

# BAU Journal - Health and Wellbeing

---

Volume 1 Issue 3 *Urban Health & Wellbeing*  
*Building Collaborative Intelligence for Better*  
*Lives in Cities*  
ISSN: 2617-1635

---

Article 63

October 2018

## THE ROLE AND EFFECT OF MULTIMEDIA BASED HEALTH ANDWELLBEING AWARENESS PACKAGES FOR CHILDREN ANDYOUTH

RADWA SAMEH Associate Professor, Department Of Architecture, Faculty of Engineering,  
*Arab Academy For Science, Technology & Maritime Transport*, dr.radwasameh@yahoo.com

Follow this and additional works at: <https://digitalcommons.bau.edu.lb/hwbjournal>



Part of the [Architecture Commons](#), [Business Commons](#), [Life Sciences Commons](#), and the [Medicine and Health Sciences Commons](#)

---

### Recommended Citation

SAMEH, RADWA Associate Professor, Department Of Architecture, Faculty of Engineering, (2018) "THE ROLE AND EFFECT OF MULTIMEDIA BASED HEALTH ANDWELLBEING AWARENESS PACKAGES FOR CHILDREN ANDYOUTH," *BAU Journal - Health and Wellbeing*: Vol. 1 : Iss. 3 , Article 63.

Available at: <https://digitalcommons.bau.edu.lb/hwbjournal/vol1/iss3/63>

This Article is brought to you for free and open access by Digital Commons @ BAU. It has been accepted for inclusion in BAU Journal - Health and Wellbeing by an authorized editor of Digital Commons @ BAU. For more information, please contact [ibtihal@bau.edu.lb](mailto:ibtihal@bau.edu.lb).

---

# THE ROLE AND EFFECT OF MULTIMEDIA BASED HEALTH AND WELLBEING AWARENESS PACKAGES FOR CHILDREN AND YOUTH

## Abstract

Wellbeing is generally understood as the quality of people's lives. Promoting well-being and public health awareness involves understanding and addressing adults as well as children and young people. The effect of wellbeing education programs on children depends on the method and style in which the information is transmitted. In spite of many conventional methods like small group discussions, large school assemblies, or lecture workshops are addressed, initiative steps could be taken developing a multimedia packages that would be able to assist children in increasing their knowledge and awareness on public health and wellbeing. This paper reports the findings of using multimedia packages in increasing the knowledge and perceived awareness of children on nutrition and physical health. The study was conducted with a sample of 30 children aged 10 – 12 years, traditional Lectures and discussions were held for 15 children (the traditional lectures group), while Multimedia packages program was applied to the other 15 children (Post-test group), both for 4 sessions over a period of 4 weeks. It was found that the children's nutrition & physical health perception and health-promoting behavior scores were higher at a significant level in the Post-test group. In particular, health-promoting behavior scores in the Post-test group were higher by 21%. The results indicate that nutrition & physical health perception and promoting health behaviors among children was increased after they were exposed to multimedia applications. The aim of this paper is to empower users and decision makers to make informed technological choices and to actively participate in the exploitation and developing of Multimedia programs in the health sector.

## Keywords

multimedia; wellbeing; public health awareness, nutrition, physical health.

# THE ROLE AND EFFECT OF MULTIMEDIA BASED HEALTH AND WELLBEING AWARENESS PACKAGES FOR CHILDREN AND YOUTH

RADWA SAMEH<sup>1</sup>

<sup>1</sup>Associate Professor, Department Of Architecture, Faculty of Engineering, Arab Academy For Science, Technology & Maritime Transport

**ABSTRACT:** *Wellbeing is generally understood as the quality of people's lives. Promoting well-being and public health awareness involves understanding and addressing adults as well as children and young people. The effect of wellbeing education programs on children depends on the method and style in which the information is transmitted. In spite of many conventional methods like small group discussions, large school assemblies, or lecture workshops are addressed, initiative steps could be taken developing a multimedia packages that would be able to assist children in increasing their knowledge and awareness on public health and wellbeing. This paper reports the findings of using multimedia packages in increasing the knowledge and perceived awareness of children on nutrition and physical health. The study was conducted with a sample of 30 children aged 10 – 12 years, traditional Lectures and discussions were held for 15 children (the traditional lectures group), while Multimedia packages program was applied to the other 15 children (Post-test group), both for 4 sessions over a period of 4 weeks. It was found that the children's nutrition & physical health perception and health-promoting behavior scores were higher at a significant level in the Post-test group. In particular, health-promoting behavior scores in the Post-test group were higher by 21%. The results indicate that nutrition & physical health perception and promoting health behaviors among children was increased after they were exposed to multimedia applications. The aim of this paper is to empower users and decision makers to make informed technological choices and to actively participate in the exploitation and developing of Multimedia programs in the health sector.*

**KEYWORDS:** *multimedia; wellbeing; public health awareness, nutrition, physical health.*

## 1. INTRODUCTION

Creative ways to encourage Children and youth to develop positive lifelong eating and physical activity patterns are desperately needed. Healthy eating and physical activity patterns during childhood promote optimal growth and development, prevent health problems such as obesity and overweight, and may prevent chronic diseases such as heart disease, stroke, and certain forms of cancer. (Koch, 2011) Schools are an important venue in establishing and promoting lifelong healthy habits and offer ways to incorporate various learning strategies. (Frieden, 2011) Several researchers have shown that well planned nutrition and physical health education can significantly influence the quality of nutrition and physical health knowledge of children.

### 1.1 Multimedia learning

The advances in multimedia technology open up even more opportunities in innovating ways to learn, to acquire information and to increase knowledge. According to (Harun and Tasir, 2003), multimedia opens up frontiers to educators in the application of a variety of teaching techniques, while students are given opportunities to have control over a learning session. This shows that multimedia is able to create a more interesting learning environment compared to conventional methods. In multimedia learning, visual and auditory information is used as a method of presenting a lecture. Learners will then use this information to form knowledge.

(Acha J, 2009) indicated that the use of multimedia has changed student's learning processes and performance in science, mathematics, and literacy to indicate the potential of multimedia to teach health education. Computer-based health related videos and games were recently developed and researchers

have started to investigate its impacts on children's performances. (Eun Young Yoo, 2012) This study discussed about multimedia based health awareness packages for children from the perspective of the balance among two factors, nutrition and physical health.

## 1.2 The Purpose of the study

The purpose of this study is to assess the effectiveness of an interactive multimedia based health awareness packages to increase knowledge and influence behavior change in nutrition and physical activity in children.

## 2. RESEARCH METHODS AND PROCEDURES

### 2.1 Methodology

First, a research design with pre-test and post-test was used to investigate the effectiveness of the multimedia applications during the study. The study is a type of evaluation which aims to determine whether a program or intervention has the intended effect on a study's participants. The pre-test is presented here by assessing the effect of traditional lectures and discussions given to students about nutrition & physical health perception, and health-promoting behavior, while the post-test assesses the effect of multimedia applications on children perception and behavior about the same issues.

Second, Analytical Hierarchy Process (AHP) is used to conduct the scores of questionnaires. Why using AHP?, Analytical Hierarchy Process (AHP) "is an approach to decision making that involves structuring multiple choice criteria into a hierarchy, assessing the relative importance of these criteria, comparing alternatives for each criterion, and determining an overall ranking of the alternatives".(Johnny K.W, 2008). By organizing and assessing alternatives against a hierarchy of criteria, AHP provides a proven, effective means for system evaluation.(Seyhan Sipahi, 2010) In this study, a new approach is developed in which questionnaire's points of discussion are demonstrated in terms of criteria with equal weight of importance while the alternatives are the two groups to be examined in the research.

### 2.2 Participant

The study was applied with a sample of 30 children aged 10 – 12 years, divided into two groups, traditional lectures group and Post-test group. Traditional Lectures and discussions were held for the first group of 15 children, Multimedia packages were applied to the other 15 children, both for 4 sessions over a period of 4 weeks. Participants in the project were students at House of languages school in Alexandria, Egypt. The study's aims and methodology were presented and explained to teachers.

### 2.3 Questionnaire

Two main questionnaires were designed relating nutrition & physical health perception, and health-promoting behavior. A review of the literature and suggestions from nutrition experts, physical activity experts, and multimedia and computer professionals guided the development of the questionnaires.

Questionnaires are held by teachers for the two groups, traditional lectures group and Post- test group.

First questionnaire involved nutrition and physical health perception, it included nine point Likert scale as shown in figure (1).

Covering Objectives / Formulas	Low / 1	High / 2	Curve / 3	4	5	6	7	8	9
Healthy foods explanation	1	2	3	4	5	6	7	8	9
Meal planning	1	2	3	4	5	6	7	8	9
Distinction between meals and snacks	1	2	3	4	5	6	7	8	9
Understand the effect of food choices on general health	1	2	3	4	5	6	7	8	9
Evaluation of eating habits and practices	1	2	3	4	5	6	7	8	9
Well-balanced diet components	1	2	3	4	5	6	7	8	9
Eating sugar to get enough energy	1	2	3	4	5	6	7	8	9
Nutrients found in fruits and vegetables	1	2	3	4	5	6	7	8	9
Importance of Proteins for growth	1	2	3	4	5	6	7	8	9
Importance of being physically active	1	2	3	4	5	6	7	8	9
Practicing moderate-intensity sports or fitness	1	2	3	4	5	6	7	8	9

Fig. 1 : Nutrition and physical health perception questionnaire  
Reference: Researcher

Second questionnaire involved health-promoting behavior; it included five point Likert scale of change behavior questions to examine if the increases in knowledge would influence future behaviors with respect to physical activity and nutrition. The scale ranged from 5 = "strongly intend to adopt the behavior in question within the next month" to 1 = "strongly do not plan to adopt this behavior within the next month", as shown in figure (2).

Covering Objectives / Formulas	Type	Low / I1	High / I2	Curve / I3	I4	I5
Increase fruit and vegetable intake	RATINGS	strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Switch to low fat food	RATINGS	strongly do not plan to adopt this behavior within	2	2	3	strongly intend to adopt the behavior in q
Drink juice or water instead of soda	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Eat fruit or juice for snack	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Physical activity 2-3 days/week	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Be physically active outside of school	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Skip breakfast to lose weight	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c
Talk to a knowledgeable adult before	RATINGS	Strongly do not plan to adopt this behavior within	2	3	4	Strongly intend to adopt the behavior in c

Fig (2): Health-promoting behavior questionnaire  
Reference: Researcher

2.4 Data analysis

The "Expert Choice" software is used for applying AHP as follows:

An Expert choice file is constructed for each questionnaire in which the questions are presented as criteria in a tree form, while the two groups to be examined are the alternatives, as shown in fig (3).

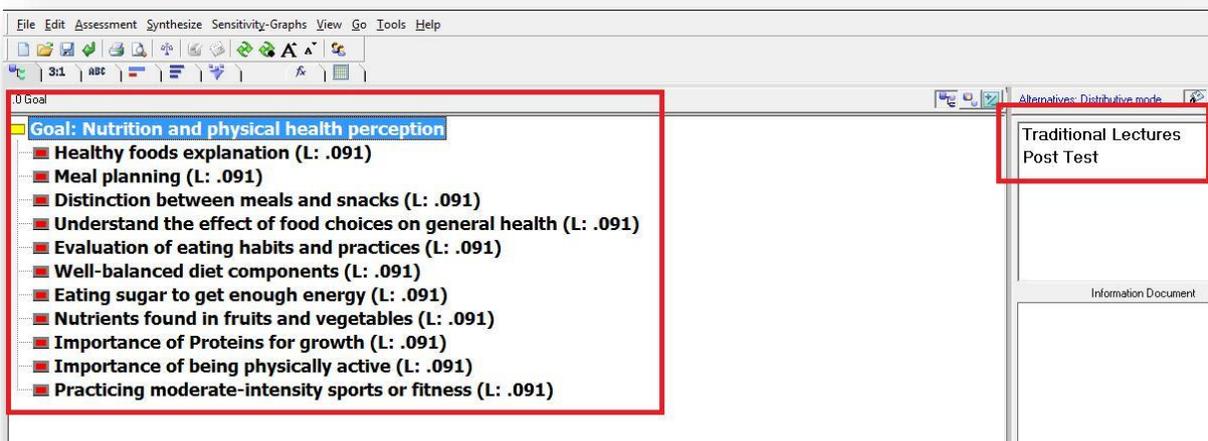


Fig (3): Expert choice file showing the tree form of "Nutrition and physical health perception" questionnaire  
Reference: Researcher

For each questionnaire, "Expert Choice" software calculates the level of importance for each question and calculate the overall score for each group, as shown in Fig (4), Fig (5) and Fig(6).

	1 (.000)	2 (.000)	3 (.000)	4 (.000)	5 (.000)	6 (.000)	7 (.000)	8 (.000)	9 (.000)			
Distributive mode												
Alternative	Total n (L: .091)	RATINGS Healthy foods explanation (L: .091)	RATINGS Meal planning (L: .091)	RATINGS Distinction between meals and snacks (L: .091)	RATINGS Understand the effect of food choices on general health (L: .091)	RATINGS Evaluation of eating habits and practices (L: .091)	RATINGS Well-balanced diet components (L: .091)	RATINGS Eating sugar to get enough energy (L: .091)	RATINGS Nutrients found in fruits and vegetables (L: .091)	RATINGS Importance of Proteins for growth (L: .091)	RATINGS Importance of being physically active (L: .091)	RATINGS Practicing moderate-intensity sports or fitness (L: .091)
Traditional Lectures	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Post Test	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Fig (4): Nutrition and physical health perception questionnaire's points of discussion and the two groups to be examined

Strongly int	4	3	2	Strongly do					
1 (1.000)	2 (1.000)	3 (1.000)	4 (1.000)	5 (1.000)					
Ideal mode									
Alternative	RATINGS	RATINGS	RATINGS	RATINGS	RATINGS	RATINGS	RATINGS	RATINGS	
	Total	Increase fruit and vegetable intake (L: 125)	Switch to low fat food (L: 125)	Drink juice or water instead of soda (L: 125)	Eat fruit or juice for snack (L: 125)	Physical activity 2-3 days/week (L: 125)	Be physically active outside of school (L: 125)	Skip breakfast to lose weight (L: 125)	Talk to a knowledgeable adult before dieting (L: 125)
Traditional Lectures	.000	.000	.000	.000	.000	.000	.000	.000	
PostTest	.000	.000	.000	.000	.000	.000	.000	.000	

Fig (5): Health-promoting behavior questionnaire's points of discussion and the two groups to be examined  
Reference: Researcher

Alt	Level 1	Pty	
Post Test	Healthy foods explanation (L: .091)	.068	
	Meal planning (L: .091)	.068	
	Distinction between meals and snacks (L: .091)	.057	
	Understand the effect of food choices on general health (L: .091)	.051	
	Evaluation of eating habits and practices (L: .091)	.051	
	Well-balanced diet components (L: .091)	.053	
	Eating sugar to get enough energy (L: .091)	.056	
	Nutrients found in fruits and vegetables (L: .091)	.064	
	Importance of Proteins for growth (L: .091)	.054	
	Importance of being physically active (L: .091)	.055	
	Practicing moderate-intensity sports or fitness (L: .091)	.054	
	Traditional Lec	Healthy foods explanation (L: .091)	.023
		Meal planning (L: .091)	.023
		Distinction between meals and snacks (L: .091)	.034
		Understand the effect of food choices on general health (L: .091)	.040
Evaluation of eating habits and practices (L: .091)		.040	
Well-balanced diet components (L: .091)		.038	
Eating sugar to get enough energy (L: .091)		.035	
Nutrients found in fruits and vegetables (L: .091)		.027	
Importance of Proteins for growth (L: .091)		.037	
Importance of being physically active (L: .091)		.036	
Practicing moderate-intensity sports or fitness (L: .091)	.037		

Fig (6): Scores of Nutrition and physical health perception questionnaire for each question for the two groups  
Reference: Researcher

Finally, scores of questionnaires are normalized using spread sheets to get the total score for each group. Scores of Nutrition & physical health perception questionnaire are listed in Table (1). Scores of health-promoting behavior questionnaire are listed in Table (2).

Questionnaire no.	Traditional lectures group	Post test group
1	0.345	0.655
2	0.483	0.517
3	0.456	0.544
4	0.435	0.565
5	0.355	0.645
6	0.418	0.582
7	0.435	0.565
8	0.433	0.567
9	0.409	0.591
10	0.434	0.566
11	0.478	0.522
12	0.388	0.612
13	0.435	0.565
14	0.421	0.579
15	0.454	0.546
<b>Mean</b>	<b>0.425</b>	<b>0.575</b>

Table (1): Nutrition and physical health perception Questionnaire overall score  
Reference: Researcher

Questionnaire no.	Traditional lectures group	Post test group
1	0.298	0.702
2	0.343	0.657
3	0.412	0.588
4	0.329	0.671
5	0.355	0.645
6	0.469	0.531
7	0.437	0.563
8	0.433	0.567
9	0.483	0.517
10	0.421	0.579
11	0.391	0.609
12	0.388	0.612
13	0.392	0.608
14	0.294	0.706
15	0.436	0.564
<b>Mean</b>	<b>0.392</b>	<b>0.608</b>

Table (2): Health-promoting behavior Questionnaire overall score  
Reference: Researcher

### 3. CONCLUSIONS

First, it was found that the children's 'total' nutrition & physical perception score was higher to a certain extent level in the post test group whose utilizing multimedia based packages,  $M=0.575$ , in comparison to the traditional lecture group,  $M=0.425$  as shown in Table (1). Second, children's 'total' health-promoting behavior score in the post-test group whose utilizing multimedia based packages was higher at statistically significant levels,  $M= 0.608$  in comparison to the traditional group,  $M= 0.392$  as shown in Table (2) . Specifically, the total score for the post-test group is higher than the traditional lecture group by 21% related to health-promoting behavior, while the total score for the post-test group is higher than the traditional lecture group by 15% related to nutrition and physical health perception.

This study implies that the balanced development of nutrition & physical health perception and promoting health behaviors can be approached by the use of multimedia based health education packages from holistic approaches in childhood education. Moreover, development of interactive multimedia applications that comes with attractive graphics, audio and animation have great potential in attracting the interest of children in gaining a deeper understanding of any issue.

### REFERENCES

- Acha J, 2009, *The effectiveness of multimedia programmes in children's vocabulary learning*. Brit. J. Educ. Technol., 40(1): 23-31.
- Eun Young Yoo, 2012, *Design and Effect of Multimedia Based Health Education Program for Young Children*, Korea National Open University (Korea)
- Harun, J., & Tasir, Z. (2003). *Multimedia dalam pendidikan*: PTS Publications.
- Johnny K.W. Wong, Heng Li, 2008, "Application of the analytic hierarchy process (AHP) in multi-criteria analysis of the selection of intelligent building systems", Building and Environment Journal, vol:43 ,p. 108–125
- Mayer, R. E. (2001). *Multimedia learning: Cambridge* ; New York : Cambridge University Press, 2001.
- Seyhan Sipahi and Mehpare Timor, 2010, "The analytic hierarchy process and analytic network process: an overview of applications" Management Decision, Vol. 48 No. 5 pp. 775-808
- Spittaels, H., Bourdeaudhuij, I., Brug, J., & Vandelanotte, C. (2007). *Effectiveness of an online computer-tailored physical activity intervention in a real-life setting*. Health Education Research, 22(3), 385e396. <http://dx.doi.org/10.1093/her/cyl096>
- Stojan Kostanjevec, Janez Jerman and Verena Koch, 2011, *The Effects of Nutrition Education on 6th graders Knowledge of Nutrition in Nine-year Primary Schools in Slovenia*, Eurasia Journal of Mathematics, Science & Technology Education, 2011, 7(4), 243-252
- Thomas R. Frieden, 2011, *School Health Guidelines to Promote Healthy Eating and Physical Activity*, National Center for Chronic Disease Prevention and Health Promotion, Recommendations and Reports / Vol. 60 / No. 5