

## **LEARNING ACTIVITY DESIGN TO ENHANCE PERSONAL HEALTH HABITS OF ELEMENTARY SCHOOL STUDENTS USING SELF-REGULATION CONCEPT: A CASE STUDY OF CAMBODIA**

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**Abstract:** The purposes of the study were: 1). to compare the mean scores of health practices on the personal health according to Thai National Health Recommendation before and after experiment using self-regulation concept between experimental and control groups and 2).to compare the mean scores of health practices on the personal health according to Thai National Health Recommendation before experiment, after experiment and one month follow-up using self-regulation concept on the experimental group. This study was a quasi-experimental research, 30 students were classified as the experimental group and the other 30 students were control group. Students in class 3A and 3B which were in grade three of Pi Thnou Primary School were selected as the experimental and control groups by purposive selection. Two instruments were used in this study. The first one was the 14 learning activity plans, which implemented within seven weeks. The activities are conducted half hour every Wednesday and Thursday. Secondly, the instrument was the practice questionnaires on personal health. The content validity (IOC) of activities equaled to 0.90 and the reliability of the questions was 0.70. The mean score, standard deviation and t-test was used for data analysis. F-test was also used to compare the means score of pre-test, post-test and one month follow-up test of the experimental group. Finally, Scheffé was employed to test the differences of pair wise comparisons with the statistical significant at the .05 level. This study had been approved by National Ethic Committee for Health Research in Cambodia. The study findings were as follows:

1. Before experiment, the mean scores of health practices between the experimental group (2.48) and control group (2.46) were found no statistically significant differences at the .05 level. However, after experiment, the mean scores of health practices on personal health between the experimental group (2.62) and control group (2.50) were found statistically significant differences at the .05 level.
2. The mean scores of the health practices on personal health in the experimental group after experiment and one month follow-up were found

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statistically significant differences from before experiment at the .05 level. On the other hand, the mean score between one month follow-up and after experiment were found no statistically significant differences at the .05 level.

In summary, the result could be drawn into a conclusion that learning activity design using the self-regulation concept could enhance the personal health habits among grade three students

**Keywords:** Personal health habits, Self-regulation, Learning activity.

### **Introduction**

Personal health refers to cleanliness of individual body from head to toe in order to prevent the body from the pathogens. The importance of personal health is to prevent from any diseases and not to be a source of spreading diseases. There are many diseases related to poor hygiene conditions or poor personal hygiene such as diarrhea, skin, respiration, intestinal parasitism disease, etc.

WHO (2010) stated that diarrhea is a kind of both preventable and treatable disease. One of the main causes of this disease is poor personal hygiene that can allow the disease to spread from person to person. The effective way to prevent this kind of disease is to wash hands before handling food and after using toilet. WHO mentioned that children missed around 272 million school day due diarrhea. If this case still remains or continues increasing; it will affect the child performance achievement.

Due to a lack of sanitation and poor hygiene practices (Unicef, 2010) approximately, there were 10,000 overall deaths annually for the target group of child aged five and under- five in Cambodia

Students' health education is still limited (Ministry of Education, 2006) because there is only teaching in the theory without the activities for children to enjoy their learnings.

To respond with the current sensitive problem of diarrhea in Cambodia, especially in Battambang Province, the raising of awareness of keeping good hygiene is considered as the top priority solution by using the three rules selected from Thai National Health Recommendation. Health Education Division (2012) indicated that Rule number one is to take care of the body and personal belonging to be proper, rule number two is to wash hand before eating and after toilet and rule number three is to eat well-cooked food, clean food, and avoid eating food with dangerous substances, extreme flavor and artificial color. In addition, the concept of changing behavior needs to be considered as well, while self-regulation (Bandura, 1991) can help people change their behavior and adhere to improve the behavior.

Therefore, the researcher highly expects that "Learning Activity Design to Enhance Personal Health Habits of Elementary School Students Using Self-Regulation Concept: A Case Study in Cambodia" could provide the method to minimize and reduce the diarrhea cases and to have good health habits. When the students administered these activities based on Thai National Health Recommendation and Self-regulation, they will have appropriate health practices, decrease the health risk problems which occurred by poor hygiene and introduce the

activities for preventing other health risk behaviors. If the students always practice the points related with the recommendation, they will achieve the good habits with a better health condition.

### **Purposes of the Study**

The purposes of the study were 1). to compare the mean scores of health practices on personal health according to Thai National Health Recommendation before and after experiment using self-regulation concept between experimental and control groups, 2). to compare the mean scores of health practices on personal health according to Thai National Health Recommendation before experiment, after experiment and one month follow up using self- regulation concept on the experimental group.

### **Research Hypothesis**

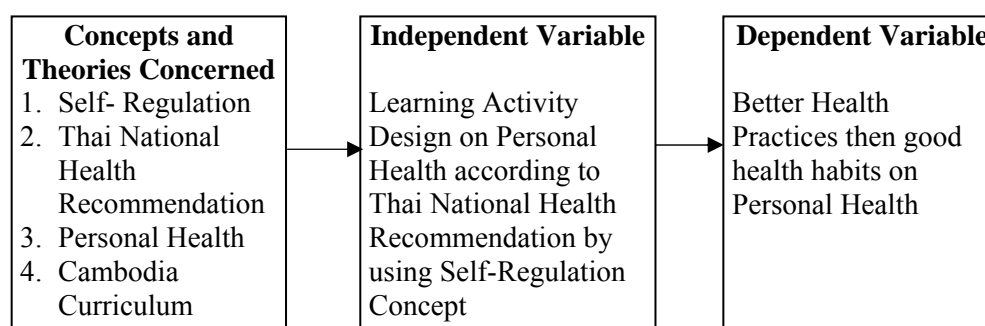
1. Mean scores of health practices on personal health according to Thai National Health Recommendation after implementation using self-regulation concept on experimental group is significant higher difference than control group.

2. Mean scores of health practices on personal health according to Thai National Health Recommendation before and after implementation using self-regulation concept on experimental group are significant difference from control group, and the mean score after one month follow up is not significant difference within experimental group.

### **Literature**

In the session of literate review, the researcher had been reviewed on personal health, diseases related to hygiene, Thai National Health Recommendation, self-regulation concept, principal of education, Cambodia overview, Cambodia education and related researches. After review, researcher noted that in Cambodia, the learning activity had never implemented especially to deal with health education.

### **Conceptual Framework**



**Figure1: Conceptual Framework of The Study**

## Methodology

### Population

The population of the study consisted of all students in grade three at Pi Thnou Primary School, Battambang Province.

### Sample

There were two groups of samples: 30 students were classified as the experimental group and the other 30 students were control group. Students in class 3A and 3B which were in grade three of Pi Thnou Primary School were selected as the experimental and control groups by purposive selection.

### Research Instruments

Two instruments were used in this study. The first one was the instrument for experiment: Learning Activity Plans. 14 activity plans were implemented duration of the seven weeks, two times per week. The activities are conducted half hour on every Wednesday and Thursday. Secondly, the instrument for data collection was practice test questionnaires on personal health. The content validity (IOC) of activities equaled to 0.90 and the reliability of the questions was 0.70.

### Data Analysis

Pre-test, post-test and follow-up test used the practice questionnaires to find the mean scores (*M*) and standard deviation (*SD.*). Independent t-test was used to compare the mean score of pre-test and post-test between groups. F-test was used to compare the means score of pre-test, post-test and one month follow-up test of the experimental group. Finally, Scheffé was employed to test the differences of pair wise comparisons with the statistical significant at the .05 level.

### Ethical Consideration

This study had been approved by National Ethic Committee for Health Research (NECHR), Cambodia with the code number 144 NECHR.

## Finding

The findings of the study were pointed out as follow:

1. Before experiment, the mean scores of health practices between the experimental group (2.48) and control group (2.46) were found no statistically significant differences at the .05 level. However, after experiment, the mean scores of health practices on personal health between the experimental group (2.62) and control group (2.50) were found statistically significant differences at the .05 level.

**Table 1: Mean Score of Health Practices on Personal Health after Experiment between Experimental and Control Groups**

Health Practices on Personal Health	Experimental Group n=30		Control Group n=30		<i>t</i>
	M	S.D.	M	S.D.	
Pre-Test (Before Experiment)	2.48	.21	2.46	.23	.22
Post-Test (After Experiment)	2.62	.17	2.50	.24	2.18*

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\*  $p < .05$

2. The mean scores of the health practices on personal health in the experimental group after experiment and one month follow-up were found statistically significant differences from before experiment at the .05 level. On the other hand, the mean scores between one month follow-up and after experiment were found no statistically significant differences at the .05 level. (Table2)

**Table 2: Pair Wise Comparisons of Mean Score of The Health Practices on Personal Health in The Experimental Group by Using Scheffé**

Test	M	Pre-Test	Post-Test	Follow-up Test
Pre-Test	2.48	2.48	2.62	2.62
Post-Test	2.62		-.14*	-.14*
Follow-up Test	2.62			.00

\*  $p < .05$

### Conclusion

In summary, the result from the finding could be drawn into the conclusion that learning activity design using the self-regulation concept could enhance the personal health habits among grade three students in Pi Thnou Primary School, Battambang Province.

### Research Discussion

1. The finding showed that before experiment, the mean scores of health practices on personal health of experimental group were found no statistically significant difference from control group at the .05 level. This means that the practices on personal health of two groups before experiment were not different. This may be due to Khmer curriculum related with daily hygiene, Khmer media broadcasting about good hygiene on TV and NGO involvement in daily hygienic promotion.

In order to address the Khmer curriculum related to daily hygiene the Ministry of Education (2006) stated that one of the purposes of the curriculum in primary school focuses on the training of good hygiene characteristics to all Cambodian children to ensure that every child catch up the good health. The content knowledge of health education is taught in schools from grade one to three covered on: 1).Body hygiene(students are able to understand the steps of washing hands, to describe about body clean and to explain the importance of using toilet), 2).Clean food(students are able to explain about the hygiene in eating) and 3).body washing, safety food, and preventing from diseases( students are able to understand about advantages of clean food, body function, to understand about information to prevent and treatment on diarrhea, flue and measles). After finishing grade three, students are able to use these content knowledge of health education in order to apply it in daily hygiene. Similarity, the sample of the study were students in grade three, thus they were taught about all these contents knowledge.

For better understanding of good hygiene, Khmer media broadcasting about practices of good hygiene on TV, most of them are produced by NGO and Ministry

of Health. National TV channels are chosen to broadcast in the public, so the target audiences can be reach to all ages of citizens of the country. For example, the broadcasting on TV about “when and how to wash the hands” in three minutes. The sequence of the scenes include a song and cartoon animation that focuses on the specific timing to wash the hands, especially before eating and after toilet. Soaps or ashes are recommended to use as the material in hand washing. Health education advertisements are easy to understand and attract to all age groups, thus the media provides short key health message to all citizens about health knowledge and practices.

Many activities have also been set up to promote good health behaviors in Cambodia, NGOs are playing important role to provide help on technical and budget support in health promotion among the general population. Enhancing and supporting health promotion have been carried out not only in community-based but also in the school based as well. For instance, UNICEF in Cambodia have been assisted in the area of health, education, child protection, HIV/AIDs, water and sanitation, etc. There are many projects implementing in Cambodia. As the result, it is not surprising to find that the health practices on daily hygiene in two groups of students before and after experiment were not different. It could be due to these factors mentioned above.

2. After experiment, the mean scores of health practices on personal health of experimental groups were revealed statistically significant higher than the control group at the .05 level, which supported by the hypothesis of the study. This means that after implementation of the activities on the experimental group, the practices on personal health were improved and different from control group. This showed the good effect of the activities on the personal health practices. The result might have been caused by activity plans and students’ participation.

Also, the result might have been caused by 14 activity plans, which covered on daily personal health. For example, there were three activities, which were the 6<sup>th</sup> activity “The proper steps of washing hands”, the 7<sup>th</sup> activity “When you need to wash your hands” and the 8<sup>th</sup> activity “Let practice to be a clean hands”, covering on washing hands. These three activities provided the clear understanding and knowledge as well as the chance for students to participate in hand washing practice. The rewards were used to urge students in participating in the game competition. Practicing hand wash may be one of good habits on the personal health, and many diseases such as diarrhea, intestinal parasitism, flue, etc could be prevented by hands washing. This is in line with Talaat M. (2011) conducting a research on “Effects of hands hygiene campaigns on incidence of laboratory-confirmed influenza and absenteeism in schoolchildren, Cairo, Egypt”. The result stated the intervention on hands washing was effective to reduce absenteeism that is caused by diarrhea and influenza illness. The same study conducted by Le Thi Thanh Xuan (2013) on “Hands washing among schoolchildren in an ethnically diverse population in northern rural Vietnam”. The result indicated the students visibly excited and pleased to join with hand washing with soap session. During that time, the reward, game and demonstration of hand washing were used as the method of teaching. Similar to a study, conducted by Sibiya J.E. (2013) “KAP survey on water, sanitation and hygiene in selected schools in Vhembe District, Limpopo,

South Africa". The finding of the study revealed that before the presentation of hands washing facilities, the attitude and practice on hygiene were high level. In addition, the content knowledge of 14-activity plans was elicited from Thai National Health Recommendation which is a set of health practices to encourage the desired health behaviors of children, youth and adult. While these target groups practice continuously, the good health habits will be occurred. This study used some part of the set of health practice from Thai National Health Recommendation, which is why it is not surprising that students in experimental group had good health practice than control group. Not different from a study conducted by Mounnam S. (2001) with the title "The effect of activity for personal health development according to National Health Recommendation". The finding revealed that after implementation the activity, taking care of personal health behaviors among students was better than before implementation the activity with .01 statistically significant. Also as, the consistence with a study "Self- practicing according to National Health Recommendation among low secondary students in Seum Ngam District, Lampang Province" was conducted by Tepkeo N. (2006) .The result indicated that most of participants had better practices according National Health Recommendation, and this finding could be used as the evidence for stakeholder to conduct the school promotion to enhance appropriate self-practices.

The result might have been caused by other factors besides activity, perhaps because of students' participation. During the implementation of activities, the researcher noted and appreciated the cooperation from students and teachers in Pi Thnou Primary School. The researcher would like to take an example to express about the cooperation-Group Work in first and second activity plans. The students played a game "Organizing in order of the steps of washing hair and taking bath". Three groups of students were divided and each group need to find out one students as a group representative to present their task in front of the class. In that time, the researcher observed about their work spirit and their willingness to participate in the activity with joyfulness. Similar to a study about "Influences on teachers' use of participatory learning strategies in health education classes" conducted by Cahill et al. (2013). The result indicated the most significant influences on teacher pedagogical choices was teachers understand approach in education, students engagement, confident in class control and having positive relationship.

3. Before experiment, the mean scores of the health practices on personal health in the experimental group were found statistically significant differences from after experiment and one month follow-up at the .05 level. However, the mean scores between one month follow-up and after experiment were found no statistically significant differences from at the .05 level, which supported by the hypothesis of the study. It means that the before experiment, practices on the personal health of experimental group was different from after experiment and one month follow-up. In the other hand, the practices on the personal health still remain unchanged between after experiment and one month follow-up. This result may be due to effect of the activity plans, self-regulation concept used and media broadcasting.

Students in the experimental group may be considered that the practices related to the daily hygiene were not hard to catch up. They joined the activities which

consisted of the content based knowledge on the personal health practices. For example, the 7<sup>th</sup> activity “When you need to wash your hands”, the main concept and handout consisted of the advantages and the appropriate steps for washing hands. Thus, 7<sup>th</sup> activity plan not only enhance the practices, but also gave the knowledge to the students as well. While the knowledge was given clearly, students can continue their good hygiene practices until it becomes the good habits for better health.

The researcher used real model of the materials in the activities, therefore it was an easy way for them to understand and all the handouts was translated into Khmer language with the attractive colorful pictures. Moreover, during the activities implementation, a leaflet with short key message about daily hygiene practices was distributed to all students in order to remind on key points they have learned from the activities.

From this achievement, it could be concluded that using self-regulation concept was an appropriate concept for this activity plans. All 14 activity plans were covered by three main process of self-regulation: self-observation, judgment process and self-reaction. For instance, the 2<sup>nd</sup> activity plan “The proper way self-washing hair”, one of the 14 activity plans. This activity consisted of three stages: first stage- asked question by showing the poster. This stage could be reflected about the judgment process. Second stage-asked the volunteers to do a role play. This stage reflected the judgment process as well. Third stage-divided students to work in group. Students were asked to do the ordering of the card sort about the steps of washing hair. This action reflected about self-observation and self-reaction. After ordering, students were asked to present their task. This presentation action reflected the judgment process and self-observation. As mentioned, one month after experiment, the researcher asked students to take follow up test in the experimental group. The result revealed that students’ health practices on personal health remain unchanged. It seemed that they kept practicing their daily hygiene, thus the good health habits occurred. This could be concluded that self-regulation concepts could help students adhere to good daily health practices then good habits of practices on personal health could appear. The result of this study was consistent with three studies which the concepts of Bandura (1991) stated that three processes of self-regulation can improve the behaviors and self-regulation concept (schunk, 1990; Zimmerman B.J., 2002) also help increase the adherence to a good behavior. Additionally, this finding from this study was consistent with three studies which used this self-regulation concept for implementing health education program. First study was conducted by Limruangrong P. (2011) “A self-regulation program on diet and exercise behavior in pregnant women with gestational diabetes mellitus”. The finding pointed out that the experimental group could control diet, exercise and two hours post prandial blood glucose were significant greater than the control group on fourth week. Secondly, Markjaroen K. (2011) studied on the effects of health education learning management using a self-regulation program in fast food consumption behaviors of second school students. The result indicated that students receiving the self-regulation program had attitude and practices on fast food behavioral consumption better than students not receiving self-regulation program intervention. The last study, Chanchay (2006) conducted a research about “A self-



regulation program on decreasing junk food consumption among students in Bumrunwitha, Thonburi Primary School, Bangkok". The result showed about the effectiveness of the application of self-regulation concepts and participation learning on decrease the junk food consumption behaviors.

### **Implication of finding**

1. The results from this study revealed that learning activity designed by using self-regulation concept could enhance the personal health practice among elementary school students. Thus, the school administrator should implement these learning activities to all grades of students in Pi Thnou primary school in order to promote the personal health.

2. School administrators should modify and apply these learning activities to tackle other health problems.

### **Recommendation for Further Research**

1. The studies should be carried out to explore the implementation of the learning activities in different age groups.

2. This learning activity design was built by the researcher based on the concept of self-regulation and three rules of Thai National Health Recommendation. Therefore, the further study should implement with 10-rule of Thai National Health Recommendation in order to enhance health behaviors of the elementary school students.

3. Qualitative methodology should be used to find out the factors influencing on the barriers of personal health practices.

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