

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

Health and Nutritional Sciences Faculty
Publications

Health and Nutritional Sciences

2018

Qualitative Analysis of Grocery Store and Farmers Market Manager Perceptions Regarding Use of Fruit and Vegetable Educational Materials

Lacey McCormack

South Dakota State University, lacey.mccormack@sdstate.edu

Shelly Brandenburger

South Dakota State University


Karlys Wells

South Dakota State University, Karlys.Wells@sdstate.edu

Suzanne Stluka

South Dakota State University, suzanne.stluka@sdstate.edu

Follow this and additional works at: https://openprairie.sdstate.edu/hns_pubs

 Part of the [Food Studies Commons](#), [Life Sciences Commons](#), and the [Medicine and Health Sciences Commons](#)

Recommended Citation

McCormack, Lacey; Brandenburger, Shelly; Wells, Karlys; and Stluka, Suzanne, "Qualitative Analysis of Grocery Store and Farmers Market Manager Perceptions Regarding Use of Fruit and Vegetable Educational Materials" (2018). *Health and Nutritional Sciences Faculty Publications*. 116.

https://openprairie.sdstate.edu/hns_pubs/116

This Article is brought to you for free and open access by the Health and Nutritional Sciences at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Health and Nutritional Sciences Faculty Publications by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Qualitative Analysis of Grocery Store and Farmers Market Manager Perceptions Regarding Use of Fruit and Vegetable Educational Materials

Lacey A. McCormack

Shelly Brandenburger

Karlys Wells

Suzanne Stluka

South Dakota State University

The Pick it! Try it! Like it! (PTL) educational resource set, developed to display in grocery stores and farmers markets, teaches individuals how to shop for and prepare healthy fruit and vegetable dishes. Because program buy-in must be obtained from location managers before implementation occurs, the purpose of this study was to qualitatively examine the perceptions that grocery store and farmers market managers have regarding PTL implementation. Locations that requested PTL materials during 2013-14 were contacted and asked to answer 13 questions. Responses were analyzed using the content analysis method with themes generated and frequencies reported. Analyses examined manager perceptions for indications of buy-in to the PTL program or evidence of negative gatekeeper challenges to implementation. Overall, managers reported the PTL resource set as beneficial; however, barriers were identified which can be used in future program planning.

Keywords: fruit, vegetable, nutrition education, gatekeeper, qualitative

Introduction

While the benefits of fruit and vegetable consumption are widely known, adults are still falling short of meeting dietary recommendations. Data from the Behavioral Risk Factor Surveillance System indicate that 13.1% of adults in the United States are meeting recommendations for fruit consumption, while 8.9% are meeting recommendations for vegetable consumption (Moore & Thompson, 2015). In South Dakota (SD), those numbers are even lower, with only 10.3% and 6.8% of adults meeting fruit and vegetable recommendations, respectively (Moore & Thompson, 2015).

The *Pick It! Try It! Like It!* (PTL) educational resource set was designed for use in SNAP-Ed presentations and other direct education opportunities to address low fruit and vegetable

Direct correspondence to Lacey A. McCormack at Lacey.McCormack@sdstate.edu

consumption. The development of PTL was grounded in the ecological model with a goal of influencing personal behavior with increased knowledge and changed attitude. The program was designed to be provided in a familiar community setting, like a grocery store or farmers market. Other researchers have relied on this model, including Glanz and Yaroch (2004), who in their study of grocery stores and communities stated, “Ecological approaches offer promising strategies for health behavior change.” Ecological influences include personal, social, and environmental factors, which make settings where people gather into potential implementation sites (Glanz & Yaroch, 2004). Previous research on the PTL educational resource set indicates that the program is recognizable and may be associated with improved intake of some vegetables (Wells, Stluka, & McCormack, 2015).

There are, however, challenges to ecological-focused programs such as PTL. In *Creating Healthy Food and Eating Environments: Policy and Environmental Approaches*, Story, Kaphingst, Robinson-O'Brien, and Glanz (2008) indicated that “The study of environmental and policy influences on nutrition and eating behaviors is a new and growing science. Thus, there are few well-articulated theoretical models with related data to test the interactions among personal, social, and environmental factors. Little is known about the mechanisms and causal pathways by which specific environmental influences might interact with individual factors to influence eating behaviors. Furthermore, little research has been done on which aspects of the food environment are more influential than others or about the most feasible and effective interventions and policies to improve food environments in various populations. A lack of validated environmental measures also hampers the field. The challenge is to accelerate multilevel ecological research in this area.” While research has made some progress in the area of influences on eating since this publication, there is still a lack of evidence on how to best reach consumers with environmentally-focused approaches.

Some interventions aiming to increase fruit and vegetable consumption in adults have targeted places where these foods can be purchased – namely supermarkets and grocery stores. A systematic review published in 2013 highlighted results from 33 studies (22 published in the United States) that assessed the impact of interventions in these settings, focusing on the intervention strategy (i.e., point-of-purchase information, pricing, increased availability of healthy foods, promotion/advertising) and the impact of the intervention on dietary and other outcomes (i.e., awareness/use, sales data, customer knowledge/beliefs, preferences, intentions) (Escaron, Meinen, Nitzke, & Martinez-Donate, 2013). Evidence for the effectiveness of each type of strategy varied, and overall, the authors noted that there was limited evidence to support interventions in these settings actually impacting purchasing behavior. However, characteristics of the more successful programs included food displays, taste testing, and food preparation.

On the contrary, a review of 16 studies assessing purchases and consumer knowledge in small grocery store interventions indicated that there were

consistent improvements across most of the trials in the availability and sale of healthy foods, the purchase and consumption of those foods, and consumer knowledge. Most of the trials that showed positive impact used multipronged strategies (food provision, infrastructure, and health communication) designed to improve both access to healthy foods (supply) and consumption of those foods (demand), thus demonstrating the need for combined environmental and behavioral approaches in small-store interventions (Gittelsohn, Rowan, & Gadhoke, 2012, p. 6).

These findings complement those from a study in SD, where a team of researchers from the Department of Health (DOH) and South Dakota State University (SDSU) surveyed a cross-section of grocers across the state ($n = 45$) about marketing strategies perceived to increase fruit and vegetable consumption among shoppers (Stluka, Zastrow, Zdorostov, Chang, & Skjonsberg, 2015). Grocers indicated that offering samples of locally-sold produce and in-store displays with “quick and easy” recipes and coupons were the top two marketing strategies that they believed could impact shopper consumption.

Despite the potential benefits of interventions like PTL in grocery stores or farmers markets and the perceived impacts of these types of strategies to increase fruit and vegetable consumption as noted by grocers, barriers to implementation still exist. Before programs or interventions can be implemented in locations that sell fruits and vegetables, management buy-in is necessary. While researchers have examined the impact of supermarket- and grocery store-based interventions on adults' purchasing habits, few have assessed perceived benefits of or barriers to implementation of these interventions among managers (including produce managers) themselves.

A large study in California resulted in a score for food markets based on their advertising of healthful and unhealthful foods and the variety of produce displayed (Ghirardelli, Quinn, & Sugerman, 2011). While not connecting the presence of these factors to consumer health, the study provided a tool to compare initiatives as changes were made to the retail environment. Several conditions were noted as emerging issues since they were rarely found in the environment, including health promotion items around fruit and vegetable displays and nutrition information signage for fruits and vegetables. The conclusion was that the retail food environment is a focus of efforts to improve the quality of the local food supply and scoring of the store gives direction “to store owners to create healthier neighborhoods through the quality of the food available and the types of marketing cues present” (Ghirardelli et al., 2011).

However, concerns remain among grocery store owners and managers. Following 20 interviews conducted by Gravlee, Boston, Mitchell, Schultz, and Betterley (2014), issues related to healthy food access and the retail food environment noted by grocers included making sales a priority, perceiving low customer demand for fresh produce, storing and selling perishable foods, the needing to provide evidence that store-based interventions will produce sales, and countering the

perception that healthy food costs more. In their summary, Gravlee et al. (2014) concluded that community food environments are complicated by local marketing and promotion strategies, service and products in stores, as well as by the perception of residents of the local food store.

Little is written about the effect of produce manager perceptions or activities on consumer choices. Some advice is contributed by *The Farmers Market Training Manual* (Eggert & Farr, 2009) compiled by the Farmers Market Federation of NY and funded by a SARE grant from USDA. This collaborative group recommends to farmers market managers that consumers interested in health and diet make a connection with the fresh foods in the market, so a consistent message of these benefits should be promoted throughout the market. They conclude that consumers appreciate information to help them use the products they are buying plus recipes and information on preserving the foods. The suggestion from these experienced market promoters is that recipes can stimulate sales for unusual products or move fruits or vegetables that are abundant. The guide proposes that one of the market manager's important tasks is communication with the consumers by answering questions, promoting the market, and delivering an easily understood message. They must be passionate, and health and nutrition could be one part of that passion. However, the experts point out that managers are given their job with little or no instruction and usually learn on the job (Eggert & Farr, 2009). We maintain that the same is likely true of the small store produce managers in SD.

Before large-scale interventions can take place in locations like grocery stores or farmers markets, educators must partner with store and market management, as these individuals serve as gatekeepers for interventions that may take place at their store or market locations. A positive perception of educational programming can help ensure program buy-in from management, and help initiate or foster continued implementation. Therefore, the overall purpose of this study was to qualitatively examine the perceptions that grocery store and farmers market managers have regarding the implementation of a consumer education resource – the PTL resource set.

Methods

Pick It! Try It! Like It! was developed by SDSU Extension to teach families and individuals how to shop for and prepare healthy fruit and vegetable dishes; it addresses some of the needs indicated by the surveyed grocers in SD. For the PTL resource set, SDSU Extension developed a mixed package of resources including fact sheets, recipe cards, and recipe videos about 43 different fruits and vegetables that can be grown in the region. The fact sheets and recipe cards contain three subtopics on each local fruit or vegetable: (a) tips for choosing the produce, (b) ideas for how to prepare or try it, (c) and nutrition information that accompanies easy and healthy recipes (see Figure 1). Any of these materials can be downloaded, viewed, or printed from <http://igrow.org/healthy-families/health-and-wellness/pick-it-try-it-like-it/> as a complete package or as individual components to suit local needs.

Figure 1. Front and Back of a PTL Card

Pick it! Try it! Like it!

APPLE



Pick it!

- There are about 2500 varieties of apples with varying crispness and sweetness.
- Look for smooth skin with bright coloring, no bruises or soft spots.
- Storing in a bag or drawer in the refrigerator helps them last longer.
- As apples ripen, they can also cause fruits and vegetables nearby to ripen.

Try it!

- Apples are great as fresh snacks, and can easily be packed in lunches.
- Core and slice apples to add to salads, chop for fruit salads.
- Simmering peeled apple slices with a little water causes them to break down and creates applesauce.
- Baking or drying apples can make apple chips.

Find recipes & videos at iGrow.org

SDSU Extension South Dakota State University, South Dakota counties, and U.S. Department of Agriculture cooperating. South Dakota State University adheres to AA/EEO guidelines in offering educational programs and services. This material was funded by USDA's Supplemental Nutrition Assistance Program (SNAP).




Publication: 04-5001-2013

Like it!

Hurry Up Baked Apples

Ingredients:

- 2 medium-size tart apples (Granny Smith, Braeburn, Cortland, Jonathan, Fuji)
- 1 teaspoon white or brown packed sugar
- ¼ teaspoon ground cinnamon
- 2 Tablespoons oatmeal
- 2 Tablespoons (total) raisins, sweetened dried cranberries, chopped walnuts, or other nuts
- 1 (6-ounce) container low-fat vanilla yogurt



Directions:

1. Cut apples in half lengthwise. Use spoon to remove cores and hollow out a space 1 inch or more deep. Arrange apple halves, cut sides up, in microwavable dish. Cut thin slices off bottoms to keep from tipping.
2. Combine sugar, cinnamon, oatmeal, raisins, and nuts. Fill each apple half.
3. Cover with plastic wrap. Fold back one edge ¼ inch to vent steam.
4. Microwave 3 to 3 ½ minutes, or until apples can be cut easily. Take from microwave. Let sit a few minutes.
5. Spoon yogurt over the top.

Yields 4 servings.

Nutrition Facts per Serving:
Calories 120; Fat 2g; Cholesterol 5mg; Sodium 30mg; Carbohydrates 26g; Fiber 3g; Sugars 20g; Protein 4g

Sources: <http://recipes.extension.iastate.edu/2011/12/19/hurry-up-baked-apples/> <http://urbanext.illinois.edu/apples/intro.cfm>
<http://urbanext.illinois.edu/apples/varieties.cfm> <http://www.flickr.com/photos/deborahfitchett/2970369427/>

The PTL materials were created using Supplemental Nutrition Assistance Program (SNAP) Education dollars as a linkage between SNAP, SNAP-Ed, and grocery stores in SD to create healthy options and to drive SNAP participants at the point-of-purchase to make healthier purchases, such as fruits and vegetables (Chrisinger, 2015). SNAP-Ed dollars can be utilized to help grocers to look at environmental changes in their stores that can be linked with the SNAP program to make positive changes in individuals who shop, live, work, and play in their communities.

PTL materials were designed for SD following an example of informational produce cards from University of Nebraska-Lincoln Extension (n.d.). Collaborators included a SNAP-Ed program associate and a horticulture field specialist with review by the SNAP-Ed program coordinator, a Registered Dietitian. Before this implementation, SNAP-Ed paraprofessional nutrition assistants, using the materials in grocery store sampling settings, reported interest in the materials by customers and approval of their usefulness for the nutrition assistant.

In this PTL project, the materials were used as an extension of the direct education model and in a social marketing format, where grocery store and farmers market managers were encouraged to request and use these materials in locations where fruits and vegetables were sold. The manager selected the mix of produce he wanted, and sets of recipe/fact cards were mailed to him, along with encouragement to visit the PTL website to download other resources, such as videos, signage, and sampling instructions. The ideal setup utilizing the PTL materials was an in-store display/sampling table with recipe cards and the recipe video to encourage shoppers to taste and discuss the use of fruits and vegetables in their meal preparation and planning. Additionally, complementary to the occasional sampling, produce area signs and recipe rack cards were to be placed near the featured produce items, swapping them out monthly to highlight a new produce item. During the shorter season of a farmers market, it was ideal for the sampling to be held each week for an in-season fruit or vegetable.

Data Collection

Over 200 grocery stores were contacted by postcard invitation using a contact list created for a previous project (Stluka et al., 2015), as well as all farmers markets listed with the SD Specialty Crop Producers Association. Corporate chain grocery stores, which are among the largest in the state, were omitted because they had declined an invitation to use the PTL materials in the past. The stores contacted represent approximately 2/3 of the grocery stores in the state. The invitation to participate directed interested stores and markets to a Survey Monkey website to provide contact information and to check the mix of up to 20 fruits and vegetables in PTL for implementation. Sets of 30-45 cards on each produce item chosen by the manager were offered to the partnering site free of charge. The website also included an agreement to dispense the free cards in the grocery store at approximately once per month for a period of nine months or more.

Materials were mailed to the contact person with a cover letter describing how to use the materials and inviting them to add a sampling component and the video demonstration of the recipe which could be downloaded from the website.

The grocery store sites who self-selected and indicated interest in implementing the program were from all areas of the state. The farmers markets were recruited via email invitation or phone call using all 27 markets listed on the SD Specialty Crops website. The implementers of the program were often the owner or occasionally a grocery/produce manager. In the year following distribution of the cards to the stores and markets, all of the locations (43 managers) that requested the PTL materials during 2013-14 were contacted via phone and asked to participate in a short survey. Ten location managers (8 grocery stores) did not agree to participate. The survey was adapted from a tool used by Iowa State University Extension following input and review from local SNAP-Ed staff. Thirteen questions were asked with notes taken by the interviewer as responses were narrated (Table 1). Data were obtained from 18 grocery store managers and 15 farmers market managers; however, five of these individuals had not displayed materials for various reasons. Therefore, data presented are from 28 managers (13 grocery store and 15 farmers market). Interviews lasted approximately 10 minutes.

Table 1. Questions Asked of Grocery Store and Farmers Market Managers via Phone

-
1. What did you like best about the campaign of Pick It! Try It! Like It!
 2. Did you hear anything from other staff about this program?
 3. Did you hear anything from the consumers at your facility about the cards?
 4. Do you believe the recipe card accessibility impacted product sales?
 5. Have you observed any other benefits?
 6. What did you like least about the Pick It! Try It! Like It! curriculum?
 7. Were you able to perform any demonstrations or have samples prepared from the Try It! recipes?
 8. Did you also view the full page flyer option or the videos online? If so, do you have any comments about them?
 9. Do you feel that the Pick It! Try It! Like It! program improved your own personal knowledge about fruits and vegetables?
 10. What would you change about the Pick It! Try It! Like It! program for the coming year?
 11. Would you be interested in further utilizing Pick It! Try It! Like It! in your facility in coming years?
 12. Suggestions for reaching lower income consumers? (e.g., observations about their shopping habits, preferences, or responses to the cards)
 13. Any other comments you would like to add?
-

Data Analysis

Notes from the phone interviews with managers who implemented PTL were analyzed through the qualitative method known as content analysis. Qualitative approaches to interview data can be used to systematically examine the contents of communication for meaning (Krippendorff,

2013) without injecting one's own ideas into the data. Coding was conducted after several readings of the interview notes by an unbiased researcher not involved in the study, and the evaluation proceeded using qualitative analysis software (NVivo 10 by QSR International). The goal of the analysis was to determine emerging themes in responses to the broad, open-ended questions and to gather meaningful insights from manager comments that could be used for future program development. Themes were generated based on the grouping of responses with similar meaning. Frequencies were delineated for questions that lent themselves to that method of analysis. Responses were coded as to location type throughout, either farmers market or grocery store, which allowed for insights into how PTL is perceived in these different settings.

Results

A total of 28 managers provided usable data (13 grocery store, 15 farmers market). Managers were first asked to describe what they liked best about PTL (Question 1). Themes that emerged from this open-ended question included the visual attractiveness of the materials ($n = 26$), the informational value ($n = 20$), and the ease or usefulness of the resource set ($n = 5$). Additionally, 25% of respondents ($n = 7$) specifically stated that the recipe was one of the things they liked best about the resource set, while five of these same managers added they would like more recipes for each item. In contrast, when managers were asked to describe what they liked least about PTL (Question 6), display issues involved with dispensing the cards in the space available in the produce area ($n = 13$) and the large size of the 4x6 inch informational cards ($n = 12$) were noted. Seven of the 13 managers that expressed issues with the display were from farmers market locations and were specifically referring to weather-related issues such as wind.

Managers were asked if they believed PTL impacted produce sales (Question 4). Results were mixed, with 11 respondents stating yes, nine stating no, and five stating maybe. Farmers market managers were more likely to say maybe (38%), while grocery store managers were more likely to say yes (58%). Commentary on this question indicated that this may vary by product, with sales being impacted for the less common products such as kohlrabi, and that it may be too difficult for sites to measure the impact on sales. One manager stated, "Certain items yes because they [consumers] have no idea how to prepare it," while another specified that the "Kohlrabi recipe helped in the sale of the product." Additionally, a grocer commented that "Customers really liked them and want to cook with fresh produce and don't know how," and "Some people commented 'Oh, I didn't know that'" when viewing the PTL resources. When asked about overall benefits of the resource set (Question 5), managers made statements indicating the materials served as a conversation point in the grocery stores and added something different to the farmers markets. Managers noted that "The nutrition facts were nice," – they did see kids picking them up – and that, "People like something free."

Only six managers (five grocery store and one farmers market) indicated produce demonstrations (using specific produce in a recipe with customer samples being provided) were used as part of the PTL intervention at their location (Question 7). The farmers market managers cited difficulty with water, electricity, and food safety as barriers to demonstrations, while the grocery store managers cited staffing and lack of traffic as barriers to demonstrations at their locations. The majority of the managers (64%) stated that the PTL resources improved their own knowledge of fruits and vegetables (Question 9), with both farmers market and grocery store managers affirming this benefit of the educational resource set. Managers responded that the PTL resources helped them with “the less popular and less known veggies” and “produce I am not quite familiar with.” Additionally, managers felt the materials were “educational for the not so common vegetables.”

When asked what they would like to see changed about the PTL resource set (Question 10), managers suggested asking vendors at farmers markets about topics for future cards and creating a recipe card (or fact sheet) display that holds up to wind challenges at outdoor locations – perhaps something like a tear-off pad of recipe cards. Managers were also asked how this educational resource set could be used to reach low-income populations (Question 12) specifically. Responses centered on ideas such as working with SNAP ($n = 7$), working with county social services ($n = 5$), providing education such as cooking classes to go along with the program ($n = 6$), and working with the local food pantry ($n = 3$). One grocery store manager suggested implementing the program around the 10th of the month when SNAP benefits are released. A farmers market manager suggested that they could sell smaller quantities of an item to make it more affordable for this audience and attach a PTL recipe. Additionally, one farmers market manager discussed taking the PTL program to the local food pantry, while a grocer suggested partnering with local “service groups – diabetes, WIC, Lions Club.”

When asked for additional commentary (Question 13), managers indicated overall that the PTL educational resource set was beneficial. One farmers market manager stated that his customers really like to cook with fresh produce and do not know how, while another commented that the cards were especially beneficial for the fruits and vegetables that were less popular. Grocery store managers commented that they liked the general message and their customers appreciated them. When asked if they would use PTL again (Question 11), the majority affirmed ($n = 25$, 89%) with commentary that “Education is always great,” and “Anything helps.” Of note, 100% of the farmers market managers ($n = 15$) stated they would use the program again.

Discussion

This study used a qualitative approach to elicit the perspectives of managers at grocery stores and farmers markets regarding an educational resource set designed to increase consumer consumption of fruits and vegetables through increased consumer knowledge about purchasing

and preparing a variety of fruits and vegetables. Managers may serve as gatekeepers for what fruits and vegetables are available in grocery stores and farmers markets and how they are marketed, so it is important to understand their perspectives regarding education implementation. Overall, managers reported the resource set was beneficial; however, barriers were identified which can inform future program planning.

Gatekeeping is the process through which information is filtered for dissemination, usually concerning publication, broadcasting, or some other mode of communication (Barzilai-Nahon, 2008). In the case of PTL, where materials are provided to locations by Extension educators, but implementation is ultimately up to location staff, managers at these locations may be filtering this information. The gatekeeping in this situation may be positive, with someone implementing all facets of the resource set and working to promote it within a location, or it may be a barrier, with the resource set not being fully implemented or not being implemented at all. In the present study, one grocer commented that “the cards are up – they can take if they want but these people don’t care,” indicating a possible negative gatekeeping situation. Similarly, another grocer stated, “90% of my clients don’t care, and 10% do.”

To add to this issue, managers and their customers may not have the same perspectives about what is most impactful for influencing behavior change. In one study, consumers ($n = 445$) who shopped at grocery stores were surveyed on a variety of topics, including attitudes and perceptions regarding a healthy diet and fruits and vegetables (Stluka et al., 2015). Grocers and consumers had slightly differing perspectives about the most effective methods for encouraging fruit and vegetable consumption. Grocers rated offering samples of local produce (ranked first), and in-store displays with quick and easy recipes paired with a coupon (ranked second) as ways to reach customers, with offering only coupons ranked third. Most consumers, however, agreed or strongly agreed (~75%) that they would buy more fruits and vegetables if they had coupons. Moore, Pinard, and Yaroch (2016) reported shoppers indicated that in-store coupons/specials, convenient/ready-to-eat foods, product labels/package advertising, and shelf labels/signs were tools that would encourage them to make healthier food purchases. Moreover, in-store tasting/recipe demonstrations and coupons/specials motivated frequent shoppers to make healthful purchases (Moore et al., 2016). Bringing managers and consumers together to discuss the most effective strategies for increasing produce sales and increasing produce consumption could further inform both future educational resource development and implementation.

In the present study, a majority of grocers and farmers market vendors indicated that the PTL materials increased their own knowledge, especially of less common fruits and vegetables. This indicates recognition that the resource set can influence knowledge, which would presumably apply to customers as well. Notably, over half of the participating managers also said that they perceived the cards as increasing their sales. This occurred more in the grocery stores where information at the point-of-purchase might have encouraged customers to buy, versus in the

farmers market where customers may have already been there with the intent to buy produce. Grocery store managers reported that the impact on sales seemed to be greatest on less common items, which could be interpreted as a result of point-of-purchase education.

Although PTL is well-received when implemented, challenges still exist with how it could best be implemented. While managers stated that the materials were visually attractive, informative and useful, there were some issues noted regarding display and the size of the cards. Suggestions were made about designing materials to address implementation barriers, including providing the materials on a tear pad as opposed to individual cards. While materials are currently provided in one way, perhaps they could be customized by locations themselves in the future. This is especially true where differences were noted between farmers markets and grocery stores. For example, farmers markets dealt with display issues like wind, while grocery stores had a different set of issues, such as finding space on already crowded shelves or displays to display the educational materials. These findings point toward differences between farmers markets and grocery stores and how the resource set can be best implemented. Stakeholders should be included in the development of materials in the future, and care should be taken to include representation from all locations where materials will be disseminated.

In some cases, implementation in general was an issue. Five of the grocers that received PTL materials did not implement the program. While three grocers did not give a reason for their lack of implementation, two stated the resource set was not a fit for their site. One of these managers stated, "It's just another sign, doesn't work," and another stated that it wouldn't work for their site because they "carry the bare minimum of produce." Full resource implementation was also an issue. While grocers in SD have indicated that samples or in-store demonstrations would be a method to increase produce consumption (Stluka et al., 2015), only five of the PTL managers in the present study actually set up a sample table or demonstration in their location. Most cited lack of space, staff, or traffic as barriers to demonstrations. Farmers markets struggled with lack of water and electricity. Demonstrations were also mentioned as a way to reach limited resource populations. PTL sampling instructions, including the exact quantities needed for the recipes to be sampled and notes for sampling display set up and discussion tips, are available for such implementation, but getting the word out about the new resource and then motivating sites to carry out demonstrations may be a challenge. This also highlights the importance of stakeholder input on resource design. While implementation of the resource set as a whole may be ideal, implementing pieces may be most feasible. Future research should investigate the most impactful components of the PTL resource set so this information can be provided to managers.

It is reasonable to suggest that to improve resource set implementation fidelity, and potentially resource set impact, more coaching or technical assistance for grocery store or farmers market managers is needed. One could surmise that managers need encouragement about their importance as partners and the potential value of this resource set. For example, if this was a

new venture in one of these locations, there was a learning curve for management regarding placing materials out for public distribution. Follow-up calls from Extension staff (including SNAP-Ed Educators) could be scheduled, not only as reminders for putting out materials, but also to answer questions the managers may have. Such calls would address the issues surrounding managers not putting out materials or implementing PTL fully. Those managers who value the educational pieces and are invested in the materials may potentially be the best implementers in terms of consistency, fidelity, and strategic placement of materials within a location. For others, however, perhaps more Extension educator staff time is necessary to ensure proper resource implementation, as opposed to simply providing materials to a location for use. Further evidence to support the usefulness of this resource in changing behavior or impacting produce sales would also be useful, especially in marketing PTL to potential locations.

There are several limitations to this study that should be noted. First, qualitative research depends on researcher skills for the validity, and interviews for this project were conducted by a student researcher who took notes during the interviews but did not record the conversations verbatim. Analysis of those notes could have led to a loss of meaning in translation. The nature of qualitative research also makes it difficult for investigators to fully avoid personal bias (Tong, Sainsbury, & Craig, 2007). Second, while 43 sites requested materials and 33 participated in data collection (77%), ultimately only 28 provided usable data (65%), resulting in a relatively small sample size. However, saturation of themes was reached between both grocery store and farmers market managers. We are unaware of why the remaining sites did not choose to participate in data collection and how their responses may have differed from those who did. Additionally, some grocery stores who were approached about PTL did not request materials. Perhaps promotional materials did not reach them, or these managers did not see the value in the program. Future research should explore reasons for nonadoption among this cohort.

Despite these limitations, the present study also had several strengths. Data analysis was conducted by an experienced qualitative researcher and grounded in the expertise of the research team in this area. Findings were fairly consistent within the two groups (grocery store and farmers market managers), and knowledge was gained that can contribute to future work in community-based nutrition efforts. Qualitative research can identify subtleties and complexities that may not be identified in quantitative research and can contribute to our nuanced understanding of the barriers to implementation of market-based efforts in nutrition education. Qualitative investigations can also allow for more in-depth exploration of the research questions that remain.

Conclusions and Application

The present study highlights the need for Extension educators to involve stakeholders in the development and revision of educational materials as well as in conversations about

implementation. If materials are already developed, as is the case with PTL, implementers should be allowed to select the mix of produce topics that they want and then be able to choose among resources such as recipe/fact cards, recipe step-by-step videos, produce area signage, and sampling/demonstration instructions. While providing localized customizable resource packages is desirable, program developers must be aware of the complicating factors of increased development cost and problems of logistics to supply these materials. Additionally, grocery stores likely could have increased consumer impact through the use of local educators such as SNAP-Ed nutrition assistants to more fully engage the grocery store managers in the implementation aspects of the program. Having a dedicated individual in the community to provide support, such as food demonstrations at the point-of-purchase, help with planning the in-store educational mix and implementation tips and reminders, could help to align grocery store manager expectations with actual program outcomes. Future research should continue to examine the impact of utilization of these types of educational materials in grocery stores and farmers markets, especially when combined with more Extension educator involvement in implementation.

References

- Barzilai-Nahon, K. (2008). Toward a theory of network gatekeeping: A framework for exploring information control. *Journal of the American Society for Information Science and Technology*, 59(9), 1493–1512. doi:10.1002/asi.20857
- Chrisinger, B. W. (2015). Reconsidering the Supplemental Nutrition Assistance Program as community development. *Journal of Nutrition Education and Behavior*, 47(3), 273–277. doi:10.1016/j.jneb.2014.10.005
- Eggert, D., & Farr, J. (2009). *Farmers market manager training manual*. Retrieved from http://www.nyfarmersmarket.com/wp-content/uploads/2014/08/NYFM_Training_Manual.pdf
- Escaron, A. L., Meinen, A. M., Nitzke, S. A., & Martinez-Donate, A. P. (2013). Supermarket and grocery store-based interventions to promote healthful food choices and eating practices: A systematic review. *Preventing Chronic Disease*, 10, E50. doi:10.5888/pcd10.120156
- Ghirardelli, A., Quinn, V., & Sugerman, S. (2011). Reliability of a retail food store survey and development of an accompanying retail scoring system to communicate survey findings and identify vendors for healthful food and marketing initiatives. *Journal of Nutrition Education and Behavior*, 43(4 Suppl. 2), S104–112. doi:10.1016/j.jneb.2011.03.003
- Gittelsohn, J., Rowan, M., & Gadhoke, P. (2012). Interventions in small food stores to change the food environment, improve diet, and reduce risk of chronic disease. *Preventing Chronic Disease*, 9, E59. doi:10.5888/pcd9.110015

- Glanz, K., & Yaroch, A. L. (2004). Strategies for increasing fruit and vegetable intake in grocery stores and communities: Policy, pricing, and environmental change. *Preventive Medicine, 39*(Suppl 2), S75–80. doi:10.1016/j.ypmed.2004.01.004
- Gravlee, C. C., Boston, P. Q., Mitchell, M. M., Schultz, A. F., & Betterley, C. (2014). Food store owners' and managers' perspectives on the food environment: An exploratory mixed-methods study. *BMC Public Health, 14*, 1031. doi:10.1186/1471-2458-14-1031
- Krippendorff, K. (2013). *Content analysis: An introduction to its methodology* (3rd ed.). Thousand Oaks, CA: Sage.
- Moore, L. V., Pinard, C. A., & Yaroch, A. L. (2016). Features in grocery stores that motivate shoppers to buy healthier foods, ConsumerStyles 2014. *Journal of Community Health, 41*(4), 812–817. doi:10.1007/s10900-016-0158-x
- Moore, L. V., & Thompson, F. E. (2015). Adults meeting fruit and vegetable intake recommendations - United States, 2013. *Morbidity and Mortality Weekly Report, 64*(26), 709–713.
- Stluka, S., Zastrow, M., Zdorostov, C., Chang, K.-L., & Skjonsberg, L. (2015). Review of fruit & vegetable food system in South Dakota: Application and policy suggestions for other rural states. *Journal of Human Sciences and Extension, 3*(3), 124–142.
- Story, M., Kaphingst, K. M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: Policy and environmental approaches. *Annual Review of Public Health, 29*, 253–272. doi:10.1146/annurev.publhealth.29.020907.090926
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349–357. doi:10.1093/intqhc/mzm042
- University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources, Nebraska Extension in Lancaster County. (n.d.). *Fruit & vegetable facts*. Retrieved from <https://lancaster.unl.edu/nep/fruitveggie.shtml>
- Wells, K., Stluka, S., & McCormack, L. (2015). Pick it! Try it! Like it!: A grocery store-based approach to increasing fruit and vegetable consumption. *Journal of Extension, 53*(1), Article 1IAW5. Retrieved from <https://www.joe.org/joe/2015february/iw5.php>

Lacey A. McCormack, PhD, MPH, RD, is an Assistant Professor in the Department of Health and Nutritional Sciences at South Dakota State University.

Shelly Brandenburger, DC, PhD, RD, is an Associate Professor in the Division of Health and Natural Sciences at Presentation College.

Karlys Wells, MEd, is a former Extension Associate in the Food & Families Program for South Dakota State University Extension.

Suzanne Stluka, PhD, RD, is the Expanded Food and Nutrition Education (EFNEP) and Supplemental Nutrition Assistance Education (SNAP-Ed) Coordinator as well as the Food & Families Program Director for South Dakota State University Extension.

Acknowledgments

Funding support provided by the SD Department of Social Services, Office of Economic Assistance as part of the USDA's Food and Nutrition Services Supplemental Nutrition Assistance Program Education (SNAP-Ed).