

The Effect of Using Token Economy and Social Reinforcement to stimulate Preschool Students' Vegetable and Fruit Consuming Behavior

Thanita Luecha

Educational Psychology and Counseling
Faculty of Education Khon Kaen University
Khon Kaen, Thailand
e-mail: apikkhana@hotmail.com

Thanita Luecha

Educational Psychology and Counseling
Faculty of Education Khon Kaen University
Khon Kaen, Thailand
e-mail: apikkhana@hotmail.com

Abstract— This research aimed to 1) study the result of using token economy and social reinforcement toward behavior of eating vegetables and fruits of experimentation group of preschool children and 2) compare behavior of eating vegetables and fruits of preschool children between before and after experimentation. Target group for this research was five students at age 4-5 years, studying in kindergarten level 2 at Khon Kaen Vithes Suksa School, during the first semester of 2010 academic year. They had also eaten vegetables and fruits less than one-quarter (25%) of the quantity they were determined to eat. Instruments for collecting data consisted of parent questionnaire, reinforcer survey form, evaluation form for eating vegetables and fruits, score record form for eating vegetables and fruits and record form for rewards redemption. Data was analyzed through statistic of the Wilcoxon Signed Rank Test. Research findings were found as follows: 1) Behavior of eating vegetables and fruits of experimental group of students reinforced by token economy and social reinforcement was increasingly found. 2) After experimentation, this group of students could have higher scores of eating vegetables and fruits with statistical significance level at “.05”.

Keywords-; *Token economy; Social reinforcement; Vegetable and Fruit behavior*

I. INTRODUCTION

Behavior of eating vegetables and fruits of Thai people nowadays was crucially concerned. It was reported that they had eaten only 186 grams of vegetables and fruits per day in average. Meanwhile, World Health Organization (WHO) suggested that we should daily obtain vegetables and fruits about 400 grams. This could be concluded that Thai people consumed vegetables and fruits only one-third of suggested quantity (The 2nd Conference on National Health Promotion of Ministry of Public Health, B.E. 2007)

Preschool children (3-5 years old), especially at the beginning period, was the age of risk for nutrient deficiency. According to B.E. 2546 term of standard quantity of food Thai people should daily obtain, it was stated that children age 1-3 years old should obtain 1,000 kilocalories of energy and 1,300 kilocalories for those of 4-5 years old. However, as the abundance of fast food and soft drink were widely well-known while the consumption of fresh vegetables and fruits were found decreased, it became the cause of low nutrient preschoolers obtained from what they ate. These low

quality foods might cause high blood cholesterol and heart attack (Nutrition Division, Department of Health, Ministry of Public Health, B.E. 2007). Problem of eating vegetables and fruits for preschool children could consequently be the issue needed to be urgently resolved or it will affect to children's health in the near future. Researcher thought that this problem should be taken to research process in order to stimulate the awareness of significance of eating useful vegetables and foods to parent and teachers.

As a result, researcher decided to use behavior modification technique of token economy and social reinforcement for increasing behavior of eating vegetables and fruits for those preschool children at Khon Kaen Vithes Suksa School who had not eaten vegetables and fruits. The study revealed that the usage of token economy could be a technique of increasing desired behavior. Token economy was also known as spread reinforcer. A chance of turning to be invalid one was hardly found. Social reinforcement was also a recognized technique to use for modifying undesired behavior of learners. It could be suited to use with any reinforcers as well.

II. RESEARCH OBJECTIVES

- 1) to study the result of using token economy and social reinforcement toward behavior of eating vegetables and fruits of experimental group of preschool children
- 2) to compare behavior of eating vegetables and fruits of preschool children between before and after experimentation

III. SAMPLES

Authors and Affi Target group for this research was five students at 4-5 years of age. They were studying in kindergarten level 2 at Khon Kaen Vithes Suksa School during the first semester of academic year of 2010. They had also eaten vegetables and fruits less than one-quarter of the quantity they were determined to eat.

IV. RESEARCH INSTRUMENTS

- 1) find the mean of data from evaluation form for individual behavior of eating vegetables and fruits throughout period of baseline, treatment and withdrawal
- 2) analyze and compare difference of behavior of eating vegetables and fruits of preschool children between before and after experimentation using statistic of the Wilcoxon Signed Rank Test

V. RESEARCH METHODOLOGY

This Quasi-experimental research was implemented to one experimental group based on ABA Reversal Design. The sample of experimental design is as below;

Symbols for this experimental design

A₁: period of data collection for behavior baseline

B : period of treatment through the usage of token economy and social reinforcement

Period of Time	A ₁		B				A ₂	
Experimental Group	baseline period		treatment period				withdrawal period	
	W.1	W.2	W.3	W.4	W.5	W.6	W.7	W.8

A₂: period of withdrawal the usage of token economy and social reinforcement

W.1-8: weekly experimentation (1st Week to 8th Week)

VI. RESEARCH FINDINGS

1) It was found that the 3rd and 4th student of experimental group could have the mean of eating vegetables and fruits at withdrawal period of token economy and social reinforcement was higher than treatment period. For the 3rd student, the mean of quantity of eating vegetables and fruits at treatment period was 3.80 (\bar{X}) and $\bar{X} = 4.00$ at withdrawal period. For the 4th student, the mean of quantity of eating vegetables and fruits at treatment period was 3.30 (\bar{X}) and $\bar{X} = 3.50$ at withdrawal period. These could be individually discussed as follows:

The 3rd and 4th students of experimental group still obtained token economy and social reinforcement from family members. This could affect to the mean of quantity of eating vegetables and fruits at withdrawal period to be higher than treatment period. It was not match to the determined hypothesis and ABA Reversal Design. The cause was the 3rd and 4th students of experimental group still obtained token economy and social reinforcement from parents. It was also found the accordance with the work of Segal (1991) who studied the patient responsiveness to a token economy at children psychiatric hospital. The sampling group was 28 persons at 7-13 years of age. They all were both admitted and OPD patients and were grouped to A and B during 5 weeks study period. The result revealed that the behavior in general tended to be slightly increased. It depended on 2 factors including 1) the individual difference of children expression toward others and 2) the significance of different design of token economy for each day.

During 20 days of experimental period of using token economy and social reinforcement, it was found the mean of quantity of eating vegetables and fruits of experimental group of students at 2.95 (\bar{X}). This could be explained that the quantity of eating vegetables and fruits of experimental group at experimental period was higher than pre-experimental period and baseline period respectively. During 10 days of withdrawal period or post-experimentation of

using token economy and social reinforcement, it found the mean of the quantity of eating vegetables and fruits of experimental group of students at 2.92 (\bar{X}). This could be concluded that the quantity of eating vegetables and fruits of experimental group at pre-experimentation period was much more than post-experimentation period.

2) The result of this research revealed that preschool children who obtained token economy and social reinforcement could change their behavior of eating vegetables and fruits. Their behaviors were consequently increased according to determined condition. Five students of experimental group could increase their eating of vegetables and fruits for the period of 20 days of experimentation ($\bar{X} = 2.92$). The comparison was made between baseline period or pre-treatment and treatment period. During the 1st and 5th day of experimental period, when preschool students started obtaining token economy and social reinforcement, mean of behavior of eating vegetables and fruits was increased from 2.2 to 3.2 at the 5th day of experimentation and the period of next 1-20 day. This could be explained that behavior of eating vegetables and fruits of preschool students was at level 4 or they could eat 4/4 cup. It might be decreased someday but could keep attaching to the mean of criteria at 2.95. This could represent the effectiveness of using token economy and social reinforcement. Talking to the day the decrease of eating vegetables might be found, it might be the level of individual liking of each student toward each type of vegetables or dishes. Recipe of chef might slightly affect to decrease the interest of eating vegetables and fruits but not too much.

Result of eating vegetables and fruits of experimental group of students during 40 days could match to the theory of using token economy and social reinforcement. It could increase scores of eating vegetables and fruits with statistical significance level at “.05”. Result of this study also match to Sivaporn Prueksachart (B.E.2548) who studied the result of using token economy and social reinforcement for developing the study responsibility of students. It was found that students who were modified their behavior by token economy and social reinforcement could reach higher scores as well.

VII. RECOMMENDATION

1) Two observers should be provided for evaluating behavior of eating vegetables and fruits of students at the period of baseline, treatment and withdrawal of token economy and social reinforcement. This could value the correctness of observers as well as the more trustfulness of research findings.

2) To select fruits for using in this research, the appropriateness and safety to students' age and health should be concerned.

ACKNOWLEDGMENT

I especially thank and acknowledge, Graduate School, Khon Kaen University, Thailand.

REFERENCES

- [1] Nutrition Division. Department of health Ministry of Public Health. B.E. 2546. To Eat Enough to Age. The War Veterans Organization of Thailand Publishing.
- [2] Sivaporn Prueksachart.(B.E.2548). Result of Using Token Economy and Social Reinforcement for Developing Study Responsibility of Prathomsueksa 4 Students. Master of Education Thesis in Psychology and Counseling. Mahasarakham University.
- [3] Somsamorn SornSrivichai. (B.E.2542). Behavior Modification of Eating Vegetables of Preschool Children Using Token Economy. Master of Education Thesis in Curriculum and Instruction. Srinakharinharawitrot University.
- [4] Sompoch Iamsupisit. (B.E.2526). Behavior Modification. Department Psychology, Faculty of Education, Chulalongkorn University. Bangkok. Odean Store Punlishing.
- [5] Bellack , A.S., Herson, M., and Kazdin, A.E.. 1982. International Handbook of Behavior Modification and therapy. New York: Plenum Press.
- [6] Holly A. Filcheck and Cheryl B. McNeil. 2004. The use of token economies in preschool classrooms: practical and philosophical concerns. Journal of Early and Intensive Behavioral Intervention.
- [7] Segal, R. (1991). A Study of patient responsiveness to a token economy at children psychiatric Hospital (behavior modification). (School of Social Work, Adelphi University. U.S.E.). Dissertation Abstracts International, 10, p. 6537A. (From DAO, October 1991).