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University of Nevada, Reno

**Analysis of Food and Beverage Marketing in the Public School Setting**

A thesis submitted in partial fulfillment of the  
requirements for the degree of  
Bachelor of Science in Nutrition and the Honors Program

by

Danielle Simon

Dr. Jamie Benedict, Ph.D., R.D., Thesis Advisor

May, 2011

**UNIVERSITY  
OF NEVADA  
RENO**

**THE HONORS PROGRAM**

We recommend that the thesis  
prepared under our supervision by

**DANIELLE AMANDA SIMON**

entitled

**Analysis of Food and Beverage Marketing in the Public School Setting**

be accepted in partial fulfillment of the  
requirements for the degree of

**BACHELOR OF SCIENCE, NUTRITION**

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Jamie Benedict, Ph.D., R.D., Thesis Advisor

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Tamara Valentine, Ph. D., Director, **Honors Program**

[May, 2011]

## **Abstract**

Childhood obesity is a growing epidemic among children in the U.S. Food and beverage marketing targeted to this age group has been identified as a potential contributor. The purpose of this honors thesis was to investigate the qualitative and quantitative characteristics of posted food and beverage marketing in elementary, middle, and high schools in the Washoe County School District. Site visits were conducted at 19 schools including 12 elementary, 4 middle, and 3 high schools in 2010. During these site visits, two investigators observed nine different areas of the school (office/entry, hallways, lockers, cafeteria/multipurpose room, library, vending machines, recreation areas, scoreboards, and fences/gates) and recorded key features of each posted food and beverage marketing piece including the size, location, sponsor/source, product and/or nutrient promoted, theme, and inclusion of celebrity endorsement. Descriptive statistics were then computed for the purpose of a) describing the extent to which food and beverage marketing was present and the nature of this marketing; b) examining the degree to which the marketing was consistent with the school wellness policy; and c) identifying patterns with regard to the product and the key message, use of celebrities, size, location, and sponsor. The results provide information about the foods/beverages marketed on school campuses.

## **Acknowledgements**

Funding for this study was provided by the Office of Undergraduate and Interdisciplinary Research, and the Agricultural Experiment Station; University of Nevada, Reno.

Thank you to Trish Freed, R.D. and Ali Ross for their assistance with data collection.

Thank you to Lisa Gilmore for her assistance with the reliability assessment.

Thank you to Dr. Jamie Benedict for her time and guidance throughout this process.

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## Introduction

In 2004, the United States Congress passed The Child Nutrition and Women Infants and Children (WIC) Reauthorization Act (Public Law 108-265). Per this federal legislation, all school districts participating in the National School Lunch Program were required to establish local school wellness policies by the start of the 2006 academic year. These local school wellness policies were to include goals for nutrition education, physical activity, and student wellness as well as nutrition guidelines for all foods and beverages sold outside of the National School Lunch and School Breakfast Program on school campuses. The purpose of these nutrition guidelines was to encourage consumption of nutrient-rich foods including: fruits, vegetables, whole grains, and fat-free and low-fat dairy products, while limiting consumption of excess calories, total fat, saturated fat, *trans* fat, sugar, and sodium (Weber, 2007).

Concerns about children's nutritional health were a motivating factor for local wellness policies (American Dietetic Association, 2010). Increased soft drink consumption was one such concern. One study showed that by the age of fourteen, more than one-half of adolescent boys, and more than one-third of adolescent girls consumed at least three eight ounce servings of soft drinks on a daily basis (Gleason & Sutor, 2001). According to the American Dietetic Association (2004), increased soft drink consumption displaces the consumption of more nutrient-rich beverages such as milk and 100% fruit juices. For example, one study concluded that children and adolescents consumed more soft drinks than milk, fruit drinks, and 100% fruit juices combined (Rampersaud, Bailey, & Kauwell, 2003).

Findings from the 2010 Dietary Guidelines Advisory Committee called attention to the poor nutrition habits of children and adolescents in America. The Dietary Guidelines Advisory Committee (2010) concluded that children consumed excessive amounts of solid fats, sodium, added sugars, and refined grains. At the same time, these findings indicated that children did not consume enough fruits, vegetables, whole grains, and dairy products. Consequently, per the committee, children are not getting adequate amounts of key nutrients including: calcium, vitamin D, dietary fiber, and unsaturated fatty acids in their diets.

Poor nutrition, coupled with physical inactivity correlates with the increasing number of obese children. According to the 2007-2008 National Health and Nutrition Examination Survey (NHANES), 16.9% of children and adolescents between the ages of 2 and 19 years old were obese (Centers for Disease Control and Prevention [CDC], 2010). The obesity epidemic among children and adolescents is of concern since overweight children have a 70% chance of being overweight as adults, and children who are overweight/obese have a greater risk for comorbidities associated with obesity including: type 2 diabetes, cardiovascular disease, high blood pressure, osteoarthritis, and cancer (United States Office of the Surgeon General, 2007; Ebbeling, Pawlak, & Ludwig, 2002).

Food and beverage marketing has previously been identified as an environmental influence in the childhood obesity epidemic (Institute of Medicine [IOM], 2006). Health professionals are especially concerned about the impact of food and beverage marketing on the nutritional health of children. A position statement released by the American Academy of Pediatrics (2006) stated that marketing contributes to poor nutrition as well as increased rates of obesity among children and adolescents.

Much of the literature regarding the effects of marketing on children and youth focuses on television advertisements for food and beverage products (Wiecha et al., 2006; Dixon, Scully, Wakefield, White, & Crawford, 2007). Television advertisements have been shown to impact the food and beverage preferences of children and youth, encouraging children to consume foods frequently advertised on television including soft drinks, snack food items, and fried foods (Utter, Neumark-Sztainer, Jeffrey, & Story, 2003). Television marketing was shown to influence purchasing requests for specific food and beverage products in a separate study (Borzekowski & Robinson, 2001). While it is not possible to infer causality between food and beverage marketing to children and childhood overweight/obesity, observational studies have noted a strong positive correlation between exposure to television marketing and excess adiposity among children (Storey, Forshee, Weaver, & Sansalone, 2003; Utter et al., 2003).

In addition to television, in-school marketing campaigns are another popular marketing tactic used to influence children's food and beverage choices (American Public Health Association, 2003). This may be due to the captive nature of the school environment, and the opportunity to target a message to a large number of children in a single setting (Story & French, 2004). Though there are no national estimates of food and beverage marketing in schools, some claim it has become more prevalent (Di Bona, Chaudhuri, Jean-Baptiste, Menachem, & Wurzburg, 2003). One explanation offered for this increase related to the variety of feasible formats of in school marketing including: incentive programs, pouring rights contracts, brand exclusive vending agreements, naming rights agreements, free supplemental educational materials, and direct advertising (Molnar & Boninger, 2007).

The Child Nutrition and WIC Reauthorization Act of 2004 discussed above, included no provisions for food and beverage marketing. However, due to the perceived influence of marketing on children's food and beverage choices, some school districts

have included a marketing provision in their local school wellness policies (Chriqui, Schneider, Chaloupka, Ide, & Pugach, 2009). This has been accomplished by the intentional promotion of healthy food and beverage choices, and/or the prohibition of marketing of unhealthy food and beverage choices on school campuses (Chriqui et al., 2009).

The Washoe County School District (WCSD) implemented a school wellness policy in 2006 (see Appendix A) in an effort to promote a healthy school environment. This policy included standards for daily physical activity, minimum mealtime length, and food specifications (Washoe County School District [WCSD], 2006). The food specifications established in the policy mandated that all foods and beverages sold on school campuses outside of the school meals program meet specific requirements for fat, sugar, sodium, caffeine, and total calories. At the same time, the wellness policy also established maximum serving sizes of specific foods and beverages such as chips, baked goods, frozen desserts and cookies. The wellness policy also prohibited the sale of certain foods and beverages on school campuses including: carbonated beverages, soft drinks, candies, chewing gum, sweetened waters and flavored ice. In addition to these specifications, the WCSD included a marketing provision in its school wellness policy. As of July 1, 2006, “Any marketing, advertising, logos, signage, or promotion of foods prohibited in this policy (high in fat, salt, and/or sugar) shall be excluded from school grounds” (WCSD, 2006).

The long-term impact of the WCSD policy and other school wellness policies depends, in part, on the degree to which they are implemented. Therefore, this honors thesis quantified and characterized food and beverage marketing from a sample of elementary, middle, and high schools in the WCSD. The following seven characteristics of each marketing piece were described: in-depth descriptions of the product(s) marketed,

key message(s), use of a celebrity, promotion of a specific nutrient, sponsor(s), size, and location. The following six questions were investigated:

1. To what extent are foods and beverages marketed through the use of posted advertisements at elementary, middle, and high schools in the WCSD?
2. Regarding the locations observed for marketing at each school campus, were posted advertisements more common in certain locations within the school?
3. What specific foods and beverages are marketed in schools in the WCSD using this marketing technique?
4. Are there quantitative and/or qualitative differences in the food and beverage advertisements posted at the elementary, middle and high schools?
5. Relative to posted advertisements, what relationships exist between the type of food or beverage product promoted and a) the key message (e.g. theme) b) the use of celebrities, c) the size and location, and d) the sponsor?
6. To what degree are the foods and beverages marketed in WCSD schools consistent with the nutrition guidelines outlined in the district wellness policy?

The information gained from this thesis provides details regarding the quantity and quality of food and beverage marketing in the WCSD that were previously unknown. Comparison of findings to provisions in the local school wellness policy points to limitations of the policy and potential difficulties in enforcing the marketing provision. Lastly, the methods and tools developed here to characterize posted marketing, along with the general findings may benefit other scholars interested in studying the school environment.

## **Methods**

### **Context**

This thesis represented an extension of an on-going investigation about the implementation of the WCSD School Wellness Policy, led by Dr. Jamie Benedict in the Department of Nutrition at the University of Nevada Reno. The purpose of this on-going effort was to assess the degree to which the district's wellness policy had been implemented, and to describe employees' understanding of and experiences with the policy. As noted in the introduction, the WCSD School Wellness Policy included a provision regarding the nature of food and beverage marketing on school campuses. Therefore, one objective of Dr. Benedict's effort involved assessing the degree to which this marketing provision had been implemented. While this objective was addressed during the completion of this honors thesis, the research questions listed above pertain to other aspects of food and beverage marketing as well.

Posted food and beverage marketing, defined here as a poster, flyer, or sign visible in the school with the intent of influencing food and/or beverage choice, were observed and characterized in elementary, middle, and high schools in the WCSD. The schools assessed were those schools already participating in Dr. Benedict's larger study regarding the implementation of a school wellness policy. These schools were recruited during the 2009-2010 school year. All WCSD principals received a letter (included in Appendix B) from Dr. Benedict inviting them to include their school in the investigation of the wellness policy. One aspect of the study, as described in the letter, pertained to the assessment of food and beverage marketing. Those that agreed included twelve elementary, four middle, and three high schools.

### **Protection of Human Research Subjects**

Since this thesis was an extension of an ongoing study, the marketing assessment

was described in the IRB protocol submitted by Dr. Benedict for the larger ongoing study designed to assess the implementation of the school wellness policy. IRB approval was granted on September 25, 2009. Consistent with the IRB protocol, the names of schools participating in the study were not to be released or identified. Therefore, in order to protect the identity of the schools in the study, all data collection sheets and binders were labeled with three digit identification numbers rather than the school name. The code sheet matching the identification numbers to the school names was kept in a secure, separate location.

### **Study Design**

My honors thesis was a descriptive study, employing both qualitative and quantitative methods to characterize the prevalence and nature of posted food and beverage marketing in elementary, middle, and high schools in the WCSD. The qualitative method selected was content analysis. This method was chosen because content analysis has been used previously to study the marketing messages conveyed in advertisements (Neuendorf, 2002). For example, content analysis has been used to characterize print, Internet games, and television advertisements that market food and beverage products to school age children (Culp, Bell, & Cassady, 2010; Folta, Goldberg, Economos, Bell, & Meltzer, 2006; Kelly & Chapman, 2007). Since content analysis was an effective method to characterize each of the forms of media used to target food and beverage marketing to children, this method was utilized here to characterize the posted marketing observed in the schools in the WCSD.

### **Assessment Tool**

In order to organize and record the characteristics of food and beverage marketing in the WCSD, Dr. Benedict and I developed the Food and Beverage Marketing Assessment Tool (see Appendix C) and the accompanying Procedures for the School-Campus Marketing Assessment (see Appendix D). During the development of the tool,

Dr. Benedict and I narrowed the assessment to marketing items that were posted; a poster, flyer, or sign visible in the school. This precluded the inclusion of other forms of marketing such as announcements broadcast over the PA system or advertisements sent home with students due to feasibility issues. The Assessment Tool served multiple purposes. First, it provided the investigators with a method to track which areas of the school were observed, to note the presence/lack of marketing in each area, and to record detailed observations about the marketing present. Prior to finalizing the tools and procedures, a draft of each was evaluated during a pre-test at one school. During this pre-test it was discovered that there were multiple “postings” pertaining to food and beverages and that a distinction was needed relative to what was marketing and what was not. At this point, posted marketing was further defined as items posted with the intent of influencing food and/or beverage choice – including those posted for a presumed commercial purpose as well as those posted for an educational purpose. By using this tool, and following the instructions in the Procedures, we reduced potential errors that may have been introduced during data collection by not completing the observations in a consistent manner.

### **Data Collection**

Unannounced site visits were conducted in March through May 2010 at each of the 19 participating schools. One site visit was conducted per school. Using the Assessment Tool and accompanying Procedures for the School-Campus Marketing Assessment (discussed above), one other trained observer and I conducted each site visit. The other observers included Dr. Benedict, or one of Dr. Benedict’s research assistants. The purpose of having two observers was to ensure the safety of the observers, and also to maximize the reliability and validity of the data collected.

During these site visits another observer and I toured specific areas of the school campus and recorded notes and observations about all posted food and beverage

marketing that met the criteria stated above. The notes about the posted food and beverage marketing observed were recorded onto the Food and Beverage Marketing Assessment Tool. At each site visit, the other observer and I toured the following public locations of the school: main office/entry, hallways (including the outside of lockers), cafeteria and/or multipurpose room, library, gymnasium/pool area, school stores and outdoor recreational areas. In order to protect student privacy and to minimize educational disruption, areas of the school that were not observed included the individual classrooms, the school nurse's office, locker rooms, and restrooms.

Each observer had a copy of the Food and Beverage Marketing Assessment Tool. Together, the other observer and I toured the areas listed above within each of the 19 schools. Within each area, the presence (or absence) of posted food and beverage marketing was noted. For the purpose of this study, only print media (e.g., posters or signs) that was presumably posted with the intent of influencing students' food or beverage choice was recorded. This excluded decorative items such as pictures of foods (e.g., cloth banners showing the food groups, or student artwork of various foods). Consistent with the protocol, if no marketing pieces were observed in a specific area of the school, the observers circled "no" on the assessment tool in order to document that the area was in fact observed. When marketing was discovered, each observer circled "yes" on the assessment tool, and then independently recorded the details after carefully studying the item. The following details about the marketing piece were written in the right hand column of the assessment tool: 1) the product(s) promoted; 2) presence of brand names; 3) inclusion of logos; 4) sponsor (aka: source of the marketing piece); 5) statements or key words; 6) nutrient(s) promoted; 7) use of celebrities and their identity; and 8) approximate size. Before leaving each location, observers compared notes to ensure that the same number of marketing pieces and similar characteristics of each piece had been recorded. Any differences regarding marketing observed in that location were

reconciled before leaving the location. At the end of the site visit, one Food and Beverage Marketing Assessment Tool was designated as the “master” copy. Because observers conferred reconciled differences before leaving each area, this master copy represented the notes and observations of both observers.

### **Data Coding**

Consistent with content analysis procedures (Neuendorf, 2002), Dr. Benedict and I developed a code book (see Appendix E) that was used to organize, and condense the qualitative information gathered during the observations. Because we could not anticipate the nature of the food and beverage marketing in the schools prior to the site visits, the codebook was developed after all 19 schools had been visited. The code book included categories/subcategories related to each of the eight characteristics listed above. As noted in the code book, determination of categories/subcategories for types of products/nutrients promoted, sponsor, and celebrity usage were based on explicit use of words, or photographs. In contrast, the categories of theme of the marketing piece reflected the coder’s interpretation of meaning using the colors, images, and word choice in the marketing piece. A detailed explanation of implied messages associated with each of the ten themes is noted in Appendix E.

Using the master copy of the Assessment Tool from each site visit and the code book, each marketing piece was categorized on the eight characteristics listed above. I entered the findings into a Microsoft Excel Spreadsheet. During this process, each marketing piece was assigned a unique number. In order to code a marketing piece, I studied the notes from the observations recorded on the master copy of the Assessment Tool, and then matched the notes about each characteristic to the corresponding number in the codebook. I recorded the number corresponding to a specific category/subcategory for each characteristic in the appropriate column on the spreadsheet. It was important to note that some marketing pieces were coded into multiple categories/subcategories (e.g.

more than one sponsor, more than one theme, and/or more than one product promoted). For the purpose of this thesis, notes pertaining to the marketing observed on vending machines were not coded due to the unique nature of vending machine marketing. Once all of the marketing pieces from a school were coded, the process was repeated for subsequent schools in the sample.

### **Reliability Assessment**

Upon completion of the data coding, the reliability of the coding process was assessed by having an individual who did not assist with data collection or data coding independently code a subset of the data. For this purpose, data from one randomly selected elementary, middle, and high school was selected using a random number generator found at: <http://www.random.org/sequences/>. This individual coded the marketing pieces from those schools using the Code Book provided in Appendix E. I then compared the similarities and the differences between my coding and the secondary coder's results for those three schools and tallied the results. I computed the reliability by dividing the total number of similarities by the total number of comparisons (similarities + differences). The percent agreement was 74.7%.

One frequent source of disagreement between the two coders was the theme of the marketing pieces. Theme was a characteristic of the marketing piece that was not directly observed, but rather implied from the context of the images, colors, and text associated with the marketing piece. Relative to other characteristics, the determination of theme reflected the greatest amount of interpretation/subjectivity.

Another source of disagreement between the two coders was the marketing on scoreboards in the middle and high schools. Based on discussions with the secondary coder, I learned that the manner I used to code the marketing on scoreboards did not accurately reflect the total number of marketing pieces in the middle and high schools. Therefore, in order to strengthen my data, I recoded the marketing on the scoreboards in

the middle and high schools so that the code sheet accurately reflected the total number of marketing pieces at a school.

A third source of disagreement between the two code sets was the sponsor of the *Got Milk?®* marketing pieces. These marketing pieces directed students to a website, and therefore I coded the marketing piece as a private food corporation sponsor. The second coder coded these marketing pieces as a commodity group sponsor. Due to this discrepancy, I did an Internet search to further investigate these marketing pieces, and determined that this website was in fact sponsored by a food commodity group, America's Milk Processors. Based on this error, I recoded all *Got Milk?®* marketing pieces as a commodity sponsor.

### **Quantitative Analysis**

After the data coding and the reliability assessment were completed, quantitative characteristics of food and beverage marketing on school campuses were determined by computing the relative frequency of specific categories/subcategories. This was completed by school level and then across all school levels. This involved using the sort feature in Microsoft Excel to arrange the coded data from the schools by characteristic. These totals, along with the mean number of marketing pieces per school and the standard deviation were summarized in tables.

## Results

A total of 19 schools participated in this study. Among the schools participating in the study, 12 (63.2%) were elementary schools, 4 (21.0%) were middle schools, and the remaining 3 (15.8%) were high schools. Relative to the first research question regarding the extent of posted food and beverage marketing in the WCSD, Table 1 summarizes the extent to which marketing was present in the participating schools including the total number of marketing pieces observed at each school level, the mean number of marketing pieces per school, the standard deviation, and the range of marketing pieces found at each school level. In total, there were 161 marketing pieces posted in the 19 schools.

More than 60% of the marketing pieces were observed in the elementary school setting because more than half of the sample was comprised of elementary schools. The range of marketing pieces observed at a school varied by school level. Elementary and middle schools had a much larger range of marketing pieces posted than the high schools. For example, as evident in Table 1, at one elementary school, no posted food and beverage marketing was observed, while at another elementary school, 24 food and beverage marketing pieces were observed. Likewise, in the middle schools, one middle school had minimal food and beverage marketing posted (3 marketing pieces) while another middle school had 14 food and beverage marketing pieces. Although the range of posted marketing pieces varied by school level, the mean number of posted marketing pieces for each school was nearly equivalent (~8 marketing pieces) across all school levels.

The second research question addressed the location and size of posted marketing in the schools. Because so few marketing pieces were found outside of the cafeteria/multi-purpose room, Table 2 does not list each location but rather only the percent found in “cafeteria/multipurpose room” and “other locations.” The locations included the main office/entry, hallways, library, lockers, indoor recreation areas, and

outdoor recreation areas. In the elementary schools, 86.3% of the marketing pieces were posted in the cafeteria/multipurpose room, while 65.7% of the marketing pieces in the middle schools and only 50% of the marketing pieces in the high schools were posted in the cafeteria/multipurpose room. These percentages indicate that marketing is more concentrated in the cafeteria/multipurpose room in elementary schools compared to the middle and high schools.

Table 2 also shows how the size of the marketing pieces varied by school level. Overall, about half of the marketing pieces were small posters (~2'x3'), and most others were the size of a sheet of paper (8.5 x 11"). In general, marketing pieces in the elementary schools were smaller than marketing pieces in the middle and high schools. In the elementary schools, the majority (47.1%) of the marketing pieces were the size of a sheet of paper or smaller. In the middle schools and high schools, marketing pieces were larger in size. The majority (62.9%) of the marketing pieces in the middle schools and 37.5% of the marketing pieces in the high schools were the size of a small poster. At the same time, 37.5% of marketing pieces in the high school were the size of a large 4'x6' sign or scoreboard.

Regarding the third research question about the types of food and beverage products marketed on school campuses, Table 3 summarizes my findings. A total of 367 food and beverage products were promoted in the 161 marketing pieces observed (recall that a marketing piece could promote more than one item). Approximately three out of every four products marketed were foods; with the remainder being beverages. The types of foods marketed varied across school levels. Dairy products were the most commonly marketed food product in the elementary schools, comprising 28.8% of all products

marketed in elementary schools. Fruits were the most commonly marketed food product in the middle schools, representing 23.5% of all products marketed. Mixed dishes, such as pasta entrees, entrée salads, pizza products, and ethnic cuisine, were the most commonly marketed food products in the high schools, representing 39.4% of all products marketed at the high school level. Another important finding evident in Table 3 related to marketing of junk foods or foods traditionally identified as “unhealthy”. Marketing for sweets/desserts and savory snacks was infrequent. Across all school levels savory snacks represented 3.1% of products marketed and sweets/desserts represented only 0.5% of products marketed.

A smaller proportion (26.4%) of products marketed in participating schools was beverages. The type of beverage product marketed varied by school level. While unsweetened milk was the most common beverage marketed on elementary and middle school campuses (21.4% and 22.2% respectively), soda was the most common beverage marketed at the high schools, representing 8.5% of all food and beverage products marketed in the high schools. However, it should be emphasized that this represented only six soda products total at the high school level.

In addition to food and beverage products, 8% of the marketing pieces also promoted a specific nutrient. Specific nutrients promoted in the marketing pieces included: protein, calcium, electrolytes in general, potassium, and vitamin A. Protein was the most common nutrient associated with a product, and appeared in 13 of the 161 marketing pieces across all school levels.

Other characteristics of food and beverage marketing pieces posted in participating schools are shown in Table 4 (corresponding to research question 4).

Differences in the sponsor, themes, and usage of a celebrity were observed among the three school levels. Four different sponsor types (meaning the source of the marketing piece) were noted; a public source such as a government agency), a commodity group (a not-for-profit organization that promotes a specific food commodity), a private food company, and a private non-food company (e.g., a toy maker). In the elementary schools, private non-food corporations were the most frequent sponsor (37.6% of all marketing pieces). In the middle schools, commodity groups (e.g. National Dairy Council) were the most common sponsor (52.6%), and lastly, in the high schools, private food corporations were the most common sponsor (83.3%).

As noted above, marketing pieces were also characterized relative to the overall theme/message. The identification of a specific theme was based on the coder's interpretation of color, images, and word choice. The ten different themes discovered could be sub-divided into those that related to an experience (eg., "Fun and Celebration"), a desirable health/nutrition outcome (e.g., "Physical Activity and Fitness," "Energy Balance," "Performance and Energy," "Healthy Lifestyle," "Stress Management," and "Meal Promotion"), citizenship (e.g., "Community Improvement"), and lastly commercial message (e.g., "Brand recognition" and "Purchase Guidance"). Across all school levels, the two most common themes were "Healthy Lifestyle" (25.0%) and "Fun and Celebration" (23.1%). The themes varied by school level as certain themes were more common in specific school levels. In the elementary schools, the most popular theme associated with a marketing piece was "Fun and Celebration" (33.6%). In the middle schools, the most common theme observed was "Healthy Lifestyle" (23.1%). In the high schools, the most common theme was one of a commercial message, "Brand

Recognition” (50.0%), which was identified as the inclusion of a corporate logo presumably to remind consumers about a specific product.

Also shown in Table 4, the majority of marketing pieces (80.7%) across all school levels did not associate the product(s) with a celebrity. Of those that did, the celebrities included were athletes, musicians, actors/actresses, and various childhood cartoon characters (e.g. Buzz Lightyear). The type of celebrity used varied by school level. The most frequently used celebrity in the marketing in middle and high schools was an athlete (20.0% and 16.7% respectively). Elementary schools on the other hand, were more likely to use a cartoon character as the celebrity associated with their product, as 6.9% of marketing pieces in the elementary schools associated a childhood cartoon character with the product.

The fifth research question in my thesis related to the relationships between the type of food or beverage product promoted and a) the key message (e.g. theme) b) the use of celebrities, c) the size and location, and d) the sponsor. Unfortunately, this research question could not be answered. Initially, I planned to perform chi-square analysis to determine differences between various categories, however because marketing pieces were coded with more than one of a given characteristic (e.g. multiple themes, multiple products promoted, more than one sponsor), this statistical analysis could not be completed.

The final research question related to the degree to which the food and beverage products marketed were consistent with the guidelines in the WCSD policy. Due to the way in which the WCSD Wellness Policy was written and the nature of posted food and beverage marketing, this question was difficult to assess. The WCSD wellness policy specifies foods of minimal nutritional value that are prohibited on school campuses

including candy, chewing gum, soda, soft drinks, and frozen water ices (WCSD, 2006). Though soda was promoted in several marketing pieces observed in the middle and high schools, whether or not this meets the policy is questionable. Much of the assumed promotion of soda (a product prohibited on school campuses) came from a logo traditionally associated with a soda beverage. It is important to note however, that many beverage companies traditionally associated with production of soda also manufacture and market other beverages that are allowed in the policy, such as water, tea, and juices. Aside from prohibiting specific food and beverage products on school campuses, the WCSD Wellness Policy specifies requirements for fat, sodium, sugar, total calories, serving sizes, and caffeine that foods sold and/or promoted on school campuses must meet (WCSD, 2006). It was not possible to assess the degree to which the products promoted in the marketing pieces met the nutrition criteria specified due to the nature of marketing. None of the marketing pieces provided information related to the nutrition content or serving sizes of the products promoted; therefore the degree to which the specific products marketed on school campuses met the requirements for foods and beverages in the wellness policy could not be determined.

	Elementary Schools (n=12)	Middle Schools (n=4)	High Schools (n=3)
Total	102	35	24
Mean $\pm$ SD	8.50 $\pm$ 7.1	8.75 $\pm$ 5.1	8.00 $\pm$ 0.0
Range	0-24	3-14	8

	Elementary Schools (n=12)		Middle Schools (n=4)		High schools (n=3)		All schools (n=19)	
	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>
<b>Location</b>								
Cafeteria	88	86.3	23	65.7	12	50.0	123	76.4
Other locations	14	13.7	12	34.3	12	50.0	38	23.6
<b>Size<sup>c</sup></b>	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>
Sheet of paper ( $\leq$ 8.5" x 11")	48	47.1	10	28.6	4	16.7	62	38.5
Small poster (~2'x3')	47	46.1	22	62.9	9	37.5	78	48.4
Large poster (<4'x6')	4	3.9	0	0	2	8.3	6	3.7
Sign or scoreboard (~4'x6' or larger)	1	1.0	3	8.6	9	37.5	13	8.1
Total marketing pieces	102	-	35	-	24	-	161	-
<sup>a</sup> Percentages = $\frac{\text{total number of marketing pieces in specific locations at school level}}{\text{total number of marketing pieces at school level}}$								
<sup>b</sup> Percentages = $\frac{\text{total number of marketing pieces of specific size at school level}}{\text{total number of marketing pieces at school level}}$								

Products	Elementary Schools (n=12)		Middle Schools (n=4)		High Schools (n=3)		All Schools (n=19)	
	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>
<b>Beverages</b>	55	25.6	26	32.1	16	22.5	97	26.4
Milk	50	23.3	23	28.4	4	5.6	77	21.0
Unsweetened	46	21.4	18	22.2	4	5.6	68	18.5
Sweetened	2	0.9	5	6.2	0	0	7	1.9
Unknown sweetness	2	0.9	0	0	0	0	2	0.5
Soda	2	0.9	1	1.2	6	8.5	9	2.5
Juices	1	0.5	0	0	2	2.8	3	0.8
Sports Drinks	0	0	1	1.2	3	4.2	4	1.1
Water	2	0.9	1	1.2	1	1.4	4	1.1
<b>Foods</b>	160	74.4	55	67.9	55	77.5	270	73.6
Dairy	62	28.8	4	4.9	3	4.2	69	18.8
Fruits	37	17.2	19	23.5	3	4.2	59	16.1
Vegetables	17	7.9	15	18.5	3	4.2	35	9.5
Mixed dishes	30	14.0	6	7.4	28	39.4	64	17.4
Grains	5	2.3	7	8.6	7	9.9	19	5.2
Savory snacks	5	2.3	3	3.7	6	8.5	14	3.8
Sweets/desserts	1	0.5	0	0	1	1.4	2	0.5
Total products	215	-	81	-	71	-	367	-
Mean number of products per school	17.92	-	20.25	-	23.67	-	19.32	-
<sup>a</sup> Note that a single marketing piece could include more than one product <sup>b</sup> Percentages = $\frac{\text{number of specific products at school level}}{\text{total number of products at school level}}$								

	Elementary Schools (n=12)		Middle Schools (n=4)		High Schools (n=3)		All schools (n=19)	
	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>	n	% <sup>b</sup>
<b>Sponsor</b>								
Public source	12	11.9	3	7.9	0	0	15	9.2
Commodity group	36	35.6	20	52.6	4	16.7	60	36.8
Private food	15	14.9	10	26.3	20	83.3	45	27.6
Private non-food	38	37.6	5	13.2	0	0	43	26.4
Total number of sponsors	101	-	38	-	24	-	163	-
<b>Theme</b>								
	n	% <sup>c</sup>	n	% <sup>c</sup>	n	% <sup>c</sup>	n	% <sup>c</sup>
Fun and celebration	41	33.6	6	11.5	1	2.9	48	23.1
Physical activity and fitness	3	2.5	6	11.5	2	5.9	11	5.3
Community improvement	1	0.8	9	17.3	2	5.9	12	5.8
Healthy lifestyle	36	29.5	12	23.1	4	11.8	52	25.0
Energy balance	0	0	2	3.8	2	5.9	4	1.9
Stress management	0	0	2	3.8	0	0	2	1.0
Performance and energy	14	11.5	9	17.3	5	14.7	28	13.5
Purchase guidance	24	19.7	4	7.7	1	2.9	29	13.9
Meal promotion	3	2.5	1	1.9	0	0	4	1.9
Brand recognition	0	0	1	1.9	17	50.0	18	8.7
Total number of themes	122	-	52	-	34	-	208	-
<b>Celebrity</b>								
	n	% <sup>d</sup>	n	% <sup>d</sup>	n	% <sup>d</sup>	n	% <sup>d</sup>
Athlete	3	2.9	7	20.0	4	16.7	14	8.7
Musician	5	4.9	1	2.9	1	4.2	7	4.3
Actor/actress	2	2.0	1	2.9	0	0	3	1.9
Cartoon character	7	6.9	0	0	0	0	7	4.3
None	85	83.3	26	74.3	19	79.2	130	80.7
Total celebrities	17	16.7	9	25.7	5	20.8	31	19.3

<sup>a</sup> Note that a marketing piece could include more than one sponsor, theme, or celebrity

<sup>b</sup> Percentages =  $\frac{\text{number of specific sponsors at school level}}{\text{total number of sponsors at school level}}$

<sup>c</sup> Percentages =  $\frac{\text{number of specific themes at school level}}{\text{total number of themes at school level}}$

<sup>d</sup> Percentages =  $\frac{\text{number of specific celebrities at school level}}{\text{total number of celebrities at school level}}$

## Discussion

The results of this thesis provided evidence that foods and beverages are marketed in WCSD elementary, middle, and high schools through the use of posted advertisements. Although a greater number of marketing pieces were observed at the elementary school level, this was due to the over-representation of elementary schools in the sample. The mean number of posted marketing pieces per school was similar and quite low across elementary, middle and high schools, with approximately eight marketing pieces per school. There was, however, much greater variability among food and beverage marketing in the elementary schools, since the range of marketing pieces in the elementary schools varied from zero marketing pieces to twenty-four marketing pieces in a single school.

In all school levels, the majority of the marketing was observed in the cafeteria/multipurpose room, however, in the middle and high schools, the proportion of marketing observed in other locations of the school increased. This may be due to the fact that elementary school students spend most of their day in one classroom, while middle and high school students move in and out of different classrooms throughout the day. Relative to the size of marketing pieces, in general, posted marketing found in the participating schools was small. In all schools, the majority of the marketing pieces were the size of a small poster (~2'x3") or smaller. Similar to what was noticed regarding the proportion of marketing in other locations of the school, the size of the marketing increased from elementary to high schools. The larger marketing pieces (4'x6' or larger) were generally more common in the high schools than the elementary or middle schools. These large marketing pieces were observed in the recreation areas (e.g. scoreboards, track, football field, and gym), which may explain why larger marketing pieces were more common in the high schools

Aside from information about the extent, location, and size of posted food and beverage marketing, this thesis also provided information about the types of food and beverage products marketed on school campuses. The most frequently marketed beverage product across all school levels was unsweetened milk, and the most common food products promoted across all school levels were dairy products (e.g. cheese and yogurt), fruits, and vegetables. Marketing of candy, chips, and other potentially unhealthy foods was rare. The types of products marketed on school campuses are consistent with the most recent edition of the Dietary Guidelines for Americans. Key recommendations in the 2010 Dietary Guidelines state that individuals should “increase vegetable and fruit intake” and “increase the intake of fat-free or low-fat milk and milk products, such as milk, yogurt, and cheese” (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2010). At the same time, the 2010 Dietary Guidelines for Americans identified calcium, vitamin D, and potassium as “nutrients of concern in the American diet” (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2010). Unsweetened milk, cheese, and yogurt are good sources of calcium and vitamin D (when fortified), and fruits and vegetables provide potassium. Since the majority of the posted marketing pieces in schools promoted the consumption of dairy products, fruits, and vegetables, the marketing in the schools is not only relevant, but also appropriate based on the current recommendations and identified nutrients of concern in the 2010 Dietary Guidelines.

Concerns regarding the quality and quantity of food and beverage marketing on school campuses have been raised in recent years. According to findings from the Institute of Medicine (2006), “the competitive multifaceted marketing of high-calorie and low-nutrient food and beverage products in school settings is widely prevalent and appears to have increased.” The nature of these concerns has focused on the amount as well as the nature of this marketing. According to some, the school environment has

become saturated with marketing advertisements for unhealthy foods (Nestle, 2007). However, the findings presented here do not support this concern. First of all, food and beverage marketing was primarily concentrated in one location of the school, the cafeteria/multipurpose room. In addition, the specific products promoted were, with a few notable exceptions, foods and beverages that children should consume as part of a healthful, nutritionally-balanced diet. As mentioned previously, the most frequently marketed beverage product across all school levels was unsweetened milk, and the most common food products promoted across all school levels were dairy products (e.g. cheese and yogurt), fruits, and vegetables. At the same time, relative to concerns about the quantity of food and beverage marketing, very little posted food and beverage marketing (on average, eight pieces per school) was observed in the participating WCSD schools. In addition, the marketing pieces observed were small, with the majority of marketing pieces observed as the size of a small poster or smaller. Given the concentrated location, the variety of healthy products marketed in the school environment, the computed average of eight marketing pieces per school, and the small size of the marketing pieces these concerns may not be warranted if the participating schools were indeed representative of all schools in the WCSD.

Another research question posed related to qualitative differences in marketing (theme, celebrity usage, sponsor, and nutrient promotion). The most common themes associated with marketing pieces observed in the participating schools were “Fun and Celebration,” and “Healthy Lifestyle.” According to Schor (2004), “advertisers select their thematic messages on the basis of what they think will trigger children’s innermost psychological needs and states.” As such, some foods and beverages marketed in WCSD elementary schools were associated with messages alluding to this idea that fruits, vegetables, and whole grains were fun to eat.

Aside from the appeal to the psychological childhood need of fun and celebration,

marketers also appeal to children's need to fit in and be accepted by their peers, since "marketers have defined cool as the key to social success" (Schor, 2004). One way that children may satisfy this need to fit in is by identifying with a certain celebrity. In the elementary schools, cartoon characters were the most common celebrity associated with a product, while in the middle and high schools athletes were the most common celebrity associated with a product. The association of a product with a celebrity reinforces this need to fit in indicating that if a celebrity whom the child recognizes endorses the product then it is acceptable and best for the child's social interest if he/she also consumes the product (Schor, 2004).

The association of a product with a healthy lifestyle was another popular theme in the marketing pieces found in the participating schools. The use of this theme implied messages of eating a balanced diet, exercising daily, getting sufficient sleep, and managing stress. The promotion of behavioral changes, such as eating a nutritious diet and getting regular physical activity is one way to reduce the incidence of obesity (Wansink, 2005). Thus, the use of this theme in marketing directed at students is consistent with Wansink's above recommendation for responsible marketing strategies to reduce the incidence of obesity.

In all participating schools, the most common sponsor of a marketing piece was a commodity group. Commodity groups are organized groups whose members promote the consumption of a specific product (e.g. beef, corn, or dairy). Based on the large proportion of marketing for dairy products in the schools, the most common sponsor observed was a commodity group (e.g. National Dairy Council). In addition, another quality of the marketing observed pertained to the promotion of a specific nutrient. While it is important to note that most of the marketing did not promote a specific nutrient, of those marketing pieces that did promote a nutrient, protein was the most common nutrient promoted. This was interesting, given that protein was not identified as a nutrient of

concern in the 2010 Dietary Guidelines for Americans. Nonetheless, even though protein is not a nutrient of concern in the U.S. diet, this finding is still relevant given that the Dietary Guidelines for Americans (2010) encourage individuals to “choose a variety of protein foods” to include in their diet.

Another research question focused on the relationships between the products promoted in the marketing and the use of theme, celebrity, size, and location. These relationships could not be determined as it was not possible to conduct Chi-square tests on the data because marketing pieces were found to promote multiple themes, celebrities, and products. Therefore, the denominator necessary for the analysis was not consistent. This has implications for future research. In order to address these relationships, researchers need to code the data in a way that keeps the denominator necessary for the analysis consistent.

The final research question posed was the extent to which products marketed in schools met the nutrition guidelines in the WCSD Wellness Policy. This question was difficult to address for two reasons. The policy states: “any marketing, advertising, logos, signage, or promotion of foods prohibited in this policy (high in fat, salt, and/or sugar) shall be excluded from school grounds” (WCSD Wellness Policy, 2006). Other portions of the policy describe the foods and beverages that are prohibited based on the type of product, the nutritional qualities, or the quantity (e.g. portion size). As mentioned previously, the policy prohibits soda on school campuses. Of all products prohibited on school campuses, soda was the only prohibited product observed in the marketing. Though soda was promoted in several marketing pieces observed in the middle and high schools, whether or not this meets the policy is debatable. Much of the assumed promotion of soda came from a logo traditionally associated with a soda beverage. It is important to note however, that many beverage companies traditionally associated with production of soda also now manufacture and market other beverages that are allowed in

the policy, such as water, and juices. In addition, it was not possible to assess the degree to which the products promoted in the marketing pieces met the nutrition criteria specified due to the nature of marketing. None of the marketing pieces provided information related to the nutrition content or serving sizes of the products promoted. Therefore, the degree to which the specific products marketed on school campuses met the requirements for foods and beverages in the wellness policy could not be determined.

As with any research study, this thesis has several strengths and limitations. Since participating schools included elementary schools, middle schools, and high schools, one strength of this thesis is that it provides information about the characteristics of food and beverage marketing at the three different school levels. Another strength of this thesis is that the investigators took steps to minimize the introduction of error. Two observers were present at each site visit, and one of these investigators was present for all of the site visits. At the same time, a detailed procedure was followed at every site visit to ensure uniform data collection. During the coding and content analysis process, the investigator who was present at every site visit coded and counted all of the data. Moreover, the reliability of the coding process was assessed, and certain errors were corrected to strengthen the data.

A limitation of this thesis is that it does not represent all food and beverage marketing in schools in the WCSD. This thesis only characterized one form of in-school marketing, posted food and beverage marketing advertisements. Food and beverage marketing is found in schools in a variety of other forms including: corporate sponsorship of events, school broadcast channels (e.g. school television and radio), supplemental education materials, and exclusive product agreements (Molnar, Garcia, Boninger & Merrill, 2008). Furthermore, not all parts of the school were observed for marketing. For the purpose of this study, only areas that are generally considered public areas of the school were observed for food and beverage marketing, excluding individual classrooms,

restrooms, and the school nurse's room. Therefore, any marketing present in these areas of the schools was not included in the findings presented here. The subjective nature of the marketing assessment was another limitation of this thesis. One characteristic of the marketing assessment that was highly subjective was the analysis of the theme. The theme of a marketing piece was assessed by analyzing the context of key words and images in the marketing piece, and thus the theme(s) coded for a marketing piece vary between individuals. Another limitation of this study relates to the generalizability of the findings. Since only a select number of schools participated in the study, the findings regarding food and beverage marketing in these schools are not generalizable to all schools in the WCSD. At the same time, the findings are not generalizable to other school districts in Nevada or to other school districts in the United States.

This thesis has several implications. The first implication suggests the need for future research in the WCSD. Posted food and beverage marketing is just one form of in-school marketing. Since this thesis did not address other forms of in-school marketing (e.g. vending machine marketing) more research is needed to identify and analyze other forms of food and beverage marketing in the WCSD. Another implication of this thesis relates to the WCSD Board of Trustees. Due to the ambiguous nature of the WCSD Wellness Policy, it was not possible to fully analyze the degree to which food and beverage products marketed on school campuses were consistent with the guidelines in the WCSD. Therefore, this thesis would be useful to the WCSD Board of Trustees in the event that they choose to revise the policy.

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**Appendix A – Washoe County School District Wellness Policy**

**Washoe County School District**

*School Wellness Policy*



## WASHOE COUNTY SCHOOL DISTRICT CHILD NUTRITION, WELLNESS, AND HEALTHY SCHOOL ENVIRONMENT POLICY

A healthy school environment is important for student academic success, long-term health and well-being, and it reinforces the District's curriculum. The following policy applies to all foods and beverages served, sold, or given to students during instructional hours and it sets modest standards for meal times and recess in relation to lunch. Individual schools are encouraged to go beyond these standards to encourage more student daily physical activity and integrate curriculum within the school health environment.

As of July 1, 2006, the Washoe County School District shall enforce the following minimum standards:

- A. **WELLNESS COORDINATOR:** Each school shall designate a person (or persons) at each school site who is responsible for setting goals for nutrition education, physical activity, and other school-based activities designed to promote student wellness. Such designee will also be responsible for submitting yearly data regarding implementation of this policy to the State Department of Education (see section H for details).
- B. **FOOD SPECIFICATIONS:** All foods and beverages served, sold or given to students on school grounds during the school day must meet the following nutrition guidelines. The school day is observed from 30 minutes prior to the first class and lasts up to 30 minutes after the last class is excused. The following nutrition guidelines apply to all foods and beverages provided by a la carte, school stores, vending machines, fundraisers during school hours, incentives, and rewards. The standards do not apply to foods and beverages served in staff only areas nor at events and occasions that occur outside of instructional hours.
  1. **FAT:** Emphasis is on choices low in unhealthy fats as well as moderate in total fat.
    - A. Saturated fats plus trans fats shall be limited to 10% or less of the total calories in the food.
    - B. Total fats shall be limited to 30% or less of the total calories in the food product. Nuts, seeds, 100% fluid milk products containing 1% or less fat, and cheese or yogurt made from reduced-fat, low-fat, or fat-free milk are exempt from this standard.
  2. **SODIUM:** Sodium shall be limited to no more than 600 mg of sodium per serving.
  3. **SUGAR:** Added sugars shall be limited to no more than 35% sugar by weight per serving. This percentage does not include sugars from fruits and vegetables when used as additives.
  4. **TOTAL CALORIES:** Total calories are controlled through defined portions (#7).

5. **CAFFEINE:** Foods and beverages containing caffeine, excluding 1% or fat-free chocolate milk, are prohibited.
6. **ADVERTISING:** Any marketing, advertising, logos, signage, or promotion of foods prohibited in this policy (high in fat, salt, and/or sugar) shall be excluded from school grounds. This pertains to any new school marketing dated from July 1, 2006 forward.
7. **SERVING SIZES:** Servings will not exceed the following portion sizes:

Elementary Grades		Middle/ High School Grades	
Chips (regular) - 1 ounce			Chips (regular) - 1.25 ounces
Chips (baked or no more than 5 grams of fat per ounce), crackers, popcorn, cereal, trail mix, nuts, seeds, dried fruit, jerky, pretzels - 1.5 ounces			Chips (baked or no more than 5 grams of fat per ounce), crackers, popcorn, cereal, trail mix, nuts, seeds, dried fruit, jerky, pretzels - 1.5 ounces
Cookies/cereal bars (plain) - 2 ounces			Cookies/cereal bars – 2 ounces
Cookies/cereal bars (with nuts, raisins, chocolate pieces and/or fruit purees) – 2.2 ounces			Cookies/cereal bars (with nuts, raisins, chocolate pieces and/or fruit purees) – 2.2 ounces
Bakery items (e.g., pastries, muffins) - 3 ounces			Bakery items (e.g., pastries, muffins) - 3 ounces
Frozen desserts - 4 ounces			Frozen desserts - 4 ounces
Water – No Limit			Water – No Limit
			Electrolyte replacement beverages – 12 ounces
Fruit drinks and frozen slushes (must contain a minimum of 100 % fruit juice) - 8 ounces with a maximum of 150 calories			Fruit drinks and frozen slushes (must contain a minimum of 100 % fruit juice) - 12 ounces with a maximum of 200 calories

8. **PROHIBITED ITEMS:** Foods of minimal nutritional value will not be given away, sold, or used as incentives for students or student activities during the school day. Prohibited items classified within categories:
- **Soda Water** — any carbonated beverage.
  - **Soft drinks**, sports drinks (except in middle and high school), punches, iced teas, “designer” drinks, less than 100% milks, “enhanced” waters, or “designer dairy drinks” with more than 15 grams of added sugar per 8 oz. serving or additives, herbals, and non-vitamin substances.
  - **Water Ices** — any frozen, sweetened water such as “popsicles” and flavored ice with the exception of products that contain fruit or fruit juice.
  - **Chewing Gum** — any flavored products from natural or synthetic gums and other ingredients that form an insoluble mass for chewing.
  - **Candies** — any processed foods made predominantly from sweeteners or artificial sweeteners with a variety of minor ingredients that characterize the following types: chocolate, hard candy, jellies and gums, marshmallow candies, fondant, licorice, spun candy, and candy coated popcorn.
9. **EXEMPT ACTIVITIES -** The following is a list of activities that would be exempt for foods that exceed the established nutrition parameters as follows:
- In observance of state or national holidays;
  - For established religious observances such as Christmas, Hanukah, and Kwanza;
  - School community observances, such as birthday parties;
  - As part of a learning experience related to the reinforcement of established lesson plans in the classroom; this exemption, however, does not allow for an exemption toward the sale of foods as part of a business enterprise or fundraising activity.
- C. **REIMBURSABLE MEALS** provided to students under the National School Lunch & Breakfast Program are exempt from this policy since they are governed by Federal Regulation 7 CFR, parts 210 and 220.
- D. **MEAL LENGTH:** Beginning with the school year 2006-2007, each school shall:
1. Designate at least 15 minutes for students to consume the **breakfast** meal;
  2. Designate at least 20 minutes for students to consume the **lunch** meal.
- E. **DAILY PHYSICAL ACTIVITY AND RECESS:** Beginning with the school year 2006-2007, each school shall:
1. Serve lunch in the elementary schools **after** the mid-day recess period.
  2. Designate at least 30 minutes of time daily, for **physical activity**.

*Schools may apply for an implementation exemption, not to exceed two school years, by submitting a request to the Nevada Board of Education.*

**F. FOOD ALLERGIES:** Guidelines shall be established for managing students with food allergies, based on generally recommended guidelines. These will include parent responsibilities, administrative and staff education, training and procedures for reasonably accommodating these students to ensure the safest food handling, sanitation procedures, and eating environment.

**G. REVENUES AND ACCOUNTING:** Guidelines shall be followed for revenue accounting, in accordance with Nevada Revised Statute 233B.050, or in accordance with established school district rules of practice.

**H. OVERSIGHT:**

1. Each school site shall designate a person or persons at the school site responsible for the oversight of the wellness policy that includes implementation, monitoring, and reporting.
2. The district shall maintain an advisory group composed of representatives from the school community, who would provide guidance in the development of the local education agency's wellness policy. Potential sources for member recruitment would be from the school's parents, students, the school food authority, the school board, school administrators, and school nurses, but are not limited to these groups.
3. A plan for measuring implementation of the school's wellness policy at both the school level and district level which, at a minimum, shall include:
  - The number of students in each school;
  - The average daily participation in the National School Lunch Program;
  - The average daily participation in the School Breakfast Program;
  - The time of the lunch recess at the elementary school level;
  - The length of the breakfast service;
  - The length of the lunch service;
  - When the service of lunch after recess, was implemented at the elementary school level;
  - The average number of physical activity minutes available to each student;
  - The number of children with access to physical education;
  - The number of children receiving physical education;
  - The number of minutes of physical education provided;
  - The total number of school days a student is required to attend physical education during the current school year;
  - The name, business phone number, and e-mail address of the wellness coordinator.

**I. MONITORING -** The Nevada Department of Education shall provide a website to collect data and evaluate outcomes from policy implementation.

## Appendix B – Letter of Invitation

Date

School principal

School name

Mailing Address

Dear \_\_\_\_\_ (insert name):

We have received permission from the WCSD Public Policy, Accountability and Assessment Office to contact all school principals about a research study. The purpose of the study is to examine the implementation of the District's School Wellness Policy (aka: Student Wellness Policy). The findings may be useful to you and other school officials in assessing the effectiveness of the policy.

During the first phase of this study, we conducted focus groups with teachers from ten different schools in the WCSD. We were very grateful that so many schools agreed to participate. The information helped us prepare for this, the second phase of the study.

The purpose of this letter is to request permission to include your school in the second phase of the study. This phase involves three components: 1) a survey of teachers, 2) interviews with the school food service manager and wellness coordinator (or principal in the event that a wellness coordinator has not been named), and 3) observations of the school campus. Risks to participants are minimal. The details regarding each of these components are described in the attachment. ***Please note that we will not be seeking information directly from students.***

Each participating school will receive \$95 gift card from Office Depot to help defray the cost of office/classroom supplies. For the university's fiscal records, the names of the schools who receive the gift cards must be provided to our Controller's Office.

If you grant permission to include your school in the study, we will contact you to coordinate the study activities. No school will be identified in any reports or publications that result from this study. Once the study is over, we will send you a copy of the results.

Please take a moment to review the details regarding the study components. Next, indicate your preference regarding including your school in this study on the attached form. If you have any questions, please do not hesitate to contact me by phone at 775-784-6445 or through e-mail at jamieb@cabnr.unr.edu. You may ask about your rights as a research subject or you may report (anonymously if you so choose) any comments, concerns, or complaints to the University of Nevada, Reno Social Behavioral Institutional Review Board by calling 775-327-2368 or by addressing a letter to the Chair of the Board, c/o UNR Office of Human Research Protection, 205 Ross Hall/331, University of Nevada, Reno, Reno, NV 89557.

I look forward to hearing from you.

Sincerely,

Jamie Benedict, Ph.D., R.D.  
Associate Professor

**Implementation of a School Wellness Policy: A Multilevel Analysis**  
**Description of Study Components for Phase II**

1) Survey of Teachers

- The purpose of the survey is to learn about teachers' understanding, opinions and experiences regarding the Student Wellness Policy. Many of the survey items are based on the focus groups conducted with WCSD teachers during Phase I of this study.
- All teachers at participating schools will be sent a survey (at their school address) along with a letter of invitation and a self-addressed, postage paid envelope.
- Teachers may refuse to answer any question and can withdraw at any time.
- Reminder mailings (postcard and follow-up letter) will be conducted to maximize participation.
- All participating teachers will be eligible for a drawing for a \$95 gift card from Office Depot.

2) Interviews with School Food Service Managers and Wellness Coordinators

- The purpose of the interviews is to learn about the experiences and opinions of school employees who were affected by the policy.
- In the event that a school wellness coordinator has not been named, we would like to interview the school principal.
- Food service managers, wellness coordinators (or principals) at participating schools will be sent letters of invitation. These letters will be followed by a phone call to answer any questions about the study and if they agree, to schedule the time/date for their respective interviews.
- We would like to conduct the interviews on the school campus in a quiet and private location. Interviews will last approximately 45 minutes.
- Interviewees may refuse to answer any question and can withdraw at any time.
- Each interviewee will receive a small gift valued at \$10.

3) Observations of school campus

- The purpose of the observations is to assess the degree to which specific policy components have been implemented including;
  - the type of foods and drinks sold to students outside of the school meals program,
  - the schedule of lunch and recess
  - food/drink advertisements on campus, and
  - the length of time students have to eat their meals.
- To obtain an accurate and reliable measure of the latter, we would like to observe the lunch period on five randomly selected days.
- Please note that observations will not require additional time of a school employee and will not involve entering classrooms.

**Implementation of a School Wellness Policy:  
A Multilevel Analysis**

Please take a minute to indicate your decision and return to us using the enclosed self-addressed, stamped envelope. If you wish, you can also fax your completed form to 775-784-6449.

**Do you agree to include your school in this research study?**

\_\_\_\_\_ No

\_\_\_\_\_ I need more information before I can make a final decision.  
Please contact me by phone or e-mail. (Circle one if you have a preference)

\_\_\_\_\_ Yes →  Thank you for including your school in this study. Please provide the information below.

**1. Have you named a Wellness Coordinator at your school?**

\_\_\_\_\_ No → If no, we would like to interview you. We will be sending you a letter of invitation within a week or so.

\_\_\_\_\_ Yes → If yes, please write his or her name below so that we can send a personal letter of invitation.

Name: \_\_\_\_\_

**2. Please name someone in your office we may contact about getting a list of teachers' names for the survey.**

Name: \_\_\_\_\_

**3. If there is someone else at your school that you would like us to contact about our visits/activities at your school, would you please write their name(s) below.**

Name: \_\_\_\_\_

School Name: \_\_\_\_\_ (to be filled-in by study staff)

School Principal: \_\_\_\_\_ (to be filled-in by study staff)

*Thank you in advance for returning this response.*

### Appendix C - Food and Beverage Marketing Assessment Tool

Data collected by: \_\_\_\_\_

Date: \_\_\_\_\_

School ID # \_\_\_\_\_

Per the WASHOE COUNTY SCHOOL DISTRICT WELLNESS POLICY, “Any marketing, advertising, logos, signage, or promotion of foods prohibited in this policy (high in fat, salt, and/or sugar) shall be excluded from school grounds. This pertains to any new school marketing dated from July 1, 2006 forward.” For the purpose of this study, the assessment of marketing (a term used to refer to all of the above) will be limited to print media displayed in public areas within the schools.

Location	Is marketing present?		Description: May include product, brand names, logos, messages, approximate size
	Yes	No	
Main Office/entry	Yes	No	
Hallways	Yes	No	

Location	Is marketing present?		Description: May include product, brand names, logos, messages, approximate size
Lockers	Yes	No	
Cafeteria	Yes	No	
Multi-purpose room	Yes	No	



Location	Is marketing present?		Description: May include product, brand names, logos, messages, approximate size
Recreation Areas (please specify out)	Yes	No	
Scoreboards	Yes	No	
Fences/Gates	Yes	No	

## Appendix D - Procedures for the School Campus Marketing Assessment

### General Approach

Members of the research team will be trained in advance on the methods and procedures to be used in completing the assessments. Teams of two will then visit the campus of each participating school with one serving as the lead investigator. The lead will be determined by Dr. Benedict.

### Preparation (For the Lead Investigator):

1. Obtain and review the contents of the School Binder for the school scheduled for assessment. Look for a school code, map, schedule, and names of key personnel including the principal, office manager, etc.
2. Using the school map, plan a general route for completing the assessment. If no map is included in the notebook, complete this step upon arriving at the school.
3. Coordinate travel and meeting times with the team member(s).
4. Gather the following items in preparation for the assessment:
  - ✓ Advertising and Marketing Assessment Forms
  - ✓ Pencils
  - ✓ Clipboards
  - ✓ Map of school campus
  - ✓ Directions to the school
  - ✓ Copy of the letter that was sent to the principals
  - ✓ Copy of the signed Response Form

### Completing the Assessment (For all investigators)

1. Upon arriving at the school, check in at the Main Office. Use the following script to let them know what you are going to do during this visit to their school:

*“Principal \_\_\_\_\_ (use their name) agreed to include your school in the study of the district’s school wellness policy. One aspect of that study involves characterizing the food and drink advertisements on school campuses. We are here today to gather that information. Our plan is to walk in and around the school noting the types of marketing that is present. That would include hallways, the library, multipurpose room, outdoor recreational areas, etc. We will not be entering classrooms, bathrooms, teachers’ lounge or any other areas that are private. We will do our best to be unobtrusive.”*

If necessary, please show them the letter that was sent to the principal and a copy of the signed response form. If you are unable to address their concerns or questions (if applicable), please thank them for their time, sign-out, and return to campus.

If the notebook lacked a map and if the assessment is to proceed, ask for a copy of the campus map.

2. If you were unable to plan your general route prior to your arrival, do so now. Make sure to include the following in your route:
  - a) Hallways (noting material posted on lockers and doors)
  - b) Cafeteria
  - c) Multipurpose room (may be same as cafeteria)
  - d) Gymnasium/pool area

- e) Library
  - f) Vending machines (may be dispersed throughout the school)
  - g) School stores
  - h) Outdoor recreational areas including playgrounds, and sports fields (view score boards, walls and fences)
3. Begin the assessment. Please adhere to the following guidelines:
- ✓ For the purposes of this assessment, only print media that is posted with the intent of influencing food and/or beverage choice will be characterized. Please note that this excludes items that are posted for decoration purposes only. If items are viewed that are ambiguous, include them on the assessment form and note the reasons you were uncertain about their status. Discuss these items with Dr. Benedict as soon as possible (so you are not apt to forget the details).
  - ✓ Note the location and description of each marketing item on the Advertising and Marketing Assessment Form. In the description, be sure to record the product (i.e., the food/beverage item), any messages (key words only – no need for verbatim record), brand names if applicable, the presence and nature of a logo, and approximate size (e.g., ~ dimensions of a poster). Please make sure your writing is legible.
  - ✓ The purposes of having more than one person conduct the assessments are to help ensure your safety and to increase the reliability of our data. In order to accomplish the latter, each member of team should study the marketing item(s) and characterize them independent of the other team members. A second copy of the form should be used for this purpose.
- Once each team member has prepared their description, team members should compare and discuss their results – ideally before walking away from the observed item. The goal is to have as complete and accurate characterization of the marketing item as possible. Know that 100% agreement is not necessary. A third copy of the Advertising and Marketing Assessment Tool that reflects the characterization of both research team members may be needed.
- If team members disagree on significant points relative to the description or intention, please record these differences on the one final Advertising and Marketing Assessment Tool and discuss them with Dr. Benedict.
- ✓ If you find nothing in a particular area, please check “No” so that there is a record that you viewed the area but found no marketing items.
  - ✓ If you find multiple marketing items within a specified area, please number them.
4. Review the form and the map to see if any areas have been missed.
  5. Sign out of the school office. (Be sure to say Thanks!)
  6. Return to UNR to place all completed Advertising and Marketing Assessment Forms in the corresponding notebook. Make note of which is the “final” copy.

## Appendix E – Code Book

### Content Analysis of Food and Beverage Marketing Pieces

**Unit of Data Collection:** Each individual marketing piece that is posted on a wall, bulletin board, scoreboard, or fence within the school.

**School ID:** Fill in the school id number located at the front of the data collection binder.

**Coder ID:** Fill in the numbers of the individuals who collected the data at the site visit.

1. D.S.
2. J.B.
3. A.R.
4. T.F

**Marketing Piece ID:** Assign a label to each marketing piece observed at the school. If there are duplicates of a marketing piece (e.g. the same poster is present multiple times), code all characteristics of that marketing piece each time the piece was observed.

- P1\_characteristic: marketing piece 1
- P2\_characteristic: marketing piece 2
- P3\_characteristic: marketing piece 3
- P4\_characteristic: marketing piece 4

**General Description:** Provide a general description of the marketing piece, no more than 20 characters long. The description should include enough detail that it could be used to identify the marketing piece in the notes recorded on the assessment tool.

**Size:** Estimate the size of the entire marketing piece. This does not need to be a precise measurement of the size, just an estimate of the general size. Note that a marketing piece can only be coded to have one size.

1. Small: sheet of paper ( $\leq 8.5'' \times 11''$ )
2. Medium: small poster ( $\sim 2' \times 3'$ )
3. Large: large poster ( $\leq 4' \times 6'$ )
4. X-large: sign or scoreboard ( $> 4' \times 6'$ )

**Location:** Indicate the location where the marketing piece was observed. Note that one marketing piece could only be coded to have one location.

1. Main office/entry
2. Hallways
3. Lockers
4. Cafeteria/multipurpose room
5. Library
6. Vending machine
7. Indoor recreation area
8. Outdoor recreation area
9. School store

**Sponsor:** Indicate the sponsor or source of the marketing piece. Note that one marketing piece may have multiple sponsors/sources. If a marketing piece has multiple sponsors, code the corresponding numbers for all of the sponsors.

1. Public source: a federal agency (e.g. USDA, CDC)

2. Commodity group: an interest group promoting a specific product (e.g. National Dairy Council)
3. Private food corporation: any privately owned food corporation (e.g. Sodexo, brand name food, restaurant)
4. Other private companies: any non-food company (e.g. toy company, sports company)

Total Number of Products: Record the total number of food and beverage products promoted on the marketing piece. For example if a marketing piece had images of a glass of milk, a slice of cheese, and a cup of yogurt, then record the number “3” in the code book. If the same product is promoted multiple times, then count that product each time it appears. For example, if a marketing piece had images of a piece of cheese, a glass of milk, a carton of milk, and, a cup of yogurt, then record the total number of products promoted as “4.”

1. One
2. Two
3. Three
4. Four

Product promoted: Indicate each type of food and beverage product promoted.

1. Milk
2. Soda
3. Juices
4. Sports Drinks: primary purpose is electrolyte replacement
5. Water
6. Dairy: yogurt, cheese, eggs
7. Fruits: fresh fruit or canned fruit with no sugar added
8. Vegetables: fried vegetables (e.g. French fries), fresh, raw vegetables, canned vegetables, side salads
9. Mixed dishes: cold sandwiches, entrée salads, hot entrees, pizza products
10. Grains: breads, bagels, cold cereal, hot cereal, cereal bar
11. Savory snacks: baked chips, crackers, popcorn, pretzels, meat snacks, regular chips, seeds and nuts, snack mix (salty mixture of nuts and crackers), trail mix (mixture of dried fruit, nuts, and crackers)
12. Sweets/desserts: candy, cake, cookies, donuts, frozen ices, frozen yogurt, ice cream, muffins, pastries, popsicles, sugar-free candy

Nutrient: Code any specific nutrient that is promoted in the text of the marketing piece. Note that one marketing piece may promote multiple nutrients. Code the number of each individual nutrient promoted.

0. No nutrient promoted
1. Protein
2. Calcium
3. Electrolyte
4. Potassium
5. Vitamin A

Theme: Code the theme of the key messages promoted in the marketing piece. Note that many marketing pieces may have multiple themes. Code the number of each theme.

1. Fun and celebration (includes messages about play, fun, happiness, parties, and celebrations)

2. Physical activity/fitness (includes messages about exercise, sports, athletics, working out)
3. Community improvement (includes messages about volunteering or responsibility of improving the community)
4. Overall healthy lifestyle (includes a combination of messages about healthy nutrition, physical activity, portion control, eating a balanced diet, and proper sleep habits)
5. Energy balance (includes messages about portion control, eating a balanced diet)
6. Stress management (includes messages about how to reduce/combat stress)
7. Improved performance/increased energy (includes messages promising better performance, more energy, shining/standing out during a performance)
8. Purchase guidance (includes messages with information about how, where, when, and why to purchase a food/beverage product.
9. Meal patterns (includes messages about the importance of a specific meal during the day)
10. Brand recognition (the placement of a logo to remind a consumer about a product)

Celebrity: Record the number corresponding to the type of celebrity associated with the product. A celebrity was defined as any well-known, recognizable individual from the media. Note that an individual celebrity can only be coded once. For example, a celebrity who is both a singer and an actress should only be coded once for the marketing piece. In this case, code the number corresponding to how the individual was first famous.

0. No celebrity usage
1. Athlete: a famous, professional sports star (e.g. NBA basketball player, Olympic athlete, NFL football player)
2. Musician: a famous singer (e.g. Taylor Swift, Jordan Sparks, Justin Bieber, Usher)
3. Actor/actress: a famous movie or television star (e.g. Miley Cyrus, cast of High School Musical, cast of Glee)
4. Cartoon character: any well-known animated, cartoon character (e.g. Spongebob Squarepants, Disney character, Transformers)