
2. Most teenagers' behavior about smoking behavior is included in the category of light smokers.
3. There is no significant relationship between the level of adolescent knowledge about

the dangers of smoking with smoking behavior.

Suggestion

1. The need to increase adolescent knowledge about the dangers of smoking by providing information or health education through print or electronic media, and health education or counseling from health workers so that accurate information can be obtained.

2. The need to improve human resources in terms of increasing the knowledge of health workers. Improve facilities and infrastructure as well as service quality and raise awareness through providing counseling or conducting health promotions about the dangers of smoking.

3. Bagi nursing profession in providing nursing services, especially in health promotion to address the number of teenagers who smoke.

4. For the next researcher it is expected that the results of this study can be used as input in the development of further research to look for other factors that can influence the relationship between the level of knowledge and the side effects of the dangers of smoking by consuming cigarettes.

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