Utilizing Social Media to Educate School Nutrition Professionals

Ashley Seybold
*Wright State University - Main Campus*

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Utilizing Social Media to Educate School Nutrition Professionals

Ashley Seybold

Wright State University
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Abstract

Background: Schools enrolled in United States Department of Agriculture (USDA) Team Nutrition (TN) projects often have positive outcomes and develop useful resources. The challenge was to find an accessible mean to share outcomes and resources with schools across Ohio.

Purpose: The purpose of this project was to design a blog to educate school nutrition professionals and build awareness of positive activities related to Ohio school meals. This project also aimed to identify indicators of engagement, make recommendations for research and practice, and identify a set of best practices for future blog site use.

Methods: The foundation of the blog (OHIOSmarterLunchrooms.com) was content development in the form of original content, resource materials, evaluation tools, and school nutrition research.

Results: In the initial eight months, the blog generated 1,301 visitors, 3,277 views and 793 resource downloads. Agency partnerships were important drivers of traffic to the site. A quarter of all referrals were generated from the state department of education, and 14% from the USDA. A statewide taste test event was effective in reaching schools not enrolled in TN-funded projects. Most published content (24 of 28 posts) was original content. Contributor posts received the most user views, “likes,” and ratings. The most popular downloads were taste test event materials (43%), followed by professionally designed signs and posters (37%).

Conclusion: Utilizing a blog for information dissemination among school nutrition professionals has proven to be a viable educational platform. Participation and engagement in OHIO Smarter Lunchrooms content continues to grow.

Keywords: blogging, education, school lunch, school breakfast, USDA
Utilizing Social Media to Educate School Nutrition Professionals

In 2010, the Healthy, Hunger-Free Kids Act was mandated allowing for the United States Department of Agriculture (USDA) to authorize a new set of guidelines for improving school nutrition. The USDA’s core child nutrition programs, including the National School Lunch Program (NSLP) and School Breakfast Program (SBP), underwent policy reformation to improve the critical nutrition and safety net of millions of children nationwide (Food and Nutrition Services, 2013). Policy reformation included placing limitations on caloric intake, as well as setting limits on fat, sugar, and sodium within school entrées, beverages, and snacks.

With the implementation of new modifications and limitations for school meals, a need for the sharing of ideas and resources among school food service members and associated public health partners was necessary. To create buy-in, it is essential to develop positive messages regarding implementation of the new guidelines. Social media allows for information dissemination, sharing, and direct communication which could improve motivational behaviors associated with the implementation of the new USDA guidelines. Utilization of a social media platform provides the opportunity for users to create, share, and exchange information within a virtual community. Specifically, blog sites are an effective form of social media for circulation of public health information.

There are multiple benefits of utilizing a blog site for program implementation. Dissemination has the opportunity to reach a specified target audience instantaneously, in a cost-efficient manner (Neiger et al., 2012). Blog sites are written in an informal, conversational style easily understood by users. They foster engagement while increasing the availability of credible, science-based health messages (Centers for Disease Control and Prevention [CDC], 2012).
Blog site participation and engagement is determined by perceived usefulness and enjoyment of content, as well as ease of site navigation (Hsu & Lin, 2008). Acceptance is derived from perceived usefulness, attitude and intention. A study conducted by Hsu and Lin (2008) identified that attitude and community identification had a significant ($p<0.001$) effect on intention of blog site use; with 83% of variance in intent. Participation and acceptance can also be achieved through perceived blog site credibility and quality. Sublet, Spring, and Howard (2011) found that 73.6% of participants rated blogs as moderate to very credible resources. Many found blog sites to be more credible than other online resources, such as newspapers, magazines, television news and radio news. Reliance on a blog site for information was associated with increased credibility. Those who access a blog representing their common interests usually rate that blog site as credible (Sublet, Spring, & Howard, 2011).

The focus of the OHIO Smarter Lunchrooms blog site was to emphasize promotion of fruit and vegetable consumption during school meals, as well as build capacity for project evaluation and dialogue facilitation in support of school nutrition. Outcome-based measures are difficult to determine through utilization of a social media platform. Therefore, this project aimed to identify process measures of engagement, including exposure and reach. There is an underlying assumption that fostering high-quality engagement leads to increased likelihood of action (Freeman, Potente, Rock, & McIver, 2015). Further research is needed to identify the relationship between social media engagement and behavior change.

**Statement of Purpose**

The purpose of this culminating project was to design a blog site utilized as a tool to educate school nutrition professionals and build awareness of positive activities related to Ohio school meals. Blog sites can provide timely information and resources for program
implementation. For the blog to be successful, the target audience will need to engage in published site content and participate in site activities. The goal for this project was to reach 100 blog site followers. This project aims to identify appropriate indicators of engagement, make recommendations for both research and practice, and identify a set of best practices for future blog site use.

**Review of Literature**

For the first time in 15 years, the Healthy, Hunger-Free Kids Act of 2010 allowed the USDA to mandate a new set of guidelines for improving school nutrition. The legislation authorized funding and set policy regarding the USDA’s core child nutrition programs, including the NSLP and SBP (Food and Nutrition Services, 2013). The NSLP feeds nearly 30 million kids per day in 100,000 locations across the United States (Byker, Pinard, Yaroch, & Serrano, 2013). The Healthy, Hunger-Free Kids Act allowed opportunity for real reform to school meal programs by improving the critical nutrition and safety net of millions of children nationwide (Food and Nutrition Services, 2013).

**Policy Relevance**

In 2012, more than one-third of children and adolescents were overweight or obese (CDC, 2015). Over the past three decades, childhood obesity rates have steadily increased; more than doubling among children (6-11 years) and quadrupling among adolescents (12-19 years) (CDC, 2015). Childhood obesity has disabling immediate and long term effects on health and well-being. Chronic disease development is linked to diets consisting of processed, fatty, sugary foods, and beverages. Studies identify that while school food environments have slowly improved over time, highly processed, fatty foods are still abundant (Asada & Garza, 2014). Hanks, Just, Smith, and Wansink (2012) identified that 70% of K-12 students eat a school lunch...
program meal, at least 3 times per week. Kids participating in the NSLP consume 40% of their actual caloric intake at lunch, therefore a focus on quality nutrition is essential (Byker et al., 2013).

**USDA Guidelines**

On January 26, 2012, under the *Final Rule*, the Federal Registrar released the “Nutrition Standards in the National School Lunch and Breakfast Program” (United States Department of Agriculture [USDA], 2013). This document identified science-based nutrition standards for foods and beverages offered within schools. Specifically, standards were required for any foods sold outside of the school meal program, on the school campus, and at any time during the school day (USDA, 2013). These standards were developed to increase the consumption of heathier food options, while eliminating the availability of junk foods within the school food environment. Schools must meet certain nutrient requirements concerning foods and beverages. Food requirements for any foods sold in schools must: a) be either a fruit, vegetable, dairy product, a protein food, or a “whole-grain rich” grain; or a combination food containing at least ¼ cup of fruit or vegetables or b) contain 10% of the daily value of a nutrient cited as a public health concern in the 2010 Dietary Guidelines for Americans – calcium, potassium, vitamin D, or fiber (USDA, 2013). Limitations were mandated regarding nutrient and caloric intake for entrée, snacks and beverages.

The *Final Rule* outlined updated nutrient and calorie requirements for entrée and snack items.

- Calorie Limit: ≤200 calories (snacks), ≤350 (entrées)
- Sodium Limit: ≤200 mg (snacks), ≤480 (entrées)
- Fat Limits: Total fat (≤35% of calories)
  - Saturated fat (≤10% of calories)
Trans fat (zero grams)

- Sugar Limits: ≤35% of weight or ≤35% of calories from total sugars in foods

The Final Rule also set nutrition standards for all beverages sold. All schools may sell:

- Plain water (with or without carbonation)
- Unflavored low-fat milk, unflavored or flavored fat-free milk or milk alternatives
- 100% fruit or vegetable juice, 100% fruit or vegetable juice diluted with water

The updated USDA nutrition standards for the NSLP were modeled after and aligned with the 2010 Dietary Guidelines for Americans.

**Implementation of Guidelines**

With the recent modifications in school meal requirements and limitations, there is a need for the sharing of ideas and resources among school food service members and associated public health partners. To create buy-in, it is essential to develop positive messages regarding implementation of the new guidelines. Social media allows for information dissemination, sharing, and direct communication which could eliminate negative preconceived notions and motivational behaviors associated with the implementation of the new USDA guidelines.

Utilization of a social media platform provides the opportunity for users to create, share, and exchange information within a virtual community.

**Social Media Benefits**

Utilizing social media for public health communication is an essential tool due to the unique characteristics these outlets provide. Unlike mass media, or broadcast media, social media provides the opportunity for mass dissemination of information while creating multi-way interactions with sizable audience segments (Heldman, Schindelar, & Weaver III, 2013). They
allow for expanded reach, while fostering engagement and increasing the availability of credible, science-based health messages (CDC, 2012).

Dissemination of critical information has the capacity to reach a large audience instantaneously, in a cost-efficient manner (Neiger et al., 2012). Many social media outlets are catered toward a specific target audience. Therefore, health messages can be focused primarily to the concerns, needs and desires of a particular demographic (CDC, 2012). Social media also allows for the collection of audience feedback in real-time. Organizations can learn more about their target audience by paying attention to comments or discussions occurring on or within their social media platform. Monitoring tools allow identification of what diverse audiences are saying regarding public health topics, as well as existing information gaps; which can be used to adjust messaging accordingly (Heldman et al., 2013). This real-time feedback collection allows for the development of relevant, meaningful and useful messages.

Other benefits exist, such as leveraging networks of people to make info sharing easier, public engagement and encouraging others to engage in healthy behavior change through personalized health messages (CDC, 2012). It is also essential to identify the personal benefits derived for users of social media outlets. Successful social media campaigns allow users to participate and express themselves as a part of a “community” (Freeman et al., 2015). Social media encourages participation and conversation and allows individuals to connect with others with similar interests, beliefs and values.

**Social Media Challenges**

While social media outlets provide the opportunity for user engagement and participation, the actual likelihood of behavior change is unknown. There is an underlying assumption that fostering high-quality engagement leads to increased likelihood of action (Freeman et al., 2015).
Evaluation measures such as conventional process measures, “likes” or comments, explain very little of the campaign impact on target audiences. There is no direct relationship between a “like” or follow and the likelihood of behavior change. While it is essential to monitor simple metrics, there is a need for the adoption of process evaluations to include more outcome-based measures. It is essential to establish a connection between social media engagement and behavior change (Freeman et al., 2015). The identification of meaningful engagement occurrence among target audience members must further be studied. Arguments in favor of investing in social media for health communications will be strongest when backed with data showing effectiveness (Heldman et al., 2013). There is need for a standardized set of social media measurement tools.

Other challenges exist outside of the evaluation process. Monitoring of social media platforms require diligent and timely moderation (Freeman et al., 2015). There is a need for adequate human resources to manage a social media health campaign. Heldman, Schindelar, and Weaver III (2013) identified that with increased levels of engagement, more effort is required to effectively ensure maintenance of a coordinated engagement approach. Loss of message control is also a potential risk to consider in relation to engagement. Internet-based programs are publicly available and may reach individuals not of the campaign’s intended audience (Freeman et al., 2015). Such concerns may include negative comments and reshaping of the intended message or conversation (Heldman et al., 2013).

**Social Media Evaluation**

To evaluate the effectiveness of utilizing a social media outlet as a public health platform, metrics and key performance indicators must be measured. A combination of both approaches can provide a comprehensive review. Simple metrics include analyzing content of online
comments and interactions. Process evaluations assess how successful a social media campaign has engaged with the target audience through analysis of views, shares, comments and “likes” (Freeman et al., 2015). Outcome-based measures can be evaluated using surveys or interviews with users. Effective surveys contain questions on varying degrees of participant engagement. A survey can be sent directly to followers or provided to the general public through the social media platform (Freeman et al., 2015). As previously stated under social media limitations, evaluation of outcome-based measures regarding target audience engagement and behavior change must be further studied.

**Social Media Platform: Blogging**

Oxford dictionary defines the term blog (n.d.) as a regularly updated website or webpage, typically run by an individual or small group, which is written in an informal or conversational style. Blogging has many advantages for widespread dissemination of information. It provides longer-format writing and a permanent web address associated with the blog site (Dimov & Eidelman, 2015). Blog sites can be utilized for target audience interaction and the provision of specified resource materials. For example, Dimov and Eidelman (2015) have utilized a blog-based website for patient/professional education; which has gathered greater than 1.9 million page views since 2008. Their blog was utilized in two interlocking cycles - for patient use during and post clinical visits, followed by physician provision of education. Through the blog-based site, patients were provided diagrams and illustrations regarding allergy-related health conditions, printouts with illness specific web addresses, educational videos and follow-up questions based on information discussed via online portals. Physicians were then able to share links, provide feedback via comments from digital outputs and host in-depth
discussions regarding the most important blog post topics. The authors also utilized their blog-based site as a stepping stone to full journal articles and research projects.

It has been identified that participation and acceptance of blog use is determined by the usefulness and enjoyment of the content provided, as well as ease of site navigation (Hsu & Lin, 2008). Acceptance can be broken down into four areas – perceived usefulness, perceived ease of use, attitude and intention. Perceived usefulness is derived if content provided is performance enhancing. Perceived ease of use occurs if using the blog site is free of effort. Attitude describes the user’s preference to blogging, while intention is the extent to which a user would blog in the future. Hsu and Lin (2008) conducted an online study, utilizing a field survey, to determine the attributes of popular and widely used blog sites. Through a designed questionnaire placed on ten popular blog sites, results identified that attitude and community identification had a significant (p<0.001) effect on intention of blog site use; with 83% of variance in intent (Hsu & Lin, 2008). Areas significantly affecting attitude toward blog site use were ease of use (p<0.01), perceived enjoyment (p<0.001), altruism (p<0.05) and reputation of the site (p<0.05) (Hsu & Lin, 2008). Results identified that social norms (p>0.05) had no direct influence on user intent (Hsu & Lin, 2008). Overall, if the blog site was not perceived as enjoyable, individuals were unlikely to contribute.

Participation and acceptance are also determined by user perceived credibility and quality of the blog site. Sublet and colleagues (2011) surveyed 3,747 online respondents, linked to 131 diverse ideology blog sites, to assess blog credibility. Results identified that 73.6% of participants rated blogs as moderate to very credible resources (Sublet et al., 2011). Participants recognized blog sites as significantly more credible than other online resources, such as online newspapers or news magazines, broadcast or cable television news and radio news. Results also
identified that a strong predictor of blog credibility is reliance on a blog for information; those who access a blog representing their common interests usually rate that blog site as credible (Sublet et al., 2011). This same study also reported results on the quality of blog sites. Roughly 72.2% of participants recognized blogs as a moderate to very high source of in-depth quality information (Sublet et al., 2011).

An essential aspect of blog site participation is the sharing of information among users. This can be the sharing of content they retrieve from a blog site, or the sharing of personal opinions, experiences or knowledge to a blog site community. There are many factors of sharing motivation. Users are more likely to share if the expectation of reciprocal benefits, relationships, trust and altruism exists (Hsu & Lin, 2008). If a user contributes insight to a blog, the mutual benefit of expected feedback should occur. Social reward exists through expected relationships and trust. Altruism exists through sharing knowledge with passion and being helpful to others; thus improving personal welfare (Hsu & Lin, 2008).

Sublet et al. (2011) conducted another study to evaluate the first social media channel utilized by the National Institute for Occupational Safety and Health (NIOSH) – a science blog. The evaluation purpose was to identify the community of readers, its use as a two-way conversation channel and its effectiveness as an informational resource. A survey was created utilizing questions developed by the Centers for Disease Control and Prevention (CDC) for website usability studies. Results identified that, of the community of readers, 81% were participants between the ages of 40-59, 54.7% contained advanced college degrees and 51% were female compared to 49% male (Sublet et al., 2011).

Of the 75 respondents, the following blog expectations were expressed - accurate information (75%), easy access (63%), clear terminology and language (59%), comprehensive
information (59%), information is easy to read or scan (59%), information is easy to use or navigate (55%), organized layout (43%), high quality photos and images (21%), no expectations identified (11%) and color scheme (7%) (Sublet et al., 2011). To evaluate blog effectiveness, survey questions focused on usefulness, preference, suggested improvements and intention of future use. Results identified that 69.4% of participants thought the blog to be a useful or very useful resource of information; specifically, workplace safety and health information, collaboration with others, useful resources for partners, and useful educational content (Sublet et al., 2011). Roughly 60% of participants identified they would use the site in the future, while 93.3% of respondents claimed they would be making changes to workplace safety, within the next six months, due to site content (Sublet et al., 2011).

The purpose of the NIOSH science blog was to expand reader knowledge and provide resources and diverse perspectives concerning workplace and health issues. Results were unclear if the blog site was a useful two-way channel of communication compared to other social media channels (Sublet, et al., 2011). Overall, utilizing a blog site to disseminate public health information appears to be an effective form of communication. Blogs allow for target audience interaction through the provision of content information and resource materials, as well as user sharing opportunities. In order to increase and maintain engagement, blog sites must provide content that is pertinent, easily accessible and enjoyable to users.

**Conclusion**

In order to effectively convey pertinent public health information, it’s necessary for organizations to consider the use of social media outlets. Increasing technological advancements have allowed for audiences to heavily rely on social media platforms as a credible source of information. The unique benefits of utilizing social media for public health campaigns outweigh
the few limitations and concerns associated. While upkeep and maintenance may require additional resources, the opportunity to directly engage and communicate with audiences is one of a kind. Messages can be designed and catered toward a specific demographic, increasing the probability of effectively influencing behavior change. According to previous studies, utilization of blog sites to disseminate public health information is an effective form of social media. Blog sites allow for the provision of content in a language relatable to users. Public health organizations must incorporate social media into communication efforts.

Methods

The purpose of this project was to develop a tool for sharing timely information and resources with busy school nutrition professionals and advocates. The OHIO Smarter Lunchrooms blog site was created due to the many advantages for widespread dissemination of information. Blog sites provide longer-format writing with an associated permanent web address (Dimov & Eidelman, 2015). They can be utilized for target audience interaction, as well as the provision of specified resource materials.

Content Development

Content was the foundation of the OHIO Smarter Lunchrooms blog site. In order to increase user participation and engagement, content was developed around three categories: original material, custom resource materials and evaluation tools, and school nutrition research.

Original material. Original material was published in the form of a blog post. Blog posts were created to align with the Ohio Team Nutrition grant timeline. Content information contained a mixture of behavioral economic approaches, evaluation and measurement techniques, and contributor posts (success stories) highlighting positive school outcomes related to Ohio Team Nutrition projects. Content emphasizing behavioral economic approaches were
inspired by the Smarter Lunchrooms Movement, developed by the Cornell Center for Behavioral Economics in Child Nutrition Program. Blog posts containing evaluation and measurement techniques provided reasoning for conducting evaluation and measurement, as well as specific steps for evaluation and measurement. Success stories identified specific schools and school districts participating in Team Nutrition projects and their positive outcomes.

**Resource materials and evaluation tools.** Professionally designed, custom resource materials were created to promote fruit and vegetable consumption during school meals. Some of these materials were the result of Team Nutrition funded projects (See Table 1). Custom evaluation tools were created for users to effectively track change and measure the success of implemented Team Nutrition project activities (See Table 1). The evaluation tools were developed for either specifically for the blog site or for the current Team Nutrition grant cycle. Some evaluation tools already existed from previous Team Nutrition projects.
Table 1

*Professionally-designed, Custom Resource Materials, and Evaluation Tools*

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Materials</td>
<td>Topping Posters&lt;br&gt;Food Item Name Cards&lt;br&gt;Food Naming Word Bank&lt;br&gt;Recipe Cards&lt;br&gt;Taste Test Event Materials</td>
</tr>
<tr>
<td>Evaluation Tools</td>
<td>Calculating Average Daily Participation (ADP)&lt;br&gt;Plate Waste Introduction/Protocol&lt;br&gt;Plate Waste Template&lt;br&gt;Waste Summary Template&lt;br&gt;Taste Test Event Evaluation&lt;br&gt;Activity Tracking Spreadsheet</td>
</tr>
</tbody>
</table>

Note: Available for download on the OHIO Smarter Lunchrooms blog site.

**School nutrition research.** School nutrition research was utilized to promote evidence-based, positive messaging regarding implementation of the new USDA guidelines for school meals. Research-related blog posts consisted of USDA and W. K. Kellogg press releases relevant to the NSLP and SBP. Multiple studies from the Robert Wood Johnson Foundation and Smarter Lunchrooms Movement were utilized to support student fruit and vegetable selection and consumption.

**Development Process**

The development process consisted of three specific areas: content development, content publishing, and site management. Content development describes the rationale for identifying blog post topics. Content publishing describes the required research, drafting, and editing process prior to publishing new content. Site management was required to ensure the blog site was appropriately maintained and continuously engaging users.
**Content development.** A content schedule was created to map out the sequence of blog posts. This schedule presented weekly blog topics, each with an initial draft date, edit date/s, and publish date. A section was designated for additional topics or ideas of interest for future use. Blog topics were contingent upon Team Nutrition needs and projects, seasonal interests, and school nutrition activities and promotions. Blog posts were published according to the statistics available on the “Insights” page. This page, automatically provided by Wordpress, calculated the exact day of the week and specific time of day the OHIO Smarter Lunchrooms blog site received maximum views.

**Content publishing.** Publishing timetables differed depending on the type of content created. Original material required a certain time period for researching, drafting, and editing content for publishing. Original content required approximately seven days to research, draft, and edit. Content involving contributors required at least seven to ten days to create. An extended drafting period was required for contributor posts due to site administrator drafting and edits, proceeded by contributor edits, feedback, and approval. No specific timetable was required for creation of resource materials and evaluation tools. Resource materials and evaluation tools were developed in association with Ohio Team Nutrition project deadlines.

**Site management.** The OHIO Smarter Lunchrooms blog site was maintained by a Wright State University graduate student, supervised by a faculty member. A site administrator is required for monitoring site analytics, updating widgets, uploading materials, publishing blog posts, promoting blog site activities, and corresponding with blog site users.

**Promotion and Reach**

The OHIO Smarter Lunchrooms blog site was designed to appeal to and engage school nutrition advocates including Ohio food service directors, associated public health partners, and
school kitchen managers and staff. Promotion of the blog site was dependent on direct appeal, with the aid of funding partners and referrals.

Direct appeal. The Ohio Department of Education (ODE) was an essential funding partner for direct appeal to the target audience. Blog site participation and engagement was encouraged through the promotion of OHIO Smarter Lunchrooms during Team Nutrition webinars, accessible to project participants, and ODE listserv emails to Midwest Team Nutrition partners. Direct appeal was also utilized through contributor blog posts identifying specific school districts and their successful Team Nutrition project outcomes.

Referrals. Referrals, or external sources linking to the blog site, were essential drivers of traffic. Blog site credibility and quality is necessary for gaining referrals. These were vital to expanding the scope and reach of OHIO Smarter Lunchrooms outside of schools enrolled in Team Nutrition projects, as well as for national recognition.

Data Collection and Analysis

The main focus of the OHIO Smarter Lunchrooms blog site is to increase student consumption of fruits and vegetables during school meals. While social media outlets provide the opportunity for user engagement and participation, the actual likelihood of behavior change is unknown. While outcome behaviors are difficult to measure, there is an underlying assumption that fostering high-quality engagement leads to increased likelihood of action (Freeman et al., 2015). Therefore, process measures of engagement were utilized to evaluate this project. Process measures of engagement were identified through key performance indicators (KPIs) and associated simple metrics. KPIs are a set of quantifiable measures, used to gauge the performance of the blog site compared to the initial goals set. A metric can be defined as a
measurement system quantifying static and dynamic characteristics (Peters, Chen, Kaplan, Ognibeni, & Pauwels, 2013).

Three specific performance indicators were used to identify user participation – exposure, reach, and engagement. Data collection and aggregation of simple metrics were automatically provided by Wordpress through a site analytics dashboard. Site analytics recorded exposure, reach, and engagement on a daily, monthly, or yearly basis. The provision of simple metrics allowed for monitoring user participation and trends. Evaluation of specific promotions, activities, or outreach efforts was identified through simple metric aggregation. See Table 2 for key performance indicators and the associated metric descriptions used for project evaluation.
Table 2

*Process Measures of Engagement*

<table>
<thead>
<tr>
<th>KPI</th>
<th>Definition*</th>
<th>Metric Description</th>
</tr>
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<tbody>
<tr>
<td>Exposure</td>
<td>The number of times blog site content is viewed.</td>
<td>Number of views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of visitors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of page views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of blog post views</td>
</tr>
<tr>
<td>Reach</td>
<td>The number of users who have consistent contact with the blog site.</td>
<td>Number of followers</td>
</tr>
<tr>
<td>Engagement</td>
<td>The number of users who acknowledge agreement or preference for content.</td>
<td>Number of post or page ratings</td>
</tr>
<tr>
<td>(Low)</td>
<td></td>
<td>Number of post or page “likes”</td>
</tr>
<tr>
<td>Engagement</td>
<td>The number of users who participate in creating, sharing, or using content to</td>
<td>Number of user-generated blog posts</td>
</tr>
<tr>
<td>(Medium)</td>
<td>influence others.</td>
<td>Number of user-generated comments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of resource material downloads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of evaluation tool downloads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of user “shares”</td>
</tr>
<tr>
<td>Engagement</td>
<td>The number of users who engage in offline events.</td>
<td>Number of users registered for site promotions/activities</td>
</tr>
<tr>
<td>(High)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Neiger et al., 2012

Note: Key performance indicators (KPIs) and metrics related to the OHIO Smarter Lunchrooms blog site.

Results

The combination of three components allowed for the OHIO Smarter Lunchrooms blog site to reach maximum potential – content sharing, promotions, and referrals. When all three components were simultaneously incorporated into the blog site exposure, reach, and user participation and engagement peaked. Months containing content involving original material (specifically contributor posts), ODE promotions, and USDA referrals had the most views and visitors. See Figure 1 for the OHIO Smarter Lunchrooms monthly generated views and unique visitors with associated content, promotions and referrals.
Figure 1. OHIO Smarter Lunchrooms Blog Site, 2015-2016: Monthly views and visitors with associated content, promotions and referrals.
**Content sharing.** The OHIO Smarter Lunchrooms blog site was officially activated in August, 2015. Since activation, a total of 28 content posts have been published for an average of three published posts per month. Most (86%) published content was original material. Four of the 28 content posts were reposted information on school nutrition research. The blog site also provided free, downloadable resource materials and evaluation tools. Over an eight-month period, a total of 30 professionally-designed, custom resource materials (20) and evaluation tools (10) were uploaded. Refer to Table 1 for descriptions of resource materials and evaluation tools. See Figure 1 for monthly generated views and unique visitors with associated content.

**Promotions.** Utilization of funding partners was essential for promoting the blog site. A major contributor was the ODE’s Team Nutrition Program. ODE promoted the blog site through Team Nutrition webinars for project participants and a weekly listserv email sent to all Midwest Team Nutrition partners. One webinar took place in each of September 2015 and October 2015. Within the last eight months, ODE’s weekly listserv email, “3 Point Thursday,” included the OHIO Smarter Lunchrooms web address twice. Both instances promoted participation in blog site activities. The “3 Point Thursday” email in October 2015 promoted the OHIO Smarter Lunchrooms “Fruit Basket Challenge,” while the other sent in February 2016 promoted the OHIO Smarter Lunchrooms “OHIO Statewide Taste Test Event.” During the three months with an ODE promotion, a distinct spike in generated views and unique visitors can be seen. Refer to Figure 1 for monthly generated views and unique visitors and associated with promotions.

**Referrals.** To increase user participation and engagement, it was essential to obtain referrals from associated organizations of interest to the target audience. Throughout the last eight months, the blog site has generated a total of 872 referrals. The top drivers of traffic to OHIO Smarter Lunchrooms were search engines (27%), ODE 3PT emails (25%), Facebook
(25%), and the USDA (14%). See Table 3 for a full description of referrals and external links to the blog site.

Table 3

**OHIO Smarter Lunchrooms 2015-2016: Referrals or External Links (n=872)**

<table>
<thead>
<tr>
<th>Source</th>
<th># of Referrals (n=872)</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>215</td>
<td>24.7</td>
</tr>
<tr>
<td>Twitter</td>
<td>12</td>
<td>1.38</td>
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<tr>
<td>Search Engines</td>
<td>232</td>
<td>26.6</td>
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<tr>
<td>School District Web Sites</td>
<td>59</td>
<td>6.77</td>
</tr>
<tr>
<td>ODE 3PT Thursday</td>
<td>217</td>
<td>24.9</td>
</tr>
<tr>
<td>Minnesota DOE</td>
<td>8</td>
<td>0.92</td>
</tr>
<tr>
<td>USDA - Ohio HMR</td>
<td>2</td>
<td>0.23</td>
</tr>
<tr>
<td>USDA - Taste Test/Evaluation HMR</td>
<td>88</td>
<td>10.1</td>
</tr>
<tr>
<td>USDA - Smarter Lunchrooms HMR</td>
<td>32</td>
<td>3.67</td>
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<td>John Stalker Institute Blog</td>
<td>4</td>
<td>0.46</td>
</tr>
<tr>
<td>Eat Right Ohio</td>
<td>3</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Note: ODE - Ohio Department of Education, DOE - Department of Education, HMR - Healthy Meal Resources

Refer to Figure 1 for monthly generated views and unique visitors and associated with referrals.

**KPI - Exposure and Reach**

Since activation, the blog site has generated a total of 3,277 views and 1,301 unique visitors. The blog site is gaining momentum, with consistent monthly increases in views and visitors. About half of the total generated views (44%) and unique visitors (49%) have occurred in the third quarter. To date, the month of February has generated the most views (785), while March has generated the most unique visitors (343). Figure 2 identifies the blog site monthly generated views and visitors.
Monthly exposure and reach were identified and summarized in quarterly overviews. For each quarter, the percent change in various key performance indicators were identified in relation to the previous quarter. Baseline metrics were measured during the months of April, May, June, and July. Quarter one began in August 2015 when the blog site was officially activated and promoted to the target audience. Quarter one showed a 141% increase in the number of views and a 149% increase in the number of unique visitors compared to the baseline. Quarter one also identified a 90% increase in the number of blog site followers. Quarter two presented a slight decrease in the number of views (-11.2%) and blog site followers (-36.8%) compared to quarter one. Although the number of views and followers decreased, the number of unique visitors increased (36.4%) from quarter one to quarter two. Quarter three generated the most views and unique visitors. Significant increases in views (104%), visitors (96.3%), and followers (25%) occurred between the second and third quarter. The most popular blog post was a contributor post, “Shake Up School Lunch with Brunch,” generating 120 total views, followed by the OHIO Smarter Lunchrooms promotion, “OHIO Statewide Taste Test Event,” (43) and another
contributor post, “Food Factor Wheel Adds a Spin to Taste Test Events” (41). See Table 4 for quarterly fluctuations in views, visitors, user interactions, and blog site followers.

**KPI - Engagement**

User engagement was divided into three subcategories: low, medium, and high engagement. Engagement subcategory descriptions and associated metrics can be found in Table 2. Similar to exposure and reach, monthly user engagement was identified and summarized in quarterly overviews.

Low engagement is defined as the number of users who acknowledge agreement or preference for content (Neiger et al., 2012). Overall, there were a total of 41 user post ratings with an average score of five out of five (excellent) on the rating scale. Combined, the four success stories generated the most user post ratings (40%). The rating system was implemented during the last month of the first quarter. A 45.4% increase in user post ratings was identified in the second quarter, compared to the first, while a slight decrease (-12.5%) was evident between the second and third quarter. To date, there are 14 total user blog post “likes.” In order to “like” a post, a user must have a registered *Wordpress* account, whereas any user can rate a post. More post ratings were evident compared to post “likes” due to convenience. See Table 4 for quarterly changes in key performance indicators of low user engagement.
### Table 4

**OHIO Smarter Lunchrooms Quarterly Overview and Key Performance Indicators, 2015-2016**

<table>
<thead>
<tr>
<th>Key Performance Indicator</th>
<th>Baseline</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Δ Change (sum)</th>
<th>Δ Change (%)</th>
<th>Q1 - Q2</th>
<th>Q2 - Q3</th>
<th>Δ Change (sum)</th>
<th>Δ Change (%)</th>
<th>Q2 - Q3</th>
<th>Δ Change (%)</th>
<th>Q3 - Q4</th>
<th>Δ Change (sum)</th>
<th>Δ Change (%)</th>
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</thead>
<tbody>
<tr>
<td>Exposure/Reach</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Visitors</td>
<td>96</td>
<td>239</td>
<td>326</td>
<td>640</td>
<td>143</td>
<td>149</td>
<td>87</td>
<td>36.4</td>
<td>314</td>
<td>96.3</td>
<td></td>
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<tr>
<td># of Views</td>
<td>330</td>
<td>796</td>
<td>707</td>
<td>1444</td>
<td>466</td>
<td>141</td>
<td>-89</td>
<td>-11.2</td>
<td>737</td>
<td>104</td>
<td></td>
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<tr>
<td># of Views/Visitor</td>
<td>3.44</td>
<td>3.33</td>
<td>2.17</td>
<td>2.26</td>
<td>-0.11</td>
<td>-3.2</td>
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<td># of Post Views</td>
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<td>47</td>
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<td>22</td>
<td>275</td>
<td>17</td>
<td>56.7</td>
<td>181</td>
<td>385</td>
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<td># of User Interactions</td>
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<td>6</td>
<td>100</td>
<td>5</td>
<td>41.7</td>
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<td>Interaction Rate¹</td>
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<td>0.15</td>
<td>0.14</td>
<td>0.17</td>
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<td># of Followers</td>
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<td>15</td>
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<tr>
<td>Low Engagement</td>
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<tr>
<td># of Post/Page Ratings²</td>
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<td>11</td>
<td>16</td>
<td>14</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>45.4</td>
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<td>Medium Engagement</td>
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<tr>
<td># of Contributor Posts</td>
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<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>200</td>
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<tr>
<td># of Resource Material Downloads</td>
<td>32</td>
<td>167</td>
<td>67</td>
<td>259</td>
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<td># of Evaluation Tool Downloads³</td>
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<td>-</td>
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<td>159</td>
<td>70</td>
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<td># of User Shares</td>
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<td>12</td>
<td>15</td>
<td>32</td>
<td>7</td>
<td>140</td>
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<tr>
<td>High Engagement</td>
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<tr>
<td># of Users Registered for Site Activities⁴</td>
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<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
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</tbody>
</table>

**Baseline:** May - July; **Quarter 1:** August - October; **Quarter 2:** November - January; **Quarter 3:** February - March

¹Interaction Rate = [(Likes(1) + Comments(2) + Shares(3))/Visitors(100)]

²Rating system was implemented in October, 2015

³Evaluation tools were uploaded in September, 2015

⁴Site activities occurred in October, 2015 and January, 2016
Medium engagement is defined as the number of users who participate in creating, sharing, or using content to influence others (Neiger et al., 2012). Of the 28 content posts, four were contributor-based. Contributor-based posts, or success stories, often received the most views, user ratings, “likes,” and shares. Each quarter displayed an increase in user shares of OHIO Smarter Lunchrooms posts. The post with the most shares (16) was a contributor post, “Shake Up School Lunch with Brunch,” followed by “OHIO Statewide Taste Test Event” (15). Overall, contributor posts generated 44% of total user shares. Of the 793 site downloads, resource materials comprised of 66.2% of total downloads compared to evaluation tools at 33.8%. The most popular downloads were food item name cards (30.9%), taste test event materials (24.1%), and taste test event evaluation tools (18.9%). Table 5 identifies results for total blog site downloads.

Table 5

<p>| OHIO Smarter Lunchrooms, 2015-2016, Resource Material and Evaluation Tool Downloads (n=793) |
|-------------------------------------------------------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th><strong># of Downloads (n=)</strong></th>
<th><strong>Proportion (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Materials</td>
<td>525</td>
<td>66.2</td>
</tr>
<tr>
<td>Food Item Name Cards</td>
<td>245</td>
<td>30.9</td>
</tr>
<tr>
<td>Topping Posters</td>
<td>51</td>
<td>6.43</td>
</tr>
<tr>
<td>Recipe Cards</td>
<td>23</td>
<td>2.9</td>
</tr>
<tr>
<td>Taste Test Materials¹</td>
<td>191</td>
<td>24.1</td>
</tr>
<tr>
<td>Food Naming Word Bank</td>
<td>15</td>
<td>1.9</td>
</tr>
<tr>
<td>Evaluation Tools</td>
<td>268</td>
<td>33.8</td>
</tr>
<tr>
<td>Calculating ADP</td>
<td>25</td>
<td>3.15</td>
</tr>
<tr>
<td>Taste Test Evaluation²</td>
<td>150</td>
<td>18.9</td>
</tr>
<tr>
<td>Plate Waste Materials³</td>
<td>81</td>
<td>10.2</td>
</tr>
<tr>
<td>Activity Tracker</td>
<td>12</td>
<td>1.51</td>
</tr>
</tbody>
</table>

¹Taste test materials include: posters, comment cards, stickers, event flyer, and event letter
²Taste test evaluation includes: getting started guide, event evaluation form, and event suggested ideas
³Plate waste materials include: plate waste introduction/practice, plate waste protocol, plate waste template, waste summary template
Refer to Table 4 for quarterly changes in key performance indicators of medium user engagement.

High engagement is defined as the number of users who engage in offline events (Neiger et al., 2012). Two activities were promoted through the blog site: the OHIO Smarter Lunchrooms Fruit Basket Challenge and the OHIO Statewide Taste Test Event. The Fruit Basket Challenge had three registered participants, while the OHIO Statewide Taste Test Event had 10 registered participants. Refer to Table 4 for quarterly changes in key performance indicators of high user engagement.

**Discussion**

The purpose of this project was to design a blog site utilized as a tool to educate school nutrition professionals and build awareness of positive activities related to Ohio school meals. It is clear that the OHIO Smarter Lunchrooms blog site is gaining momentum with metrics of exposure, reach, and user engagement consistently increasing month to month.

In the initial six months, the blog site generated an average of 8.5 views per day. Third quarter metrics identified that site exposure nearly tripled, with an average of 24 views per day. Half of all generated views (44%) and unique visitors (49%) occurred in the months of February and March, 2016. While the project goal of reaching 100 blog site followers was not met in the initial eight months, the rate of obtaining blog site followers has increased month to month. User participation and engagement in blog site content peaked in the third quarter. Results identified that 52% of all downloads, 50% of all user shares, 43% of all post or page “likes,” and 34% of all user post ratings occurred during the months of February and March, 2016.

Third quarter success can be attributed to the combination of providing original content in the form of contributor blog posts, blog site promotion of the OHIO Smarter Lunchrooms
Statewide Taste Test Event, receiving additional promotional assistance from the state
department of education, and obtaining referrals from the USDA. Referring to Figure 1 and
Table 4, when original content is published and promotions and referrals are obtained, the blog
site achieves maximum exposure, reach, and user engagement.

Guide for Best Practice

Challenges and limitations are presented in the form of a best practices guide for future
blog site use. The following are “lesson’s learned,” identified throughout the creation,
administration, and management process of the OHIO Smarter Lunchrooms blog site.

Content development. It is essential to create a blog content schedule, including an
initial draft date, edit date/s, and publish date. The content schedule should also include a list of
future blog post ideas. See Appendix A for a content schedule template. Planned blog posts
may take longer than expected to draft, or may simply fall through due to unexpected event
cancellations or delays in contributor content. Therefore, creating a compilation of back-up or
“filler” blog posts is highly recommended.

Creating original material that is relevant and engaging to users is a time consuming
process. Administrator blog posts required approximately seven days to research, draft, edit, and
publish. A longer drafting period was required when relying on a contributor for content. This
process, took approximately two weeks, which included initial administrator research, drafting,
and editing followed by contributor feedback and approval prior to publishing. Contributors
should be identified and notified well in advance to maintain a publishing deadline.

Target audience engagement. Contributor posts, or school success stories, appear to
engage users the most. Contributor content provided positive project outcomes, the sharing of
resources and ideas, and support among school nutrition professionals. This type of content
offered a relatable and realistic experience for the target audience. These posts were overwhelming popular, receiving the most views, user “likes,” and user ratings.

To maximize exposure, it is essential to create a content post based off the blog post style guide provided in Appendix B. Users are interested in blog posts that are quick, easy reads. Posts with the most views, user “likes,” and user ratings contained a catchy title, followed by a small three sentence introduction, sub-headings, content with bulleted lists, and a variety of link outs.

Overall, generating engagement and participation is difficult with such a broad target audience. School nutrition professionals may include school food service directors, kitchen managers and staff, or associated public health partners. Therefore, users may have varying areas or items of interest. Identifying and creating relevant content for publishing can be a difficult task. Depending on user demographics, the ability to access and navigate a blog site may also be a challenge.

**Funding partners and referrals.** It is vital to obtain stakeholders, or funding partners, to support your project. Utilizing the state department of education was crucial for blog site promotion. ODE had additional access to target audience members, which maximized exposure and reach. OHIO Smarter Lunchrooms could not have gained momentum without the support of the state department of education.

Referrals are major drivers of traffic to the OHIO Smarter Lunchrooms blog site. Whether it is external links from user shares, or outside organizations or associations, it is essential to gain additional support to maximize exposure and reach. OHIO Smarter Lunchrooms metrics peaked with endorsement from the USDA, which linked the blog on three
separate pages. Gaining a credible, reliable referral indicates the quality and credibility of your project.

**Funding.** It is essential to acquire the appropriate funding to maintain a blog site. Funding is needed to preserve the blog site domain. *Wordpress* provided an annual subscription for blog site domain renewal. Funding should also be allocated to a staff responsible for blog site maintenance and design. It is essential to have a site administrator and graphic designer.

**Conclusion**

Utilizing a blog site for information dissemination and communication among school nutrition professionals has proven to be a viable educational platform. Participation and engagement in OHIO Smarter Lunchrooms content and activities continue to grow. Third quarter metrics indicate peak exposure, reach, and user engagement. With consistent metric increases occurring from quarter to quarter, it can be assumed that fourth quarter metrics will continue to rise. Future plans for the OHIO Smarter Lunchrooms blog site include expanding the scope of content, adding video content, and recruiting local nutrition advocates.

This project aimed to identify appropriate indicators of engagement, identify a set of best practices for future blog site use, and make recommendations for both research and practice. The success of OHIO Smarter Lunchrooms was determined by process measures of engagement. While it is assumed that high levels of engagement foster behavior change, future research is required to identify measurement of outcome behaviors.
References


Appendix A: Blog Content Schedule Template

**Blog Content Schedule Template**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Rough Draft Due Date</th>
<th>Edit Date/s</th>
<th>Blog Post Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Future Ideas:</td>
<td></td>
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</tbody>
</table>

Appendix B: Blog Post Study Guide

**Blog Post Style Guide**

The following tips should be considered when creating a blog post:

1. Headlines or titles should be attention-grabbing.
2. Blog posts should be kept succinct - no more than three to five paragraphs.
3. Utilize subheadings to make posts easy to scan.
4. Keep paragraphs brief – three or four sentences.
5. Chunk information.
6. Include numbered or bulleted lists.
7. Provide links to support the context of the blog post.
8. Use keywords.
9. Use an active voice.
10. Inspire with the conclusion – encourage participation and engagement.

## Appendix C: List of Competencies Met in CE

### Tier 1 Core Public Health Competencies

#### Domain #1: Analytic/Assessment Skills
- n/a

#### Domain #2: Policy Development/Program Planning Skills
- Contributes to development of program goals and objectives
- Explains the importance of evaluations for improving policies, programs, and services
- Gathers information for evaluating policies, programs, and services (e.g., outputs, outcomes, processes, procedures, return on investment)

#### Domain #3: Communication Skills
- Communicates in writing and orally with linguistic and cultural proficiency (e.g., using age-appropriate materials, incorporating images)
- Solicits input from individuals and organizations (e.g., chambers of commerce, religious organizations, schools, social service organizations, hospitals, government, community-based organizations, various populations served) for improving the health of a community
- Suggests approaches for disseminating public health data and information (e.g., social media, newspapers, newsletters, journals, town hall meetings, libraries, neighborhood gatherings)
- Conveys data and information to professionals and the public using a variety of approaches (e.g., reports, presentations, email, letters)
- Communicates information to influence behavior and improve health (e.g., uses social marketing methods, considers behavioral theories such as the Health Belief Model or Stages of Change Model)
- Facilitates communication among individuals, groups, and organizations

#### Domain #4: Cultural Competency Skills
- n/a

#### Domain #5: Community Dimensions of Practice Skills
- Describes the programs and services provided by governmental and non-governmental organizations to improve the health of a community
- Recognizes relationships that are affecting health in a community (e.g., relationships among health departments, hospitals, community health centers, primary care providers, schools, community-based organizations, and other types of organizations)
- Suggests relationships that may be needed to improve health in a community
- Supports relationships that improve health in a community
- Collaborates with community partners to improve health in a community (e.g., participates in committees, shares data and information, connects people to resources)
- Engages community members (e.g., focus groups, talking circles, formal meetings, key informant interviews) to improve health in a community
- Provides input for developing, implementing, evaluating, and improving policies, programs, and services
- Uses assets and resources (e.g., Boys & Girls Clubs, public libraries, hospitals, faith-based organizations, academic institutions, federal grants, fellowship programs) to improve health in a community
- Informs the public about policies, programs, and resources that improve health in a community
- Describes the importance of community-based participatory research

#### Domain #6: Public Health Sciences Skills
- Describes the scientific foundation of the field of public health

#### Domain #7: Financial Planning and Management Skills
- n/a

#### Domain #8: Leadership and Systems Thinking Skills
- Incorporates ethical standards of practice (e.g., Public Health Code of Ethics) into all interactions with individuals, organizations, and communities
- Describes public health as part of a larger inter-related system of organizations that influence the health of populations at local, national, and global levels
- Describes needs for professional development (e.g., training, mentoring, peer advising, coaching)
- Participates in professional development opportunities
- Describes ways to improve individual and program performance
### Concentration Specific Competencies

#### Health Promotion and Education:

<table>
<thead>
<tr>
<th>Area 2: Plan Health Education Programs</th>
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<tbody>
<tr>
<td>2.1 Use assessment results to inform the planning process</td>
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<tr>
<td>2.2 Select planning model(s) for health education</td>
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<tr>
<td>2.3 Develop goal statements</td>
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<tr>
<td>2.4 Formulate specific, measurable, attainable, realistic, and time-sensitive objectives</td>
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<td>2.5 Assess efficacy of various strategies to ensure consistency with objectives</td>
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<td>2.6 Select a variety of strategies and interventions to achieve stated objectives</td>
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<td>2.7 Organize health education into a logical sequence</td>
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<td>2.8 Develop a timeline for the delivery of health education</td>
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<tr>
<th>Area 3: Implement Health Education</th>
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<tr>
<td>3.1 Identify training needs</td>
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<td>3.2 Develop training objectives</td>
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<td>3.3 Create training using best practices</td>
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<td>3.4 Evaluate training</td>
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<tr>
<td>3.5 Use evaluation findings to plan future training</td>
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