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Design and the Human Experience
Essay One

Designing to Minimize Noise

Introduction

I was shopping after an intense workout when I thought of buying a milk with high protein and less fat. And the best way to do that is to look at the nutrition table and find the most suitable, simple right? Not really and the main reason is due to lack of good communication design. Information in the nutrition table are surely accurate but to decode and understand them isn't that easy due to various noises. Noises are distortions which Warren Weaver states as certain unwanted things that disrupts the process of transmitting signal ranging from distortion of sound and picture to error in transmission (Weaver, 1949). As noise disrupts the process of transferring signal, information provided will be uncertain to the receiver. This noise can be only overcome by good communication design. In this paper, I'll discuss about Weaver's concept of noise briefly and then analyze noise in nutrition table of different products. While analyzing, I'll be focusing on what about the nutrition tables are noisy and how it connects to Edward Tufte on visualizing information and Paul Rand on effectiveness. Finally, I'll be providing some good example of proposed re-designed nutrition tables and discuss how successful were they in minimizing noise and increasing effectiveness.

Explication

Weaver in his text "The Mathematics of Communication" states that communication is procedure by which one mind can effect other (Weaver, 1949). A communication system mainly consists of the information source which is encoded by transmitter as signal to the channel. The receiver receives the signal from channel, which then decodes the signal in order to get the information again. Simply put, communication system is mainly encoding-decoding of information from one mind to another. However, if noise is introduced into the communication system then it can create problems for the receiver to understand the message. Noise can lead to problems in communication in three levels, which are (i) **technical**: that alters the accuracy of transference of information (ii) **semantic:** which is receiver's interpretation of message compared with sender's (iii) **influential:** that concerns with the effectiveness of the message for the receiver's to act on it. The aim of good communication design is to minimize these problems through overcoming noise. Communication design which provides receiver ease to decode a signal with accuracy as the sender intended will be more effective and less uncertain.

Analysis

Now getting back to nutrition fact table, this is something that's been there on products for a century in different forms. In the early 20th century food labels were used to indicate vitamins for consumers to avoid disease but by 80's different issue

emerged which required new food labeling; obesity. The present nutrient table was then decided to be the new food label by FDA and 23 years later it still exists on most food products. So it goes without saying that the present nutrient table is focused mainly on obesity, however people look onto the table for various other reasons like looking for how organic is it, macro-nutrients composition or just how often they should consume it.

Nutrition Facts

Serving Size 172 g

Amount Per Serving

Calories 200	Calories from Fat 8
	% Daily Value*
Total Fat 1g	1%
Saturated Fat 0g	1%
Trans Fat	
Cholesterol 0mg	0%
Sodium 7mg	0%
Total Carbohydrate 36g	12%
Dietary Fiber 11g	45%
Sugars 6g	
Protein 13g	

Vitamin A	1%	• Vitamin C	1%
Calcium	4%	• Iron	24%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

NutritionData.com

Fig 1: Nutrient Fact table, Dec 2015

This nutrient facts table (fig. 1) is a data representation of the amount of different nutrients present along with the percentage required to be taken daily (DV). It shows a hierarchy of information with important typeface bolded. The multivariable information is chunked into different categories with similar contents together. As for example macro-nutrients like fat, protein, carbohydrates are sorted together while micro-nutrients like Vitamin A, C are arranged together at the bottom. Although it's designed with clear typeface and with visual hierarchy, they can still be pretty confusing due to noise which will be discussed now.

Often the message that the manufacturer or the FDA want to send, mind not be interpreted in the same way by the customer leading it to be a noise. This is also

known as **semantic error**.

When the designer of the present nutrient facts, Burkley Belser was asked if he thinks his work is useful to people, he replied that the "This label is so complex, I doubt people could tell you what a carbohydrate was, in general" (Berman, 2013). So through

CURRENT

Nutrition Facts
Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving

Calories 230	Calories from Fat 40
	% Daily Value*
Total Fat 8g	**12%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**12%**
Dietary Fiber 4g	**16%**
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

ALTERNATIVE

Nutrition Facts
8 servings per container
Serving size 2/3 cup (55g)

Amount per 2/3 cup
Calories 230

% Daily Value*

QUICK FACTS:

12%	**Total Fat** 8g
12%	**Total Carbs** 37g
	Sugars 1g
	Protein 3g

AVOID TOO MUCH:

5%	**Saturated Fat 1g**
	***Trans* Fat** 0g
0%	**Cholesterol 0mg**
7%	**Sodium 160mg**
	Added Sugars 0g

GET ENOUGH:

14%	**Fiber 4g**
10%	**Vitamin D** 2mcg
20%	**Calcium** 260mg
45%	**Iron** 8mg
5%	**Potassium** 235mg

* Footnote on Daily Values (DV) and calorie reference to be inserted here.

Fig 2: Current Nutrition Facts label(left) with an alternative(right), www.ivyrehab.com.

nutrient tables, FDA provides consumers with the information of nutrients to make them buy healthy choices, but if the consumer can't identify the importance or harmfulness of certain nutrients then there would be noise in getting FDA's message of healthy choices. As in the figure 2 (left), the product contains significant amount of both Iron and Sodium, but if the consumer is ignorant about the harmfulness of taking sodium and importance of getting enough Iron then the consumer would completely miss out on the message provided by the FDA. Therefore, FDA needs to provide comparisons between healthy and unhealthy nutrients. In this regard, Tufte claims that "The essential point is to make intelligent comparisons. Thus Visual displays, if they are to assist thinking should show comparisons" (Tufte, 2006). If FDA designs the nutrient table as showed in figure 3

(right) then the consumers will have an idea about which nutrients to take more and which one to take limited. This design will help the consumer interpret FDA's message as intended and will minimize the noise.

Fig 3: Rainbow Arabic Nutrient Fact, 2016

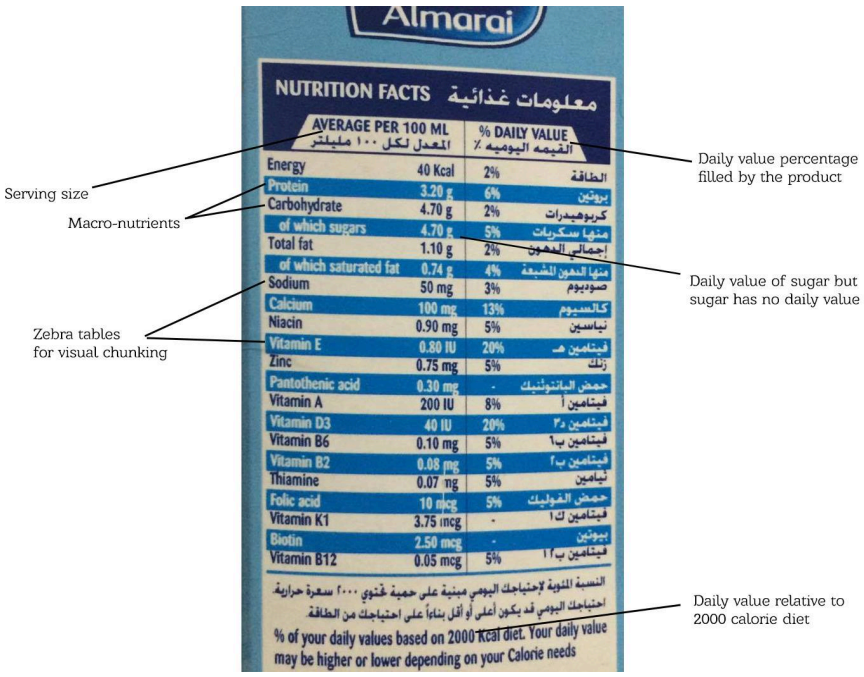

Fig 4: Almarai Milk Nutrient Fact, 2016

Another important aspect of good communication design is improving the accuracy and technical aspect of transmitting information. If the information provided can not be read or understood easily by the receiver, then the message contains noise. Here (fig. 3), the nutrient fact of the product is written in Arabic for its local consumer, but the absence of English creates a **technical error** for the Non-Arab speaker as myself. Therefore, the information in the nutrient fact is noisy which isn't a good communication design. In this regard, Paul Rand states, "The goal of the designer is to be persuasive or at least informative…He must discover a means of communication between himself and the spectator" (Rand, 2000). It is important to

reach out with the consumer through a medium which will be either persuasive or informative. In this regard, the nutrient fact of the other product (fig. 4) is more informative as it provides the information in both English and Arabic, removing the need of any translation or any noise causing by it.

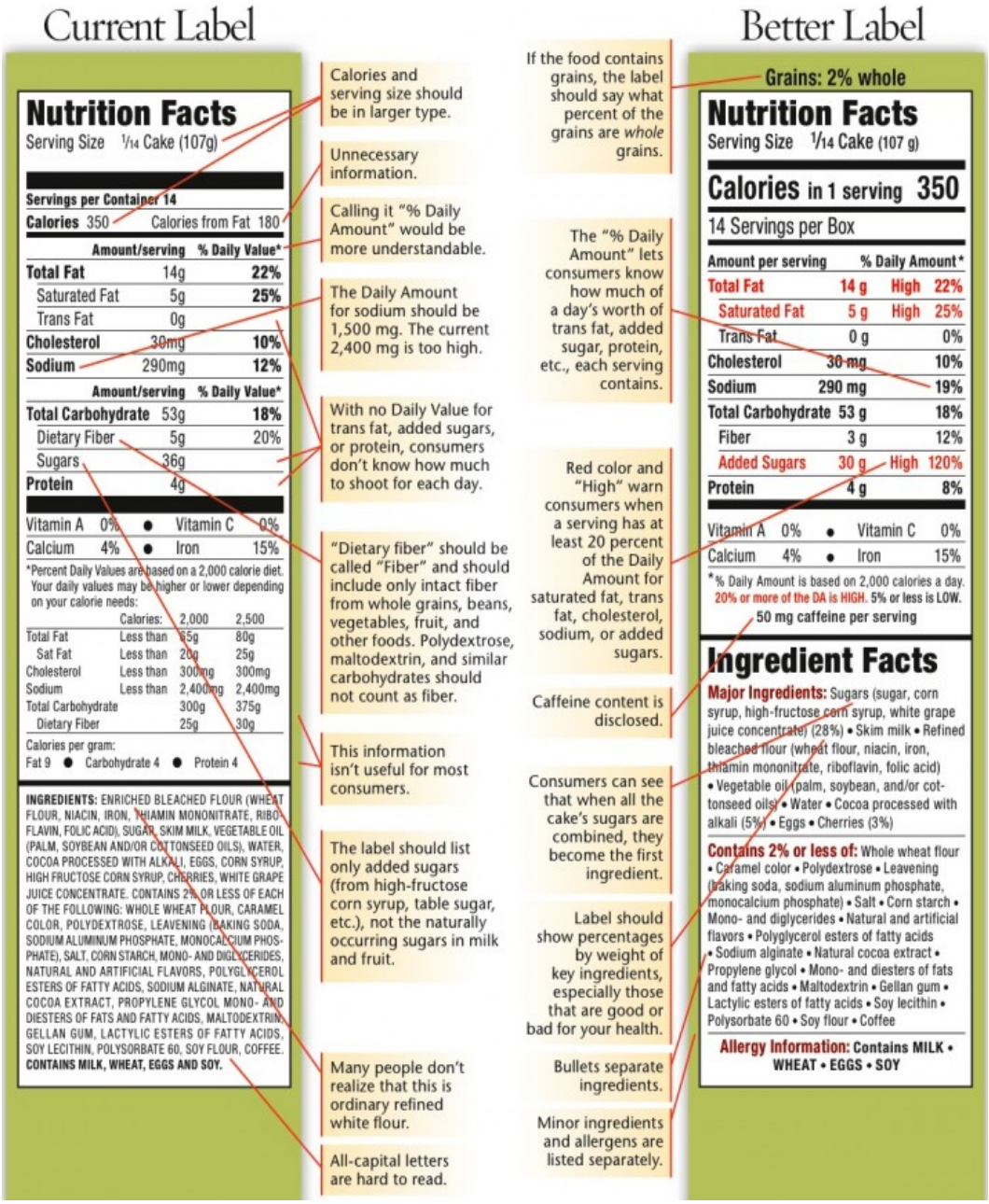

Fig 5: Content Based Nutrition Facts Comparison,
New York Times, 2009.

Finally, one of the basis of good communication design is it be content-driven. As I discussed the present nutrient facts is mainly focused on obesity, people who look for other information besides obesity struggles to find it making the information noisy. Instead of focusing on obesity, if the nutrient facts are focused on healthy eating then it would be more effective for all types of people from obese to vegan. The proposed new label by New York Times (fig. 5) highlights all nutrients with high amount in red. This helps the consumer identify that the product contains considerable amount of fat, sugar and caffeine with ease. Tufte supports content driven design as he claims "Analytical presentations ultimately stand or fall depending on the quality, relevance, and integrity of their content" (Tufte, 2006). Therefore, rather than following a general approach, if the designer focus on information which are relevant to the product as shown in the figure 5 then it would be less noisy as well as more effective.

Conclusion

As a whole, there are various ways a design can be noisy but a good communication design will always overcome the noise and help transfer the information with intended interpretation and accuracy. In order to minimize noise in their work, designers have to assist consumers by providing comparisons, similarities and differences. They also have to bear in mind about the technical aspect of communication between the sender and receiver through proper medium.

Finally, the most important part of designing a good communication is to be content-driven and make the information more effective.

Reference

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