

## Healthy Food Awareness, Behavioral Intention, and Actual Behavior toward Healthy Foods: Generation Y Consumers at University Foodservice

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### Abstract

This study examined relationships among healthy food awareness, behavioral intention toward healthy foods, and actual behavior of Generation Y consumers. This study hypothesized that Generation Y consumers are aware of healthy foods and more likely to eat healthy foods while avoiding junk foods. According to structural equation modeling, all hypothesized paths were statistically significant, meaning that the three constructs in the model showed positive relationships with each other. Results showed that this group of college students is generally aware of healthy foods and have positive intentions toward healthy food choices. Therefore, university foodservice management needs to continue to improve their menus in order to attract this new generation of college student consumers.

Key Words: Healthy food awareness, behavioral intention, Generation Y, university foodservice

### 1. Introduction

In the United States university foodservice is one of the largest sectors of the foodservice industry, and the market is getting considerably larger in terms of the number of potential consumers (Andaleeb & Caskey 2007; Kim et al. 2004; Knutson 2000; Seo et al. 2012). According to a report by the U.S. Census Bureau (2010), there were approximately 19 million college students in 2008, indicating 22% increase from 2000. These numbers imply that there is an increasing demand in university foodservice. A recent study by Technomic showed that 62% of college/university students purchased food or beverages from on-campus foodservice at least once a week (Technomic 2011). According to the report, college student consumers are concerned with healthy food, such as ones low in fat, calories, and sodium; meanwhile, increasing their interest in healthy, or eco-friendly, foods brought changes to university foodservice at students' respective schools (Jang et al. 2011; Lee et al. 2013).

The definition of the term "healthy foods" has not been clearly settled and varies depending on the source and context. According to the FDA (Food and Drug Administration 2013), food that is low in fat, limited in the

amount of sodium/cholesterol it contains, and food that provides a certain amount of nutrients is considered to be "healthy food." One challenge for university foodservice now is that most consumers are Generation Y or Millennials, (people born between the mid-1970s and 1990s). Most college students are Generation Ys. These consumers are sophisticated, eating out frequently, and willing to pay extra for better foods/service; therefore, in order to successfully market to this generation, university foodservice operators should understand college students' behavioral intention and how to satisfy them (Kim, 2013; Lee & Kim 2012). The general awareness of healthier food that dominated the 1990s has led to greater menu choices in foodservice for both business and industry. Kwon et al. (2010) defined a healthy menu item as "a menu item with an increased nutritional value or decreased health risk attributed to a change of food ingredients or cooking methods." Generally speaking, healthy menus are now being provided with more varied choices including low-fat and lowered-calorie menu options. Thus, the foodservice industry is examining new ways of exploiting market opportunities to satisfy their customers.

Even though there is some research regarding healthy foods in university foodservice, behavioral intention toward

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healthy eating, and college students' eating habits (Deshpande et al. 2009; Jang et al. 2011; Kim 2013; Sun 2008), limited research exists concerning the interrelationships among college students' healthy food awareness, behavioral intention, and actual behavior toward university foodservice. Furthermore, there are few research studies that focus on the Generation Y group regarding healthy foods. Behavioral intention is an individual's efforts to achieve a desired goal, and it has been identified as a straight antecedent of customer behavior (Deshpande et al. 2009; Jang et al. 2011; Kim 2013). Warshaw and Davis (1985) defined behavioral intention as the degree to which a person has formulated a conscious plan to perform or not perform some specified future behavior, and Oliver (1981) reported that behavioral intention strongly related to a consumer's intention to recommend the service or product to other people. In foodservice contexts, a number of researchers reported that behavioral intention represented an outcome construct influenced by other constructs such as emotions (Jang & Namkung 2009), perceived value (Parasuraman, Zeithaml & Berry 1985; Petrick & Backman 2002), knowledge (Coulson 2000), and satisfaction (Fornell 1992; Oliver 1980). Also, several studies demonstrated that knowledge is an important antecedent of a consumer's behavioral intention and that these constructs were positively related (Bogue et al. 2005; Coulson 2000; Cranage et al. 2004; Deshpande et al. 2009). For example, Coulson (2000) conducted a study to find relationships among food labeling knowledge, attitudes, and the behavior of college students; the results showed that students who had positive attitudes toward labeling and exposure to nutritional labels improved their food choices. Therefore, the current study proposes that higher level of college students' knowledge concerning healthy food associates with positive behavioral intention toward healthy food choices.

This study attempts to examine the relationships among healthy food awareness, behavioral intention toward healthy foods, and actual behavior of Generation Y. The specific objectives of the present study are (1) to examine whether Generation Y's healthy food awareness has an impact on their behavioral intention toward healthy foods; (2) to identify whether or not their healthy food awareness influences actual healthy food consumption; and (3) to determine the positive relationship between behavioral intention toward healthy foods and the actual consumption of healthy food.

## II. Materials and Method

### 1. Variables and hypotheses

Healthy Food Awareness (HFA), as an independent variable, is the respondents' self-evaluation about healthy food and nutritional knowledge. Behavioral Intention (BI), as a mediating variable, is the respondents' intention toward healthy foods, such as willingness to eat healthy foods and to recommend to others. Lastly, Actual Behavior (AB), as an outcome variable, is the respondents' actual avoidance of junk food. The proposed model tests the relationships among consumers' healthy food awareness, behavioral intention, and actual behavior. In order to clearly understand the interrelationships, the following hypotheses were proposed:

**H1.** Consumers' healthy food awareness positively influences behavioral intention toward healthy food.

**H2.** Consumers' healthy food awareness positively influences actual behavior (junk food avoidance).

**H3.** Behavioral intention toward healthy food positively influences actual behavior (junk food avoidance).

### 2. Research instrument

Research on the foodservice industry has shown that people's knowledge and concerns for their health had positive impact on their behavioral intention (Bogue et al. 2005; Seeman & Seeman 1983), therefore this study focused on the relationships among the constructs: healthy food awareness, behavioral intention, and actual behavior among Generation Y consumers. The first step developed three constructs related to college students' healthy-eating behaviors. Respondents used a 5-point Likert-type scale: "How much do you agree with the statements?" (1: strongly disagree to 5: strongly agree) to measure the items. Modification of the current research reflected previous studies related to healthy awareness (House et al. 2005; Moorman et al. 2004). In order to measure respondents' concern for health, modifications and development of items relied on scales from the research of Hayes and Ross (1987) and Millstein and colleagues (1992). The Zeithaml, Berry and Parasuraman (1996) study assisted for measurement of respondents' behavioral intention and actual behavior to determine college students' behavior toward healthy foods. A self-administered questionnaire was developed to measure Generation Y college student consumers' perceptions about healthy food awareness (HFA) and behavioral intention (BI)

and actual behavior (AB). The survey questionnaire consisted of four parts: (1) the first part was designed to measure respondents' self-evaluation about their healthy food awareness; (2) the second part was designed to measure respondents' behavioral intention toward healthy food; (3) the third part measured the frequency of respondents' food consumption, more specifically junk food avoidance; and (4) the fourth part contained respondents' demographic information (i.e., gender, age, classification, etc.). The first and second parts was measured on 5-point-type scale, 1 (strongly disagree) to 5 (strongly agree), and the third part was measured on 4-point scale, 0 (not at all) to 3 (3 times or more per day). The institutional review board approved research protocols regarding protection of human subjects.

### 3. Study sample and data collection

This study focused on Generation Y, who were born between the mid-1970s and 1990s, and who are now college students. Therefore, the sample of the current study is composed solely of college students, between the ages of 18 and 33. Data was collected using an online survey engine (Qualtrics.com) at a large public university in the Southwest United States during Spring 2010. Out of 280 potential samples (estimated number of students who participated in the online survey), 246 usable questionnaires were collected, with response rate of 87.9%.

### 4. Data analysis

The survey data was compiled and analyzed using SPSS and Amos. The data analysis primarily followed the two-step approach developed by Anderson and Gerbing (1988): (1) development of the measurement model and (2) assessment of a subsequent structural model. The confirmatory factor analysis (CFA) determined the hypothesized latent variables using multiple-item scales of constructs and assessed the overall model fit of the measurement model; afterwards, structural equation modeling (SEM) was applied to the data to assess the interrelationships among constructs.

## III. Results and Discussion

### 1. Sample profile

<Table 1> presents the demographic profile of the respondents. The results show that 48.0% of respondents (n=118) were male and 52.0% (n=128) were female. The average age was 21.4 years, with almost all (93.5%) respondents under 25 years of age (n=230). Regarding the

<Table 1> Demographic profile of the sample (N=246)

Characteristics	Category	N	%
Gender	Male	118	48.0
	Female	128	52.0
Age	Under 20 years	110	44.7
	21-25 years	120	48.8
	26-30 years	20	8.1
	31-33 years	6	2.4
Classification	Freshman	11	4.5
	Sophomore	54	22.0
	Junior	105	42.7
	Senior	53	21.5
	Graduate	23	9.3
Ethnicity	White	169	68.7
	Hispanic	31	12.6
	African-American	7	2.8
	Asian	35	14.2
	Other	4	1.6

classification, the majority group for respondents (42.7%) was junior, followed by sophomore (22.0%) and senior (21.5%). The main ethnicity group (68.7%) for respondents was White (n=169), followed by Asian (14.2%) and Hispanic (12.6%).

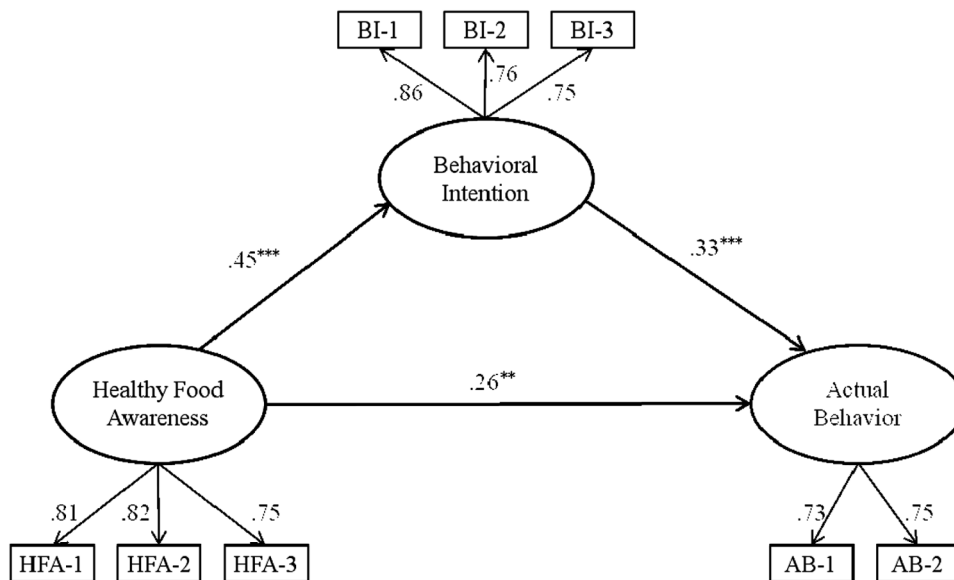
### 2. Overall measurement model

Before conducting the SEM model, a CFA was conducted to assess the overall model fit and appropriateness of the proposed measurement model. <Table 2> shows the details of reliabilities of the constructs and fit indices of the measurement model. According to the fit indices from CFA ( $\chi^2_{(17)}=20.695$ ,  $p=.240$ ,  $\chi^2/df=1.217$ , NFI=.973, TLI=.992, CFI=.995, GFI=.979, AGFI=.957, and RMSEA=.030), the hypothesized measurement model fits the collected sample data. The internal consistency of the constructs were acceptable with Cronbach's alpha values ranging from .71 to .83 (Nunnally 1978), and composite reliabilities were satisfied with the acceptable cut-off level of .7 (Fornell & Larcker 1981). Furthermore, construct validity was examined by assessing convergent validity and discriminant validity. For convergent validity, both factor loadings, ranging from .73 to .86, and average variance extracted (AVE), exceeding the cut-off level of .50, were satisfied with an acceptable range (Anderson & Gerbing 1988). Discriminant validity was determined by comparing AVEs with the squared correlation coefficients between any pairs of construct (Fornell & Larcker 1981), and the results indicated that discriminant validity was ensured because AVEs were greater than the squared correlation coefficients.

<Table 2> Reliabilities and confirmatory factor analysis properties

Construct (Cronbach's $\alpha$ )	Factor loadings	Composite reliability	AVE <sup>a</sup>
HFA (.83)		.84	.63
(HFA-1) I am knowledgeable about nutrition information.	.81		
(HFA-2) I have more nutrition knowledge compared to my peers.	.82		
(HFA-3) I am confident in knowing which food is good for health.	.75		
BI (.83)		.84	.63
(BI-1) The probability that I will choose healthy food is high.	.86		
(BI-2) I would definitely recommend healthy food to a friend.	.76		
(BI-3) If I had to eat any meal on campus, I would choose healthy food	.75		
AB (.71)		.71	.55
(AB-1) Frequency of eating hamburger, hot dogs, or sausage ( <i>R</i> )	.73		
(AB-2) Frequency of eating French fries or potato chips ( <i>R</i> )	.75		

Note: HFA (Healthy Food Awareness), BI (Behavioral Intention), AB (Actual Behavior), <sup>a</sup>Average variance extracted. Model fit indices for CFA:  $\chi^2_{(17)}=20.695$ ,  $p=.240$ ,  $\chi^2/df=1.217$ , Normed Fit Index (NFI)= .973, Tucker Lewis Index (TLI)= .992, Comparative Fit Index (CFI)= .995, Goodness of Fit Index (GFI)= .979, Adjusted Goodness of Fit Index (AGFI)= .957, Root Mean Square Error of Approximation (RMSEA)= .030.



<Figure 1> Structural results of the proposed model

Note: \*\* $p < .01$ , \*\*\* $p < .001$ . Model fit indices for SEM:  $\chi^2_{(17)}=20.695$ ,  $p=.240$ ,  $\chi^2/df=1.217$ , Normed Fit Index (NFI)= .973, Tucker Lewis Index (TLI)= .992, Comparative Fit Index (CFI)= .995, Goodness of Fit Index (GFI)= .979, Adjusted Goodness of Fit Index (AGFI)= .957, Root Mean Square Error of Approximation (RMSEA)= .030.

### 3. Structural equation model

SEM was undertaken after validating the measurement model in order to evaluate the interrelationships between variables. The results of SEM were depicted with the standardized factor loadings, path coefficients, and fit indices shown in <Figure 1>. The chi-square value (20.695) with 17 degrees of freedom with p-value of .240 and fit indices ( $\chi^2_{(17)}=20.695$ ,  $p=.240$ ,  $\chi^2/df=1.217$ , NFI= .973, TLI= .992, CFI= .995, GFI= .979, AGFI= .957, and RMSEA= .030) indicated that the proposed model fit the data.

<Figure 1> also presents the results of the hypotheses tests. The first hypothesis, predicting healthy food awareness positively influences behavioral intention toward healthy food, was supported ( $\gamma_{HFA \rightarrow BI} = .45$ ,  $p < .001$ ); furthermore, the second hypothesis, presenting respondents' awareness positively impacts on actual behavior (i.e. decreasing consumption of junk food), was also supported ( $\gamma_{HFA \rightarrow AB} = .45$ ,  $p < .01$ ). Finally, the third hypothesis, the positive relationship between behavioral intention and actual behavior, was accepted ( $\beta_{BI \rightarrow AB} = .45$ ,  $p < .001$ ).

## IV. Summary and Conclusion

### 1. Summary and discussion

Due to the increasing desire for healthier lives and in consideration of issues of health among young adults, such as college students, this study examined the relationships of knowledge of healthy food, concerns for health, and behavioral intention toward choices for healthy food among college students. As the results of the study, generation Y consumers awareness healthy foods had positive impacts on both their behavioral intention and actual behavior in the United States. This finding partially supports previous studies. For example, Bogue et al. (2005) reported that concern for health is one of important antecedent of behavioral intention and knowledge about food was vital predictor of behavioral intention. Consequently, this means that college students in both countries recognize the importance of healthy food, and that they are using their knowledge to incorporate healthier behaviors into their lives, especially in their diets. Accordingly, university foodservice operators should consider providing useful information related to healthy food to increase their revenue because college students can be influenced to change their behaviors based on their knowledge. By helping improve their customers' knowledge, university foodservice providers may gain a competitive edge. If foodservice companies provide information on healthier food ingredients, students will have a wider range of healthy food choices. Also foodservice providers might conduct regular seminars in order to provide or improve knowledge about healthy food to their current and future customers; this would help college students to develop healthier eating behavior. In addition, knowledge of healthy food also had a positive effect on behavioral intention for both college students. These results supported previous study by Bogue et al (2005), who showed that awareness of health and people's knowledge were positively correlated among Irish consumers. The authors found that concern for health is an important antecedent of behavioral intention, and that concern, knowledge, and consumers' behavioral intention were closely linked. The current study was undertaken in order to investigate the interrelationships between variables -healthy food awareness, behavioral intention toward healthy food, and actual behavior- of Generation Y college students in a university foodservice setting. This study hypothesized that Generation Y consumers are aware of healthy food are more likely to intend to eat healthy food and actually try not to have junk

food. According to the results of structural equation modeling, all hypothesized paths were statistically significant ( $\gamma_{\text{HFA} \rightarrow \text{BI}} = .45, p < .001$ ;  $\gamma_{\text{HFA} \rightarrow \text{AB}} = .45, p < .01$ ; and  $\beta_{\text{BI} \rightarrow \text{AB}} = .45, p < .001$ ), meaning that three constructs in the model have positive relationships each other.

### 2. Limitations and future research

This study, of course, has some limitations due to its exploratory nature. The data were collected only at one university in the Southwest United States; therefore, it would be limited to generalize the findings to all other parts of the U.S. or other countries. In future research, this research could be replicated with other populations from different location to enable generalization. Also, even though the model proposed in this study fit the data, the outcome variable, actual behavior, was only defined as "avoidance of junk foods" instead of "actual consumption of healthy foods." Thus, further research could classify actual behavior into healthy foods consumption and avoidance of junk foods. If the current study was expanded to include these limitations in future research, the research and the model is expected to be more stable and reliable. Therefore, future researcher needs to extend the current model by considering other factor(s) in the context of healthy food. They can demonstrate the relative impact of knowledge of healthy food, as compared to other factors, on behavioral intentions. Another direction for future study involves potential moderating variables, including levels of familiarity and their cultural differences measuring the moderating effects of other cultural differences between East and West may be helpful.

Therefore, university foodservice managers can benefit from scrutinizing the diverse aspects of student knowledge when considering possible moderating variables as antecedents to consumer emotions and behavioral intentions.

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