

Development of menu board media for information on sugar, salt and fat related health messages at a senior high school cafeteria in Depok City, Indonesia

Development
of menu board
media

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Abstract

Purpose – The purpose of this paper is to produce informative menu board media to show sugar, salt and fat (SSF) related health messages in a Senior High School canteen.

Design/methodology/approach – The research model included stages of needs analysis, design, product development and product evaluation. The data were collected from material experts, media experts and 186 high school students. Data were analyzed by descriptive qualitative and statistical analysis.

Findings – The C and D menu boards were selected for their content information and health messages that received higher scores.

Originality/value – There are four stages required in the development of menu board media: needs analysis, menu board design, product development and product evaluation. Further research would be needed to develop the menu boards into a simpler model.

Keywords Indonesia, Menu board media, Nutrition surveys, Health message

Paper type Short report

Background

Indonesia is experiencing a dramatic escalation of non-contagious diseases (NCDs). Basic Health Research Results from 2007 to 2013 show a significant increase in NCDs, including which, stroke cases increased from 8.3 per mile in 2007 to 12.1 per mile in 2013. Furthermore, 61 percent of total deaths are caused by NCDs with cardiovascular disease as the highest cause of death by 37 percent[1]. The main causes of NCDs can be grouped into modifiable factors, such as environmental and behavioral factors and non-modifiable risk factors, including poor diet high in sugar, salt and fat (SSF)[2].

In an effort to protect the community from NCDs and increase consumer knowledge of SSF content in processed and ready-to-eat foods, the Ministry of Health issued Regulation No. 63 of 2015 as an Amendment to Regulation of the Ministry of Health No. 30 of 2013, on the obligation of the inclusion of SSF information as well as obligatory Health Messages on Processed and Ready Food[3].

Nevertheless, previous studies found that health related information on food products were of little concern to shoppers[4]. Research confirms that less than 10 percent of people



review nutritional information before purchasing food[5]. Furthermore, most societies have problems understanding and assessing nutritional information labels[6].

A solution is the inclusion of SSF information and health messages on media boards owned by ready-to-eat food providers, such as school cafeterias. Menu boards are a helpful means of communicating health messages where the effectiveness of the message relies on the ability of the media source to influence the target group who should be able to easily read and understand the relevance of the information detailed[7]. The aims of this study are to provide examples of menu board design to convey SSF information and health messages in school cafeterias.

Methods

This study used a research and development model.

The development model used a modification of the research and development steps proposed by Borg and Gall[8]. Based on the development model, the development procedure in this research was divided into five stages: needs analysis; media design; media production; formative evaluation; and summative evaluation. This study only reached stage 4. Formative evaluation was comprised of one to one evaluation, small group evaluation and field evaluation. Summative evaluation was completed after the program was formatively evaluated and revised.

The needs analysis was assessed by studying government policy to control NCDs. Further research was conducted on conditions of school cafeterias, types of snack food available and types of media information in the school canteen. Needs analysis can be seen in Figure 1.

The media content was based on the Regulation of the Minister of Health of the Republic of Indonesia No. 30 of 2013 on inclusion of SSF content information and Health Message for Processed and Ready Food.

Production of menu board media that lists SSF information as well as health messages with steps are shown in Figure 2.

Formative evaluation was made up of validation, testing and product revision. Validation by material experts included aspects of content whilst media experts reviewed technical and appearance aspects. The trials were conducted through one to one evaluation, small group evaluation and field trials followed by data analysis and product revisions based on the results of the trial. More details can be seen in Figure 3.

Subjects in the media validation stage consisted of one material expert and one media expert. The product trial stage consisted of 196 high school students divided as follows: ten respondents for focus group discussion (FGD) with media board menu A; 55 respondents for site test on menu board media design B (based on FGD results); 71 respondents for site test

Figure 1.
The first stage of menu boards development procedures for inclusion of SSF information as well as health message

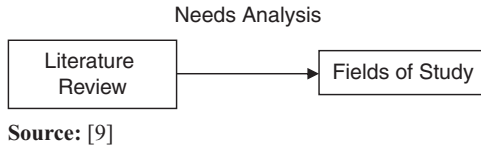
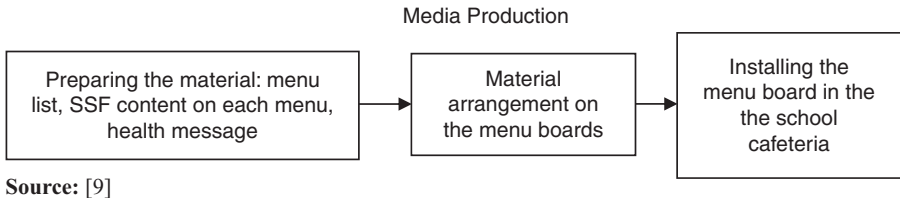


Figure 2.
Menu development procedures for inclusion of SSF information as well as a third health message



on menu board media design C (based on site test results on menu board with design B); and; 60 respondents for site test on menu board media design D (based on the results of site tests of the design menu board C).

A questionnaire was developed to evaluate menu boards B, C and D. Descriptive statistical analysis techniques used to process data obtained through questionnaires in the form of scores were converted into values or categories, as presented in Table I[10].

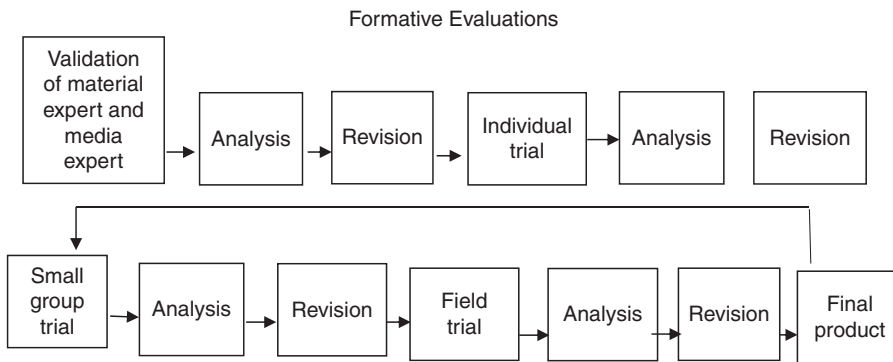
Results and discussion

The resulting media products consist of menu boards A, B, C and D. The health message on SSF content for the menu boards was agreed as follows: “Consumption of sugar more than 50 grams, Sodium over 2,000 milligrams or total Fat more than 67 grams per person per day risk of hypertension, stroke, diabetes, and heart attack.”

The presentation of information begins with SSF information for each snack food followed by the health message placed below, in a central position. This is consistent with previous research on readability[11]. Images and easy to read text were also deemed important to successfully imparting this health message[12]. Similarly, contrasting text colors against a single color background helps to facilitate readability[13].

Menu board A comprised of a white background, red and black text and included images of sugar and oil.

Students were questioned on comprehension, acceptability, attractiveness, self-involvement and persuasiveness aspects of menu board A (Figure 4). Menu board B (Figure 5) was made with Green and White writing color and included a pattern in each corner of the board, as shown in Figure 2.



Source: [9]

Figure 3. Procedures of menu development for inclusion of SSF information and fourth-level health messages

Categories	Formula	Score	Calculations
Excellent	$X > \mu_i + 1.8 S_{bi}$		$X > 4.3$
Good	$\mu_i + 0.6 S_{bi} < X \leq \mu_i + 1.8 S_{bi}$		$3.4 < X \leq 4.3$
Enough	$\mu_i - 0.6 S_{bi} < X \leq \mu_i + 0.6 S_{bi}$		$2.6 < X \leq 3.4$
Bad	$\mu_i - 1.8 S_{bi} < X \leq \mu_i - 0.6 S_{bi}$		$1.8 < X \leq 2.6$
Very bad	$X \leq \mu_i - 1.8 S_{bi}$		$X \leq 1.8$

Notes: Information: ideal mean (μ_i) = $1/2 \times (\text{Max.} + \text{Min.}) = 3$; $S_{bi} = 1/6 \times (\text{Max.} - \text{Min.}) = 0.7$; max. score = 5; min score = 1; X = actual score

Table I. Score conversion became a value on a scale of five

GERAI DHANI		KANDUNGAN MAKANAN		
Daftar Menu	Harga	Gula(g)	Garam(mg Natrium)	Lemak(g)
KEBAB TURKI	8.000,-	7	1.029	17
JASUKE	5.000,-	6	87	6
ROTI MARYAM	7.000,-	5	281	4
CIRENG ISI AYAM	1.500,-	0	188	10
CIRENG ISI SOSIS	1.500,-	0	221	8
CIRENG ISI KORNET	1.500,-	0	262	9
CIRENG ISI ABON	1.500,-	0	221	9
CIRENG ISI KEJU	1.500,-	0	211	9
CIRENG ISI BAKSO	1.500,-	0	259	9
NASGOR BIASA (PAKAI SOSIS)	5.000,-	7	728	9
NASI + FUYUNGHAI	6.000,-	3	491	13
KENTANG BALADO GORENG	3.000,-	3	300	16
NASI + RENDANG (1 POTONG KECIL)	10.000,-	1	75	5
NASI + DAGING ASAP	10.000,-	1	249	2
NASI + TELUR GORENG	6.000,-	1	307	13

PESAN KESEHATAN ATAN
 "Konsumsi gula lebih dari 50 gram, Natrium lebih dari 2000 miligram, atau Lemak total lebih dari 67 gram per orang per hari berisiko hipertensi, stroke, diabetes, dan serangan jantung"
 (Permenkes No. 30 Tahun 2013)

Figure 4.
Menu board A

GERAI DHANI		KANDUNGAN MAKANAN		
Daftar Menu	Harga	Gula(g)	Garam(mg Natrium)	Lemak(g)
KEBAB TURKI	8.000,-	7	1.029	17
JASUKE	5.000,-	6	87	6
ROTI MARYAM	7.000,-	5	281	4
CIRENG ISI AYAM	1.500,-	0	188	10
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 (Permenkes No. 30 Tahun 2013)

Figure 5.
Menu board B

Menu board C was made in basic color yellow, black SSF text with health messages in red text including the source of SSF data, as shown in Figure 6.

Menu board D (Figure 7) was made with black base color, SSF information writing color is white and the health message in yellow, as shown in Figure 4.

The results were given in Table II.

As indicated on Table II, menu boards C and D contained higher “good” and “very good” scores making them most feasible for use.

In order to achieve optimum results, feedback from high school students as well as media and material experts are crucial to its development. Suggestions for improvement from the above include the following: the base color of the board should be brighter and more neutral; the menu

GERAI DHANI		KANDUNGAN MAKANAN			
Daftar Menu	Harga	Gula(g)	Garam(mg Natrium)	Lemak(g)	
KEBAB TURKI	8.000,-	7	1.029	17	
JASUKE	5.000,-	6	87	6	
ROTI MARYAM	7.000,-	5	281	4	
CIRENG ISI AYAM	1.500,-	0	188	10	
CIRENG ISI SOSIS	1.500,-	0	221	8	
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CIRENG ISI BAKSO	1.500,-	0	259	9	
NASGOR BIASA (PAKAI SOSIS)	5.000,-	7	728	9	
NASI + FUJUNGHAI	6.000,-	3	491	13	
KENTANG BALADO GORENG	3.000,-	3	300	16	
NASI + RENDANG (1 POTONG KECIL)	10.000,-	1	75	5	
NASI + DAGING ASAP	10.000,-	1	249	2	
NASI + TELUR GORENG	6.000,-	1	307	13	

PESAN KESEHATAN
"Konsumsi gula lebih dari 50 gram, Natrium lebih dari 2000 miligram, atau Lemak total lebih dari 67 gram per orang per hari berisiko hipertensi, stroke, diabetes, dan serangan jantung"
(Permenkes No. 30 Tahun 2013)

Figure 6.
Menu board C

		KANDUNGAN MAKANAN			
Daftar Menu	Harga	Gula(g)	Garam (mg Natrium)	Lemak (g)	
Nasi Goreng + Telur	7000,-	4	1184	21	
Nasi Uduk (Telur Iris, Tempe oreng)	7000,-	1	426	20	
Soto Ayam + Nasi	7000,-	1	413	11	
Ketoprak	7000,-	31	1100	14	
Lontong Sayur + Tahu	8000,-	1	402	19	
Mie Instan Rebus + Telur	7000,-	4	1429	19	
Mie Instan Goreng + Telur	7000,-	8	1149	20	
Roti Bakar	3000,-	20	473	11	
Aneka Gorengan	1000,-	1	388	10	
Pisang Rebus	1000,-	1	14	0	
Es Teh Manis	3000,-	20	1	0	
Teh Kotak	3000,-	26	15	0	
Air Putih / Mineral	3000,-	0	0	0	
Saos Tomat 1 sendok makan	0	2	167	0	
Saos Sambal 1 sendok makan	0	2	255	0	
Kecap	0	4	898	0	

PESAN KESEHATAN
"KONSUMSI GULA LEBIH DARI 50 GRAM, NATRIUM LEBIH DARI 2000 MILIGRAM, ATAU LEMAK TOTAL LEBIH DARI 67 GRAM PER ORANG PER HARI BERESIKO HIPERTENSI, STROK, DIABATES DAN SERANGAN JANTUNG"
(Permenkes No. 30 Tahun 2013)

Figure 7.
Menu board D

NO	Component	Menu B		Menu C		Menu D	
		Score	Category	Score	Category	Score	Category
1.	Attraction	3.1	Enough	4.0	Good	4.4	Excellent
2.	Comprehension	4.0	Good	4.3	Good	4.6	Excellent
3.	Acceptability	3.6	Good	4.0	Good	4.5	Excellent
4.	Self-involvement	4.0	Good	4.3	Good	4.6	Excellent
5.	Persuasion	3.8	Good	4.3	Good	4.5	Excellent
6.	Graphics	3.2	Enough	3.9	Good	4.2	Good

Table II.
Result of board
menu assessments
B, C and D

board should not have a motive or image considering the extent of information that must be delivered; information should be presented in table form so it is easy to read the SSF content for each dish sold in the cafeteria; the selected writing color should contrast with the base color; the health message should be distinguishable by the color of the SSF information; the authorized institution responsible for producing facts should be stated to increase credibility; uncomplicated fonts adjusted to the right distant reading size should be used to aid visibility.

Conclusion

It can be summarized that menu boards in cafeterias can be used to effectively educate high school students about health and SSF content in their diet.

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