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# **Online Nutrition Education: Enhancing Opportunities for Limited-Resource Learners**

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**Abstract:** Delivering nutrition education using the Internet could allow educators to reach larger audiences at lower cost. Low-income adults living in a rural community participated in focus groups to examine their interest in, experience with, and motivators to accessing nutrition education online. This audience described limited motivation in seeking formal nutrition education. However, they were interested in relevant, compelling tools emphasizing cooking and saving money. The likelihood of using the Internet for food/nutrition information was influenced by website characteristics. The insights from the study will help educators design online tools that capture and sustain the interest of low-income clientele.

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## **Are Learners Ready for Online Nutrition Education?**

USDA's Supplemental Nutrition Assistance Program-Education (SNAP-Ed) aims to increase the likelihood that low-income participants will select healthy food within limited budgets. Such efforts are relevant considering low-income households have a greater prevalence of nutrition-related health conditions than higher income households (Centers for Disease Control [CDC], 2010; USDA, 2009). However, nutrition educators face delivery challenges, particularly in rural areas, that may include a lack of participant interest, long travel distances or undependable transportation, time/schedule conflicts, and/or social barriers (Atkinson et al., 2010; Bensley et al., 2006; Brunt, 2008; Damron et al., 1999; Richardson, Williams, & Mustian, 2003).

Internet-based education programs have been proposed as a way of reaching larger audiences at lower costs compared to traditional classroom methods (Atkinson, Billing, Desmond, Gold, & Tournas-Hardt, 2007; Atkinson et al., 2010; Bensley et al., 2006; Brug, Oenema, Kroeze, & Raat, 2005). There is evidence suggesting computer-tailored and Web-based interventions can effectively promote healthy eating habits (Alexander et al., 2010; Kroeze, Werkman, & Brug, 2006; Norman et al., 2007; Oenema & Burg, 2001; Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004), and some low-income participants prefer the Internet to other methods for nutrition education (Bensley et al., 2006; Silk et al., 2008; Wantland et al., 2004). Access to the Internet is becoming less of a barrier to low-income households; 50-75% reportedly have access (Atkinson et al., 2007; Bensley et al., 2006; Silk et al., 2008). Online education also holds the promise of on-demand, convenient delivery that can be customized to individual learning needs and pace using a growing assortment of multimedia tools (Alexander et al., 2010; Trepka, Newman, Huffman, & Dixon, 2010).

Currently there is a lack of research on how and why low-income learners would choose to access the Internet for food and nutrition education when participation is voluntary, as in SNAP-Ed. The objective of the study reported here was to determine the interest in, experience with, and motivators to using the Internet to for nutrition education among SNAP participants in rural Oregon.

## Methods

Data were collected from the target audience using a written survey and focus groups. Independently, three authors analyzed all focus group transcripts using the constant comparison method of Huberman and Miles (1994). Researchers then met to identify and organize common themes found among focus groups' responses.

The study recruitment area was a semi-rural, geographically large county in southeastern Oregon with a population of 66,247 spread over 5,944 square miles, or 10.7 persons per square mile. The median household income was \$41,093 (US Census Bureau, 2000), with 21% of the population, or 6,629 households, receiving SNAP benefits in May 2010 (Oregon Department of Human Resources, 2010).

To recruit study participants, the SNAP office mailed invitations to 800 randomly selected adult SNAP recipients in Klamath County, Oregon. The first 40 people who responded to the invitation were randomly assigned to one of four 10-person focus groups. Thirty-nine participants attended one of four 2-hour sessions held August 14-26, 2009. A written survey with questions about demographics and Internet use was collected from the participants at the start of the focus groups. Focus group participants received a \$50 gift certificate to a local grocery store.

Focus group questions were designed to assess perceptions of the advantages, disadvantages, and motivations for taking an online nutrition class and were based on ideas from the literature and researcher's experience in program development (Figure 1). During the focus groups, probing questions were used to clarify statements made by participants. All focus groups were facilitated by the researcher and were audio recorded and transcribed. IRB study protocol approval was provided by Oregon State University (OSU).

**Figure 1.**  
Sample Focus Group Questions

- When was the last time you used the Internet to find a recipe, save money on food or look up information on food? Describe your experience. What sites

do you currently use for this purpose?
<ul style="list-style-type: none"> <li>• Let's say you want to learn more about healthy foods. Think about using the Internet to take a short educational "class" to learn more about this topic. How would you feel about going online to do that? What would be the advantages and disadvantages of doing this?</li> </ul>
<ul style="list-style-type: none"> <li>• What would motivate you to take an online nutrition class?</li> </ul>

## Results

### Demographics and Internet Use

Demographics and computer habits of the focus group participants (n=39) were collected from the written surveys. Participants were predominately female (29) and white (26). Ages ranged from 18-55, with most in ages 26-35 years (13). No one over 65 years participated. The groups were educated, and most had a GED or higher level of education (36). Participants were the primary food decision makers in their households; most (31) indicated they did the cooking and shopping.

When asked about their Internet usage, most had some type of access. More than half (24) had access to high-speed Internet, Digital Subscriber Line (DSL), or cable modem. The Internet was most often accessed at home and the library; none cited access via cell phone. Twenty-five participants used the Internet daily or weekly; only three never used it. Most common reasons cited for using the Internet were searches, followed by communicating with friends and family. Use of the Internet for online classes was not common.

### Focus Group Themes

#### *Using the Internet for Food and Nutrition Resources*

Attitudes were generally positive towards using the Internet for food and nutrition resources. The most popular sites were those that offered food preparation and purchasing tools.

The most frequently sought food and nutrition resources were for cooking. Participants searched for recipes using general search engines. Many were motivated to return frequently to commercial websites that offered recipes and coupons.

- "You know I am slowly getting rid of my cookbooks. I am just not using them. I use the Internet for everything."

Participants also used the Internet for ideas on stretching their food resources, particularly when SNAP was running out.

- "I go to mixingbowl.com. It has different meals. Like if you take chicken out, what are you going to do with it?....You can go there and click on chicken and it will give you all of the different recipes for chicken."

Other food and nutrition topics participants would look for online included access to quick information sources relevant to the season such as a video on cleaning a turkey for Thanksgiving or information on freezing garden produce in the summer.

### ***Using the Internet for Formal Nutrition Education***

Formal nutrition education information is less well received and less frequently used, and would require greater incentives or different setting than home access.

Although participants agreed that food was important, nutrition information (e.g., why and how to eat healthy) was accessed less often. And some remarks suggested that independent learning online was not as desirable as going to a live class in person.

- "It's not a feasible thing for me to go online and learn about nutrition. It's not going to happen. If they said now you got to learn this or two years down the road they are going to put me in the ground. I would get right on it."

Some participants agreed they could be persuaded to access formal nutrition education if it was framed around something they valued such as feeding their children or dealing with a chronic disease.

The majority expressed that the primary motivation to use the Internet for formal nutrition education would be if there were extrinsic motivators. These could include making it mandatory, being entered into a drawing for prizes, or receiving coupons for discounted food or non-food items that can't be purchased with SNAP benefits. Other motivators included receiving acknowledgement, a certificate of completion, or winning a recipe contest.

- "One thing is when you log onto the website and read all of the things and take the quiz. An incentive would be to send that person something in the mail. Whether it be a coupon for two dollars off peanut butter or a coupon for grocery items that you need for a recipe that you found on the Internet or on the site."

### ***Influence of Website Characteristics***

Likelihood of using the Internet for food and nutrition information is influenced by the characteristics of website as well as interest and applicability to the user.

Participants consistently reported the need for dynamic websites to initially visit the site and, more important, reasons to return later. Participants wanted customization potential in sites allowing them to choose aspects of the site that they found relevant. It was clear that if participants did not perceive a need for the information, they would not pursue it even if it would be of benefit to them.

- "My thing is, the first time I visited if it was worth it. Because if it is not, I'm not going back."
- "Tip of the day or something. Just have something that is always new. Oh cool, we got another tip or oh cool, broccoli is a great buy right now. Something that is always changing. Still always in the same spot so you can find itâ I like yahoo.com on the first page."

- "[My motivation] would be the quickness of it. If there is recipes in there that I could make before I have to run in the shower and go to work.....If the headlines say, 'Twenty Recipes Under Twenty Minutes' to make. Then I am going to pay attention to them. Because I know I have a half hour before work. I can go make this before work or after work."

Participants believed that interactivity with other users and experts would motivate them to use an Internet resource. This could be in the form of blogs, discussion boards, question of the week, recipe/product rating, testimonials, and the ability to share ideas on, for example, which grocery stores had the best deals.

To increase the likelihood of accessing nutrition education online, participants wanted it to be free. And everyone, even those using the Internet regularly, would need to know about the website, predicating the need for a strong marketing plan for any Web-based nutrition education tool.

## Discussion

The research reported here offers insights on how to design online nutrition education for low-income learners to capture their interest and motivate them to seek more information. Data from this research confirm that access to the Internet and bandwidth may not be a significant limiting factor for low-income, rural populations. Sixty-two percent of study participants used a high speed Internet connection (cable modem or DSL). Educators may be able to use multimedia such as audio/visual without compromising the online experience. Participants in the study were resourceful; they sought free access to the Internet at public sites, suggesting it may be helpful to promote such availability for educational offerings. No one in the study accessed the Internet via cell phone; considering the wide spread use of cell phones currently, exploration of their use should be investigated further.

Some researchers have found that low-income participants expressed an interest in online food and nutrition education (Atkinson et al., 2010; Atkinson et al., 2007; Silk et al., 2008). However, few participants in the study sought out formal nutrition education; they preferred, instead, information on skills, techniques, and tips related to shopping and preparing food. Because of its interactive nature, the Internet could attract reluctant learners through personal risk assessments or knowledge quizzes that provide instant feedback to the user. Norman et al and others (Pratt & Bowman, 2008) point to the value of frequent intervention over time to increase the likelihood of behavior change; participants in the study desired online tools they could return to often. Such online tools may have the potential to facilitate ongoing learning opportunities when well designed.

While some online learners will adopt and prefer this technology, others will be much slower to embrace it and will require significant incentives to participate. As suggested by Norman et al. (2007), it may be preferable to combine online technology with traditional classroom methods. Data from our study aligns with the recommendation of Atkinson et al. (2007 & 2009) to consult with the target audience at multiple stages in the development of online tools to ensure relevancy to the user.

A limitation of data reported here is the inability to generalize to all SNAP participants or regions with different populations. In addition, social desirability may have influenced participant's responses during discussions. Focus group participants were relatively well educated and were first to respond to the focus group invitation, which may have made them more receptive to online learning opportunities.

## Conclusion & Implications

Data from the study reported here suggest that opportunities exist for educators to use the Internet to reach

some SNAP participants. However, low-income audiences are unlikely to independently seek formal online nutrition education. Nutrition educators are challenged with bridging the gap between the goals of SNAP-Ed (USDA, 2009) and what low-income clientele perceive as relevant—cooking and/or saving money on food. The Internet could be a portal for more frequent connections with the learner and/or more in-depth learning experiences. Compelling tools (e.g., recipes using foods on hand) can attract potential users; timely resources (e.g., foods on sale, holiday cooking video), incentives (e.g., recipes, coupons, prizes, certificates), and/or interactivity (e.g., blogs, quizzes, sharing) will keep them coming back to the site.

To be successful in competing for the attention of online users, it is critical for educators to understand the unique needs of low-income audiences, to be sensitive to their issues and interests and responsive to their motivation to learn and change. Insights from focus group participants in the study reported here underline the need for ongoing input from the end user when developing Internet nutrition education tools. More research is needed to determine how nutrition educators can create online tools or methods that not only appeal to low-income Internet savvy consumers, but also result in meaningful behavior change.

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