

Nutrition Assistance Program Report Series
Office of Research and Analysis

Supplemental Nutrition Assistance Program

***SNAP Education and Evaluation
Case Study Report:***

*Pennsylvania State University's
About Eating Program*

Volume I: Report



United States
Department of
Agriculture

Food and
Nutrition
Service

January 2012

Non-Discrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Adjudication, and 1400 Independence Avenue, SW, Washington, D.C. 20250-9410 or call toll free (866) 632-9992 (Voice). Individuals who are hearing impaired or have speech disabilities may contact USDA through the Federal Relay Service at (800) 877-8339; or (800) 845-6136 (Spanish). USDA is an equal opportunity provider and employer.



United States
Department of
Agriculture

Food and
Nutrition
Service

Supplemental Nutrition
Assistance Program
January 2012

SNAP Education and Evaluation Case Study Report:

Pennsylvania State University's About Eating Program

Volume I: Report

Authors:

Valerie Long
Sheryl Cates
Stacy Gleason
Vivian Gabor
Jonathan Blitstein
Loren Bell
James Hersey

Submitted by:

Altarum Institute
1200 18th Street N.W. Suite 700
Washington, DC 20036

Submitted to:

Office of Research and Analysis
Food and Nutrition Service
3101 Park Center Drive
Alexandria, VA 22302-1500

Project Director:

Loren Bell

Project Officer:

Sara Olson

This study was conducted under Contract number AG-3198-D-08-0098 with the Food and Nutrition Service.

This report is available on the Food and Nutrition Service website: <http://www.fns.usda.gov>

Suggested Citation:

U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, *SNAP Education and Evaluation Case Study Report: Pennsylvania State University's About Eating Program* by Valerie Long, Sheryl Cates, Stacy Gleason, Vivian Gabor, Loren Bell, Jonathan Blitstein, and James Hersey. Project Officer: Sara Olson, Alexandria, VA: January 2012.

This report was prepared by the *Models of SNAP Education and Evaluation* project team at Altarum Institute and RTI International for the U.S. Department of Agriculture, Food and Nutrition Service (FNS), Office of Research and Analysis. Many individuals made important contributions to this report. From Altarum, the authors thank Ruth Morgan for her contributions to the development of the process data collection instruments and her research support throughout the project. From RTI International, the authors thank Karen Morgan for her management of the impact data collection, Shawn Karns for her programming expertise, and Katherine Kosa for her research support throughout the project. The authors also thank Deborah Finette from Altarum and Sharon Barrell from RTI International for preparing the report.

The authors would also like to thank the following individuals for their assistance in the study and development of this report.

- The two FNS project officers, Hoke Wilson and Sara Olson, who provided valuable advice and guidance throughout the study and in the planning and editing of this report.
- Anita Singh and Carol Olander of the FNS Office of Research and Analysis and Alice Lockett from FNS' national SNAP Program office, who provided detailed reviews of the draft reports and very helpful comments about the application of the findings for SNAP-Ed implementing agencies.
- FNS' national SNAP Program staff for their review of the draft reports.
- Dr. Marilyn Townsend at the University of California–Davis for her contributions to the development of the impact instruments and Dr. Marilyn Townsend and Kathryn Sylva for the use of the fruit and vegetable graphics for the parent surveys.
- Dr. Barbara Lohse, Rachel Mateti, and Amy Lackpour from Pennsylvania State University for their review of the draft report, and the time that they and Dr. Kurt Johnson, Julie Bressler and Patricia Wamboldt from the Pennsylvania State University Survey Research Center took time out of their busy schedules to share their knowledge about the details of the development, administration, and evaluation of the program.

Finally, the authors would like to particularly thank the program participants who completed the evaluation surveys and those who took time to answer our questions during telephone interviews for the process evaluation. These individuals' generous contribution of time and knowledge has helped create a valuable resource for the field.

Table of Contents

Executive Summary

ES-1

Chapter I • Introduction	1
A. Selection of Wave I Demonstration Projects	2
B. Overview of the About Eating Program	3
C. Organization of the Report	4
Chapter II • Process Evaluation Methods and Results	5
A. Process Evaluation Methods.....	5
B. Program Development and Design.....	8
C. How the Demonstration Project Was Implemented.....	12
D. Factors Affecting Program Implementation and Opportunities for Improvement.....	19
Chapter III • Impact Evaluation Methods and Results	31
A. Conceptual Framework for the Impact Evaluation and Outcome Measures	31
B. Methodology	32
C. Impact Analysis Results	36
D. Impact Analysis Limited to Participants Who Completed All the About Eating Lessons	40
Chapter IV • Assessment of PSU’s Self-Evaluation	41
A. Methodology	41
B. Description of PSU’s Self-Evaluation.....	41
C. Assessment of the Quality of PSU’s Self-Evaluation	46
D. Comparison of Evaluation Methods and Results for the PSU and Independent Evaluations	47
E. Lessons Learned	52
Chapter V • Conclusions and Discussion	55
A. Key Process Evaluation Findings: Factors Supporting Implementation	55
B. Key Process Evaluation Findings: Challenges to Implementation	56
C. Key Impact Evaluation Findings.....	56
D. Key Findings from the Assessment of PSU’s Self-Evaluation.....	57
E. Recommendations.....	57

List of Exhibits • Tables • Figures

List of Exhibits

Exhibit I-1.— Research Questions.....	2
Exhibit II-1.— Secondary Data Collected for the Process Evaluation of the About Eating Demonstration Project	6
Exhibit II-2.— About Eating Respondent Types, Data Collection Methods, and Number of Respondents	7
Exhibit II-3.— Stages of Development of PSU’s About Eating Modules	9
Exhibit II-4.— Summary of PSU About Eating Lessons.....	11
Exhibit II-5.— Summary of About Eating Project Staff Roles and Responsibilities	12
Exhibit II-6.— Recruitment of Participants for the About Eating Demonstration Project.....	15
Exhibit II-7.— Key Facilitators and Challenges to About Eating Implementation.....	19
Exhibit IV-1.— Description and Use of Data Sources for the Assessment of PSU’s Self-Evaluation.....	42
Exhibit IV-2.— Research Design for the PSU Self-Evaluation	43
Exhibit IV-3.— Summary of Strengths and Weaknesses for the PSU Self-Evaluation	48
Exhibit IV-4.—Comparison of Study Designs for the PSU and Independent Evaluations	49

List of Figures

Figure ES-1.— Steps of Eating Competency.....	3
Figure ES-2.— Mean Daily Consumption of Fruits and Vegetables at Follow-up	6
Figure II-1.— Favorite About Eating Module Among Program Completers	21
Figure II-2.— Program Completers Reaction to Length of Time It Took to Complete About Eating Program	21
Figure II-3.— Most Commonly Reported Reasons for Participation in the About Eating Program	22
Figure II-4.— Most Commonly Reported Ways Participants Heard About the About Eating Program Among Program Completers.....	25
Figure II-5.— Most Commonly Reported Reasons for Noncompletion of About Eating Program	28

List of Tables

Table II-1.— Completion Status of Intervention Participants	16
Table II-2.— Mean and Range of Time Logged in for Each Lesson in Minutes, by Participation Status	16
Table II-3.— Summary of PSU About Eating Program Planning and Design Costs.....	17
Table II-4.— Summary of PSU About Eating Program Implementation Costs	18
Table II-5.— Satisfaction with About Eating Content Among Program Completers	20
Table II-6.— About Eating Ease of Use Among Program Completers	23
Table II-7.— Location and Frequency of Internet Access for About Eating Program Enrollees	23
Table II-8.— Satisfaction with About Eating Program Among Program Noncompleters	28
Table IV-1.— Survey Response Rates for the PSU Self-Evaluation	44
Table IV-2.— Summary of PSU About Eating Program Evaluation Costs.....	45
Table IV-3.— Assessment Scores for the PSU Self-Evaluation	47
Table IV-4.— Results of PSU Self-Evaluation: EFNEP Food Management Behavior Outcome Measures	50
Table IV-5.— Results of PSU Self-Evaluation: Eating Competence Outcome Measures.....	51

List of Appendices (available in Volume II at www.fns.usda.gov/ora)

- Appendix A. Process Evaluation Data Collection Instruments
- Appendix B. Process Evaluation Data and Supplemental Information
- Appendix C. Participant Survey Instruments
- Appendix D. Impact Evaluation Methodological Analyses
- Appendix E. Impact Evaluation Analysis of the Treated
- Appendix F. Instruments for Assessment of the Demonstration Project's Evaluation
- Appendix G. Process Evaluation Methodology
- Appendix H. Impact Evaluation Methodology
- Appendix I. Methodology for Assessment of the Demonstration Project's Evaluation
- Appendix J. References

Executive Summary

This executive summary presents the background, methods and highlights key findings from one of four case study reports produced for the *Models of SNAP Education and Evaluation, Wave I*. This report is specific to the evaluation of the Pennsylvania State University (PSU) About Eating Supplemental Nutrition Assistance Program-Education (SNAP-Ed) demonstration project. The evaluation, which was sponsored by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA), included three components: a process evaluation of the program's implementation, an evaluation of the program's impact on nutrition behaviors, and an assessment of the methods and results of PSU's own evaluation of its program.

The About Eating program is a five-lesson Web-based nutrition education intervention targeted to SNAP-eligible women, ages 18–45, in selected counties in Pennsylvania. The fundamental objective of the About Eating program is to increase eating competence of low-income women. The program is based on the Satter model of eating competence (ecSatter), which encourages individuals to choose and eat foods they enjoy in amounts they find satisfying, to be reliable about regularly eating meals and snacks, and to pay attention to hunger cues when they eat (Satter, 2008).¹ It has been suggested that individuals with higher levels of eating competence have higher-quality diets, including a higher intake of fruits and vegetables; thus, the primary outcome of the independent evaluation was the change in consumption of fruits and vegetables.

The independent evaluation did not find a statistically significant change in consumption of fruits and vegetables, nor did the PSU self-evaluation find a statistically significant improvement in eating competence. Thus, one cannot conclude that the About Eating program had the anticipated impact on eating competence or consumption of fruits and vegetables. At the same time, the process evaluation revealed the complexity of developing, testing, and implementing an online SNAP-Ed intervention and identified a number of challenges and lessons learned that are valuable for the future design and implementation of similar online interventions.

A. Background on SNAP-Ed

Under subcontract agreements with State SNAP agencies, a variety of organizations partner to implement SNAP-Ed within States. The goal of these programs is to improve the likelihood that SNAP participants and persons eligible for SNAP nutrition assistance will make healthy food choices within a limited budget and choose physically active lifestyles. FNS' SNAP-Ed Guiding Principles call for interventions that are science-based and behaviorally focused. FNS also requests that States' SNAP-Ed efforts be consistent with the current (2010) Dietary Guidelines for Americans (USDA CNPP, 2011), including the following²:

- Eat fruits and vegetables, whole grains, and fat-free or low-fat milk products every day;
- Be physically active every day as part of a healthy lifestyle; and

¹ Additional information on eating competence can be found at: Krall, J.B., and Lohse, B. Validation of a measure of the Satter eating competence model with low-income females. *Int J Behav Nutr Phys Act*. 2011;8:26. Doi:10.1186/1479-5868-8-26.

² See SNAP-Ed Plan Guidance at: <http://www.nal.usda.gov/fsn/Guidance.pdf> and SNAP-Ed Connections website at: <http://snap.nal.usda.gov>

- Balance caloric intake from food and beverages with calories expended.

SNAP-Ed Guidance also encourages all States to evaluate the effectiveness of their SNAP-Ed interventions. These can include formative, process, outcome and impact evaluations. In FY 2004, 74 percent of SNAP-Ed implementing agencies (IA) reported that they did conduct outcome evaluations on at least some aspects of services. However, based on interviews with 17 IAs these evaluations were focused to a greater extent on process outcomes, such as program use, than they were on participant behavior change (FNS, 2006). As one of the largest Federal funding sources for nutrition education, FNS, States, and local IAs have a significant stake in ensuring that nutrition education meets FNS's goals.

This study, *Models of SNAP Education and Evaluation (Wave I)*, is the first of two FNS-initiated independent evaluations designed to identify potential models of effective SNAP-Ed nutrition education and impact evaluation. The overarching goal of this evaluation is to determine whether the selected projects can serve as good examples of effective nutrition education and promotion activities within SNAP-Ed by meeting the following criteria:

- ▲ Positively affecting the nutrition and health behaviors of SNAP clients while adhering to FNS Guiding Principles,
- ▲ Exhibiting the potential to serve as models of effective nutrition intervention for large segments of the SNAP audience that can be replicated by other IAs, and
- ▲ Providing methodologically robust yet logistically practical examples of project-level SNAP-Ed evaluation efforts.

FNS also sought to understand the factors influencing the implementation of these nutrition education programs and lessons learned from these projects' experiences. In early 2009, an FNS study review committee competitively selected four SNAP-Ed IAs to participate in the study, including Pennsylvania State University (PSU)'s About Eating program. Each of the four agencies implemented their model SNAP-Ed programs between March and August of Federal Fiscal Year (FY) 2010 and conducted their own evaluations.

B. Overview of the About Eating Program

As noted above, the goal of PSU's About Eating program is to increase eating competence among low-income women who participate in SNAP or are eligible to participate in SNAP. Figure ES-1 shows the four steps of eating competence that formed the basis of the About Eating demonstration project lessons. The About Eating program was originally developed in 2007 for a college-age target audience. It was modified and pilot tested by PSU for a SNAP-Ed audience in 2008 and further refined in 2009 for this demonstration project.

About Eating is Web-based and consists of five lessons. Four of the five lessons focus on eating competence constructs, including eating attitudes, food acceptance, internal regulation, and external influences. The fifth lesson is on physical activity. The program takes a learner-centered approach by allowing participants to choose specific topics of interest within each lesson. All lessons offer self-assessment, self-reflection, and goal-setting, with pictures, tailored language and content and user-driven navigation. Overall, the About Eating program gives participants flexibility and an array of choices of content and activities as well as references to additional information on topics of interest.

Figure ES-1. — Steps of Eating Competency

- ▲ **Take time to eat.** Provide yourself with rewarding meals and snacks at regular and reliable times.
- ▲ **Cultivate positive attitudes about eating and food.** Emphasize providing rather than depriving; seeking food rather than avoiding it.
- ▲ **Enjoy your eating, eat things you like, and let yourself be comfortable with and relaxed about what you eat.** Enjoying eating supports the natural inclination to seek variety, the keystone of healthful food selection.
- ▲ **Pay attention to sensations of hunger and fullness to determine how much to eat.** Go to the table hungry, eat until you feel satisfied, and then stop, knowing that another meal or snack is coming soon when you can do it again.

Implemented in its current form for the first time as part of this demonstration project evaluation, About Eating was conducted from March through August 2010 in selected counties across the state of Pennsylvania where other SNAP-Ed programming was not being offered. SNAP participants and SNAP-eligible women ages 18–45 were targeted for the demonstration project and recruited through the use of Pennsylvania Department of Welfare (DPW) SNAP and job training databases, the Expanded Food and Nutrition Education Program (EFNEP), as well as postings in county assistance offices and community venues such as laundromats, job service agencies, and discount stores.

C. Study Methodology

1. Evaluation Design

The About Eating program evaluation was designed to examine the implementation and impact of this intervention among SNAP participants and SNAP-eligible women ages 18 to 45 living in selected counties in Pennsylvania. Women who expressed interest in the study and met the eligibility criteria were randomly assigned to the intervention or control group, with stratification by whether the county offers the Expanded Food and Nutrition Education Program. Intervention group participants received the Web-based About Eating program, and control group participants received a link to the USDA Click 'n Go Web site.

2. Process Evaluation Methods

The process evaluation for the About Eating program began by creating a baseline description of the objectives, approach, and components of the design, administration, and implementation of the program. This information was obtained from interviews with program-level staff members and from secondary documents. Once the intervention had been implemented, the collection and analysis of information on factors influencing the implementation and the lessons learned for program improvement and replicability began. This information was gained from in-person interviews with program-level staff members.

Another important component of the process evaluation was the collection of information about the participant experience of and satisfaction with the intervention. Information was collected on factors such as program accessibility (to both the computer and the Internet), perceived goals and usefulness of the program, ways in which the intervention helped participants change their nutrition behaviors, and barriers faced in changing behaviors. These data were collected through follow-up surveys of program completers

and non-completers and from in-depth telephone interviews with nine participants who completed the intervention.

Program administrative data were used to assess the project's reach and the amount of exposure that women had to the About Eating lessons. The process evaluation also describes the resources and costs PSU reported for implementation and evaluation of the About Eating demonstration program. Based upon the implementation costs and reach data, the study also estimates the program's cost per participant.

The analysis approach for the process evaluation was primarily qualitative, encompassing the triangulation of information collected from secondary data sources, interviews with key informants, and participants telephone interviews. Quantitative analysis was conducted on program reach, dosage, cost, and the participant follow-up survey responses.

3. Impact Evaluation Methods

The independent evaluators estimated the impact of the About Eating program on the primary outcome measure of average daily consumption of fruits and vegetables. Based on FNS' interest in observing a minimum increase in dietary intake of 0.30 standard deviation units, it was hypothesized that women participating in the About Eating program would increase their average daily consumption of fruits and vegetables by approximately 0.44 cups compared with women not participating in the program. Additionally, attitudes, beliefs, and actions that would be expected to change to facilitate increased consumption of fruits and vegetables were examined. Specifically, the impact analysis considered the following secondary outcome measures:

- ▲ Snacking: Eat fruits or vegetables as snacks.
- ▲ Variety: Eat more than one type of fruit and vegetable each day.
- ▲ Preference: Enjoy a variety of fruits and vegetables.
- ▲ Availability: Have access to fruits and vegetables at home.

The impact of the About Eating program on consumption, at-home availability, and preferences for 1% or skim milk and whole-wheat bread was also examined.

To minimize respondent burden, the data collection for the independent evaluation and PSU's self-evaluation was conducted jointly, with the exception that for the independent evaluation participants who did not complete the follow-up survey online received the survey by mail, with contacts made by telephone to nonrespondents. The potential impact of attrition from the evaluation study on generalizability of the impact analysis findings was assessed by comparing the pre-intervention similarity of study participants who provided follow-up data and those who did not. Differences were observed between the two groups with regard to age.

To avoid potential reactivity effects, self-reported measures of fruit and vegetable intake prior to implementation of the About Eating program were not collected. Instead, a measure of food preference, which has been shown to correlate with dietary intake, was collected at baseline. The impact of the About Eating program was estimated via linear regression using adjusted endpoint models that included preference scores as a proxy for fruit and vegetable intake at baseline. Other covariates in the model included age, race and ethnicity, education level, household size, single-adult household status, marital status, source of Internet access, and frequency of Internet access. Analyses were conducted that included

all study participants as well as analyses limited to participants who completed all the About Eating lessons (i.e., analysis of the treated).

4. Methods for the Assessment of PSU's Self-Evaluation

This study also examined the soundness of PSU's self-evaluation. This assessment included a detailed description of PSU's evaluation methodology, including the management, staffing, and costs of the evaluation; an assessment of the quality of PSU's evaluation, including an identification of strengths, weaknesses, and areas of improvement; and a comparison of PSU's evaluation methodology and results with those of the independent evaluation.

D. Process Evaluation Findings

In FY 2010, one full-time equivalent About Eating staff member designed, implemented, and evaluated the Web-based intervention. The PSU Survey Research Center (SRC) was hired to provide the necessary programming support and platform for the About Eating intervention and the data collection for the evaluation study. A total of 1,010 individuals visited the About Eating Web site after being recruited to participate, and 576 women (57 percent of those who visited the site) met the eligibility criteria for participation in the demonstration project. A total of 500 women went on to enroll (complete the pre-survey) and were subsequently randomly assigned to the intervention or control group. Among the 282 women assigned to the intervention group, 80 (28 percent) enrolled and took the pre-survey, but did not access any of the lessons. Among the remaining 202 women who participated, 155 (77 percent) completed all five lessons. Based on the total costs PSU reported for implementation of the demonstration project and the 202 women who completed at least one lesson, the program's estimated cost per participant was \$196.46. The About Eating designers and implementers strongly believe that their knowledge and experience with the target audience allowed them to design a nutrition education program that was well received by the target population. They also noted that formative research, which was used to guide the development of and revisions to their online program, was critically important to the Web design and identifying potential recruitment partners and methods.

Participants who completed the program reported a high degree of satisfaction with the nutrition education messages and content of the program. Overall, program completers found the information provided through About Eating to be factual and interesting and the amount of time it took to complete each lesson was reasonable and appropriate. Moreover, four of the top six reasons completers reportedly enrolled in the About Eating program were related to their health and wellness, which indicates that the program's subject matter was of interest to the target audience. Additionally, the majority of participants who completed the About Eating program found the program to be easy to use and were able to access and navigate the Web site as well as read and understand the information provided. Specifically, respondents to the follow-up survey and in-depth telephone interview reportedly liked the quizzes, surveys, and other engaging activities embedded in the lessons, as well as the charts and graphs. Many said that the program made them more aware of their eating habits and food choices. Some felt the information that they learned was valuable for helping them make healthy changes in their diets and feed their families. Some respondents attributed their weight loss to their participation in the program and the information that they gleaned from the lessons.

Women who were enrolled in the About Eating intervention group but either did not start the first lesson or complete the program—approximately 45 percent of those enrolled—most commonly reported that they were “too busy with other activities like work or family” as the reason they did not complete all of

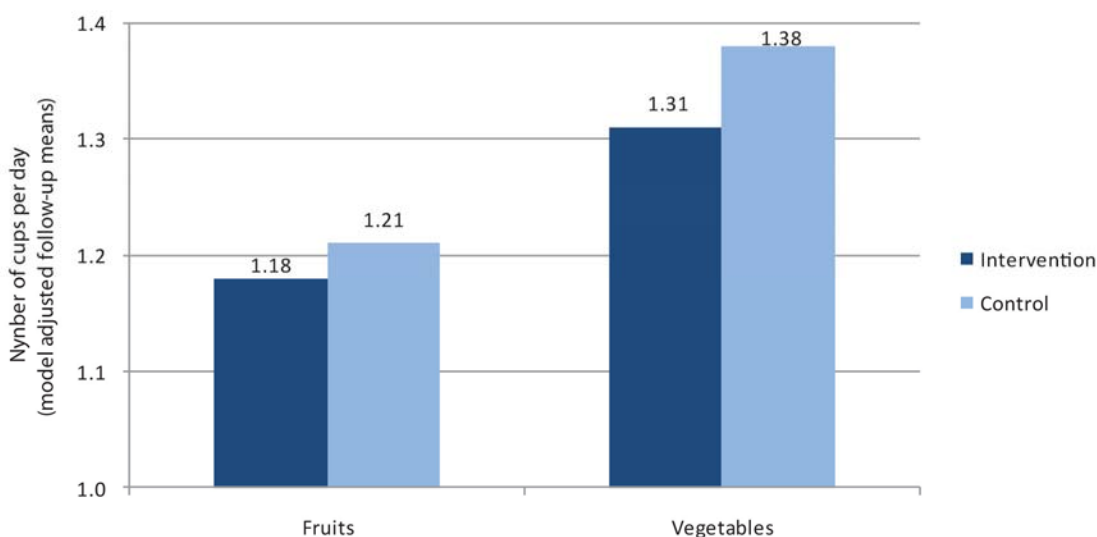
the About Eating lessons. The second most commonly reported reason was that they had “limited access to Internet or Web or a computer,” which indicates that the program’s accessibility was problematic for this segment of the population. A participant attrition analysis³ also revealed that participants who did not complete high school, had limited access to the Internet at home, and accessed the Internet only a few times per month, were less likely to complete the About Eating program.

E. Impact Evaluation Findings

The baseline analysis included 500 respondents, 282 for the intervention group and 218 for the control group who received a link to the USDA Click ’n Go Web site. Participants in the intervention group and control group were similar; with the exception being that there was a higher percentage of women ages 25 to 34 in the control group than in the intervention group.

To avoid potential reactivity effects, self-reported measures of fruit and vegetable consumption before implementation of the About Eating program were not collected. Figure ES-2 shows the mean consumption of fruits and vegetables at follow-up by condition.

Figure ES-2.— Mean Daily Consumption of Fruits and Vegetables at Follow-up



Based on the results of the impact analysis, one cannot conclude that the About Eating program as delivered had the anticipated impact on participants’ daily consumption of fruits and vegetables or the secondary outcome measures of snacking, variety, preference, and availability. Likewise, one cannot conclude that the About Eating program had the anticipated impact on consumption, at-home availability, and preferences for 1% or skim milk and whole-wheat bread. These findings hold true for all evaluation study participants and for the analyses limited to individuals who completed all the About Eating lessons.

³ Participant attrition analysis compares the characteristics of participants who did and did not complete all of the About Eating lessons.

The lack of statistically significant findings suggests that the About Eating program was not effective at increasing daily consumption of fruits and vegetables among low-income women in Pennsylvania. Program attrition was relatively high, however, analyses limited to participants who completed all of the About Eating lessons revealed similar results.

F. Findings From the Assessment of PSU's Self-Evaluation

The PSU self-evaluation and the independent impact evaluation used the same research design, and participant data for the two evaluations were collected concurrently. Most aspects of PSU's evaluation were appropriate and technically correct, and their evaluation was implemented properly. Weaknesses of the PSU evaluation were the following: the study was underpowered because of challenges recruiting and retaining participants, the high attrition rate limited the generalizability of the study findings, and the study lacked quality control measures during Internet data collection and delivery of the final survey data by SRC, the subcontractor retained by PSU to field the Web-based intervention and data collection.

It has been suggested that individuals with higher levels of eating competence have better quality diets, including a higher intake of fruits and vegetables, than those with lower levels of eating competence. Based on the results of the PSU self-evaluation and the independent evaluation, one cannot conclude that the About Eating program had the anticipated impact on eating competence or consumption of fruits and vegetables. While not the focus of this particular evaluation, the hypothesis of a relationship between eating competence and consumption of fruits and vegetables could not be tested for this study.

PSU's evaluation team faced several challenges in the implementation of its evaluation, including difficulty with recruitment of eligible participants, attrition rates that were higher than expected, and errors in the survey database. To improve future evaluations, PSU may want to consider four key procedural changes to the implementation of its evaluation: a stronger collaboration with DPW to ensure access to eligible households, nurturing relationships with local libraries to assist with recruitment and access to computers and the Internet, a stronger reminder system for participants to decrease attrition rate, and stronger and more frequent oversight of the data collection and quality control procedures to be followed throughout the study.

G. Recommendations

The About Eating program presented a unique opportunity to examine an online intervention directed at SNAP participants and eligibles. The complexity of developing, testing, and implementing such an intervention is significant. As it is likely that other States will want to implement online nutrition education interventions in the future, it is important that the findings from the process and impact evaluation be considered when attempting to replicate online interventions.

Based on the findings from the independent evaluation, the About Eating program did not result in a measurable increase in daily consumption of fruits and vegetables. This may be due to limitations of the evaluation or program implementation. Despite the lack of change observed for primary outcomes, participants who completed the About Eating program found the Web application to be accessible and easy to use and the content to be factual and interesting. About Eating planners and implementers reported that it was their level of knowledge and understanding of the target audience that allowed them to develop an appropriate and engaging program. Additionally, the About Eating team reported having a well-defined implementation plan in place, which allowed them to stay on course throughout the study period.

At the same time, several challenges related to recruitment, retention, and processes handled by SRC were identified through the process evaluation, indicating that there is room for improvement. Some of these

opportunities for improvement as well as recommendations for improving the About Eating self-evaluation are noted below.

▲ **Key areas for program improvement**

Input from program staff and participants suggest revisions are needed to make this Web-based intervention reach more SNAP participants and SNAP-eligibles, motivate participants to stay engaged, and facilitate behavior change. As this program is refined and this program and other online nutrition education programming is considered by SNAP-Ed IAs, the following actions should be considered for program improvement.

- **Enhance recruitment into the program.** The program could more fully utilize venues that provide access to computers and the Internet, such as libraries or job training programs, as well as organizations that exhibited a greater level of commitment during the study period. These types of venues are also beneficial because they have staff member onsite who could encourage participation for both recruitment and retention purposes. Relationships with organizations that were not as engaged in the recruitment process but offer a rich source of potentially eligible participants, such as the Pennsylvania DPW, which administers an array of income support and job training programs, should be fostered to increase their buy-in and commitment to assisting with recruitment efforts.
- **Increase flexibility in amount of time available for each lesson.** About Eating program implementers also suggest that increased time with each lesson—that is, allowing participants to go back to a lesson they have already viewed to spend more time with it—would allow participants more time to make related behavior changes. They noted that these limits were only in place for purposes of the demonstration project evaluation. Removing these limits, coupled with efforts to increase exposure to the lessons both in terms of the number of lessons accessed and the amount of time spent on each lesson, perhaps through more timely or increased use of reminder emails and e-cards, could increase the effectiveness of the intervention.
- **Incorporate linkages to community nutrition education programming.** The evaluation results also suggest that PSU should consider adding a new program component that refers About Eating participants to other programs that offer direct education in nutrition and food resource management. This would include EFNEP, SNAP-Ed, and other programs in the community that provide education in the form of group classes, such as Feeding America’s Operation Frontline. Referring participants to these other nutrition education programs could enhance the impacts of the About Eating program on fruit and vegetable consumption by reinforcing the key nutrition concepts in the About Eating lessons. For women with young children, referrals could also be made to the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). However, to ensure consistency with the eating competence model, referrals to other programs should only be provided to those participants who express an interest in additional, related information.

▲ **Suggestions for improving evaluations**

As the team at PSU continues to refine and implement the About Eating program and considers future evaluations, it may want to consider addressing areas that could benefit from improvement. For future evaluation studies, PSU may want to overrecruit study participants to ensure an adequate sample size for the analysis, implement procedures to decrease attrition to address concerns about generalizability of the study findings, and proactively establish quality control procedures and increased communication to address the concerns with the subcontractor SRC. These changes would improve the quality of the evaluation and increase PSU’s ability to accurately measure changes attributable to the program.

Chapter I • Introduction

Nutrition education is an optional component of the Supplemental Nutrition Assistance Program (SNAP), known as SNAP-Education or SNAP-Ed. The goal of SNAP-Ed is to improve the likelihood that SNAP participants and persons eligible for SNAP nutrition assistance will make healthy food choices within a limited budget and choose physically active lifestyles consistent with the current (2010) Dietary Guidelines for Americans (USDA, CNPP, 2011).

The Food and Nutrition Service's (FNS) official SNAP-Ed Guidance not only provides information to help States in designing and implementing SNAP-Ed programs, but also specifically encourages States to evaluate the effectiveness of their SNAP-Ed programs.⁴ In FY 2004, 74 percent of SNAP-Ed implementing agencies (IA) reported that they conducted outcome evaluations on at least some aspects of services. However, based on interviews with 17 IAs these evaluations were focused to a greater extent on program use than they were on participant behavior change (FNS, 2006). As one of the largest Federal funding sources for nutrition education, FNS, States, and local IAs have a significant stake in ensuring that SNAP-Ed nutrition education meets FNS' goals.

This study, *Models of SNAP Education and Evaluation (Wave I)*, is the first of two FNS-initiated independent evaluations designed to identify models of effective SNAP-Ed nutrition education impact evaluation. The overarching goal of this evaluation is to determine whether the selected projects can serve as good examples of effective nutrition education and promotion activities within SNAP-Ed by meeting the following criteria:

- Positively impacting the nutrition and health behaviors of SNAP participants while adhering to FNS SNAP-Ed Guiding Principles,
- Exhibiting the potential to serve as models of effective nutrition intervention for large segments of the SNAP audience while requiring levels of resources that are manageable by a large percentage of SNAP-Ed implementing agencies, and
- Providing methodologically robust yet logistically practical examples of project-level SNAP-Ed evaluation efforts.

To accomplish the study goal, three complementary types of assessments were conducted: a process evaluation, an impact evaluation, and an assessment of the demonstration project's own outcome or impact evaluations. Exhibit I-1 lists the broad research questions framing the design and measures used in each component of the evaluation.

⁴ See SNAP-Ed Plan Guidance at: <http://www.nal.usda.gov/fns/Guidance/FY2012SNAP-EdGuidance.pdf>

Exhibit I-1.— Research Questions

Process Evaluation

- What were the demonstration project’s overall objectives and approach?
- How was the intervention implemented and administered?
- How many people did the intervention reach, and how much exposure did participants have to it?
- What resources and costs were needed for the design (where relevant) and implementation of the intervention?
- What were the facilitators, challenges, and lessons learned regarding implementation and administration of the intervention?
- What feedback did participants have about the implementation of and their satisfaction with the intervention?

Impact Evaluation

- What was the intervention’s impact on primary nutrition behavioral outcomes (i.e., cups of fruits and vegetables consumed)?
- What was the intervention’s impact on secondary outcomes (i.e., eating a variety of fruits and vegetables each day)?

Assessment of the Demonstration Project’s Self-Evaluation

- How did the demonstration project’s actual evaluation compare with its ideal planned evaluation?
- What were the resources needed and costs of the evaluation?
- What were the results of the self-evaluation, and how do these compare with the independent impact evaluation?
- What were the lessons learned?

A. Selection of Wave I Demonstration Projects

In FY 2008, FNS issued a request for applications to states to propose models of SNAP-Education and evaluation and participate in the FNS-funded independent evaluation. Applicants proposed various program and evaluation designs with children and/or women as their primary target audience. Numerous applications were received, including ongoing SNAP-Ed programs, modifications to existing programs, or new programming models. Each application was competitively scored and ranked by an independent technical review panel, chaired by FNS. The quality criteria used for scoring are shown in exhibit I-2. The highest scoring applicants were selected as finalists and asked to respond to clarification questions. Based on these responses, the review panel selected four projects to participate in the study:

- ▲ **Pennsylvania State University’s (PSU) About Eating,**
- ▲ **New York State Department of Health’s (NYSDOH) Eat Well Play Hard in Child Care Settings,**
- ▲ **University of Nevada Cooperative Extension Service’s (UNCE) All 4 Kids, and**
- ▲ **Chickasaw Nation Nutrition Services’ (CNNS) Eagle Adventure.**

Each of the four agencies implemented model SNAP-Ed programs in fiscal year (FY) 2010 and conducted their own evaluations, supported by SNAP-Ed administrative funds and State and local matching resources. Selected demonstration projects received a \$100,000 incentive to offset expenses directly incurred as a result of their participation in this evaluation project, such as those associated with

Exhibit I-2.— Scoring Criteria Used For Demonstration Project Selection

Criterion	Specific Requirements
Quality of intervention plan (30 points)	<ul style="list-style-type: none">• Incorporates SNAP-Ed Guiding Principles• Budgets are provided as per SNAP-Ed annual guidance
Intervention schedule fits the proposed FNS data collection period (5 points)	<ul style="list-style-type: none">• Intervention will begin and end sometime between March 2010 and September 2010
Suitability for an FNS evaluation using a rigorous impact evaluation design (30 points)	<ul style="list-style-type: none">• Can support the random assignment of multiple units (person, classes, etc.) to treatment and control conditions or the quasi-experimental, non-random assignment of matched units to both treatment and control groups• If <i>other</i> nutrition education or promotions are delivered to the target audience, they are delivered to both the treatment and control groups during the course of the project
Promise for replication (15 points)	<ul style="list-style-type: none">• <i>Does not</i> require unusually high levels of resources and technical expertise• Materials and curricula are, or can be made, readily accessible to other nutrition educators
Quality of staff and staffing plan (20 points)	<ul style="list-style-type: none">• Individuals with key project responsibilities are identified and their allocated hours are indicated and adequate• Proposed staff members are well qualified and planned training is provided

facilitating access to SNAP-Ed participants, participation in interviews, record keeping, and providing documents describing the implementer’s SNAP-Ed intervention and evaluation processes.

The evaluation of PSU’s About Eating program is the focus of this case study report. Similar case study reports have been prepared for the other demonstration projects. Key evaluation findings and cross-cutting themes from across all Wave I demonstration projects are presented in a separate final report.⁵

B. Overview of the About Eating Program

The goal of PSU’s About Eating program is to increase eating competence among low-income women based on the Satter model of eating competence (ecSatter), which encourages individuals to choose and eat foods they enjoy in amounts they find satisfying, be reliable about regularly feeding themselves meals and snacks, and pay attention to hunger cues when they eat (Satter, 2008).⁶ The About Eating program was originally developed in 2007 for a college-aged target audience. It was modified and pilot tested by PSU for a SNAP-Ed audience in 2008 and further refined in 2009 for this demonstration project.

About Eating is Web-based and consists of five lessons. Four of the five lessons focus on eating competence constructs, including eating attitudes, food acceptance, internal regulation, and external influences. The fifth lesson is on physical activity. The program takes a learner-centered approach by allowing participants to choose specific topics of interest within each lesson as well as to revisit or return

⁵ The individual case studies and integrated final report are published separately and available at www.fns.usda.gov/ora/.

⁶ Additional information on eating competence can be found at: Krall, J.B., and Lohse, B. Validation of a measure of the Satter eating competence model with low-income females. *Int J Behav Nutr Phys Act.* 2011;8:26. Doi:10.1186/1479-5868-8-26.

to material initially skipped. All lessons offer self-assessment, self-reflection, and goal-setting, with pictures, tailored language and content, and user-driven navigation. Overall, the About Eating program gives participants flexibility and an array of choices of content and activities as well as references to additional information on topics of interest.

Implemented for the first time as part of this demonstration project evaluation, About Eating was conducted from March through August 2010 in selected counties across the state of Pennsylvania that do not provide SNAP-Ed. SNAP participating and SNAP-eligible women ages 18–45 were targeted for the demonstration project and recruited in one of two ways:

- **Community outreach.** Flyers were posted or handed out at grocery stores, low-income community venues, such as laundromats, job service agencies, and discount stores, and distributed directly to Expanded Food and Nutrition Education Program (EFNEP) participants; and
- **Department of Public Welfare (DPW) outreach.** Flyers were posted in Pennsylvania DPW county assistance offices and at job training events; PSU also used DPW program databases to contact SNAP participants and SNAP-eligible women by mail, telephone or through email.

A total of 1,010 individuals were recruited using these two methods and 576 (57 percent) met the eligibility criteria for participation in the demonstration project. Of the 500 women who enrolled in the program—that is, completed the pre-intervention survey—282 were assigned to the intervention group and 152 completed all five lessons and the follow-up survey. The 218 women assigned to the control group⁷ received a link to the USDA Click 'n Go Web site.

C. Organization of the Report

This report provides a detailed summary of the findings and conclusions of, as well as the specific methods used in, the independent evaluation of the About Eating demonstration project. Outlined below are the topics addressed in each of the remaining chapters of this report:

- Chapter II: Process Evaluation Methods and Results,
- Chapter III: Impact Evaluation Methods and Results,
- Chapter IV: Assessment of PSU's Self-Evaluation, and
- Chapter V: Conclusions and Discussion.

Following these chapters is a series of appendices which include data collection instruments, supplemental data, and detailed descriptions of the methods employed for each of the three components of the evaluation. Additionally, appendix J provides a complete list of all cited references within this report.

⁷ Despite random assignment to the intervention and control groups (1:1 ratio, 50 percent assigned to the intervention group, and 50 percent to the control group) there were initially more cases assigned to the control group than the intervention group, an anomaly that was not adequately explained and required changing the randomization to increase the probability of cases being assigned to the intervention group (1:4 ratio).

Chapter II ● Process Evaluation Methods and Results

This chapter describes the findings of the process evaluation of the Pennsylvania State University (PSU) About Eating demonstration project. The overall goal of the process evaluation is to describe the design and implementation of the intervention as well as examine success of the implementation process from the perspectives of the program-level staff, partners, and program participants. The data sources, data collection methods, and analysis approach for the process evaluation are summarized below and described in detail in appendix G.

A. Process Evaluation Methods

The broad process-focused research questions described in chapter I guided the design of the About Eating evaluation. To address the research questions it was necessary to gather both objective and subjective information. The process evaluation team acquired and assessed data from secondary and primary data sources using multiple methods, including data abstraction and in-depth, open-ended interviews with stakeholders, including program participants.

1. Data Sources

The secondary data sources that were collected and reviewed at various stages of the evaluation are provided in exhibit II-1. These served as rich sources of descriptive, objective information on key aspects of the demonstration project's design and implementation. The data sources that were collected and reviewed by the evaluation team can be categorized into four groups: planning and reporting documents, implementation documents, administrative data on program reach and dosage, and program costs.

Key Findings

- **Program Reach and Cost:** The About Eating demonstration project reached 282 low-income women between the ages of 18 and 45 at a cost of \$140.72 per participant. A total of 152 participants completed all five lessons and the follow-up survey.
- **Ease of Implementation:** Program staff members reported that, overall, implementation of the About Eating program went as planned and that this can be attributed at least in part to a well-defined implementation plan. However, program staff members also acknowledged that there are opportunities for improvement with regard to recruitment and collaboration with partners and contractors.
- **Participant Satisfaction:** Participants who completed the program expressed great satisfaction with the nutrition education messages and content and very few issues related to access and connectivity while participating in the program.
- **Participant Retention for Full Dosage of Nutrition Education Lessons:** Several key factors appear to influence participants' ability and interest in completing the program, including competing priorities, issues accessing the Internet or using the Web application, and lower levels of satisfaction with the program content and ease of use.

Exhibit II-1.— Secondary Data Collected for the Process Evaluation of the About Eating Demonstration Project

Document Category	Specific Documents Reviewed
Planning and Reporting Documents	<ul style="list-style-type: none"> • Demonstration project application • FY 2010 SNAP-Ed Plan
Implementation Documents	<ul style="list-style-type: none"> • Nutrition education lesson plans • Supplemental nutrition education for each lesson • PSU SRC protocols for implementation • Recruitment plan and recruitment materials
Administrative Data on Program Reach and Dosage	<ul style="list-style-type: none"> • Type and number of recruitment contacts • Demographic information on participants enrolled in intervention • Type and order of lessons completed by completers and noncompleters • Lesson completion rates for noncompleters
Program Costs^a	<ul style="list-style-type: none"> • Standardized cost tables consistent with FNS SNAP-Ed expenditure reporting requirements

^a The independent evaluators provided a form for PSU to complete to ensure cost data were collected in a standardized way (see “Resource and expenses tracking form” in appendix A).

Primary data were collected from three categories of key informants—program-level staff members, contractors (e.g., PSU Survey Research Center (SRC)), and program participants. The information gathered from key informants was descriptive and primarily qualitative in nature. The timing of data collection from key informants was strategically coordinated with the planned intervention cycle. The data collection took place approximately one month prior to the start of the intervention (March 2010) and immediately following completion of the intervention (August 2010). The About Eating program manager was interviewed during both time periods, whereas interviews with other PSU About Eating staff members and SRC members and process-related telephone surveys with program participants were only conducted post-intervention.

Another important component of the process evaluation was the collection of information about the participant experience of and satisfaction with the intervention. Information was collected on factors such as program accessibility (to both the computer and the Internet), perceived goals and usefulness of the program, ways in which the intervention helped participants change their nutrition behaviors, and barriers faced in changing behaviors. These data were collected through follow-up surveys of program completers and non-completers and from in-depth telephone interviews with nine participants who completed the intervention. Additionally, in-depth telephone interviews were conducted with five women who completed the pilot of the program and nine who completed the actual program intervention.

Exhibit II-2 lists the respondent types, data collection methods used, and the number of respondents for both pre- and post-data collection efforts by respondent category.

Exhibit II-2.— About Eating Respondent Types, Data Collection Methods, and Number of Respondents

Type of Respondent	Data Collection Method	Number of Respondents	
		Pre-intervention	Post-intervention
PSU Program Staff			
Program Manager or Administrator	Interview	1	1
Project Coordinator	Interview	n/a	1
Field Recruiter	Interview	n/a	1
PSU SRC	Interview	n/a	3
Program Participants			
About Eating pilot participants ^a	Telephone survey	n/a	5
About Eating participants	Telephone survey	n/a	9
	Survey (process questions included in participant follow-up survey)	n/a	152

^a Interviews with About Eating pilot participants were conducted post-pilot (not post-intervention), thus before the intervention began.

Note: n/a= not applicable

2. Instrumentation

Data collectors used a set of standardized secondary data abstraction tools and primary data collection instruments designed for the process evaluation. The wording of many of the questions in each key informant interview was tailored to the specific characteristics of the About Eating program. All data collectors were trained on the use of these approved instruments to collect information essential to answering the process-related research questions and queries. In addition, key informant interviews included relevant, probing questions to allow for in-depth discussions of important issues or topics. Data collection commenced in early 2010. Copies of the instruments are provided in appendix A. The participant follow-up survey instrument which was also used for the impact evaluation is included in appendix C.

3. Analysis Approach

The evaluation team applied an analysis approach to the data that takes into account the range of data and respondent types used in the process evaluation. Key informant responses from PSU and SRC staff members to each interview question were compiled into a master Microsoft Word 2007 document and organized by broad process evaluation research questions and process indicators. This approach helped to organize the extensive amount of information that was available and allowed for the identification of broad themes (e.g., implementation challenges) and specific topics (e.g., lesson plan scheduling) as well as agreement and disagreement amongst respondents. Direct quotations from key informants were also identified where relevant and used to support key findings.

Qualitative information collected through key informant interviews, including direct quotes from participants, was used to further explain any quantitative findings. Integrating methods in this way provides the context needed to obtain a complete picture of the evaluation results.

Quantitative process data were primarily used to describe objective aspects of the About Eating intervention, such as those related to dose, reach, and costs. With the exception of cost data, which were provided through a series of standardized tables, these data were received in or entered into Microsoft Excel spreadsheets. Excel was then used to conduct basic frequencies and mean tabulations. Quantitative process data collected from participants through the post-intervention participant survey were analyzed using SAS 9.2. Frequencies of participant responses to each process question were reported. Open-ended responses to the Food and Nutrition Service (FNS) follow-up survey's process questions were coded and analyzed in Microsoft Excel to capture the breadth and diversity of opinions offered by participants, while also identifying common themes and issues.

B. Program Development and Design

1. Formative Research

The need and rationale for developing the About Eating program was established through formative research conducted by researchers from PSU, including the About Eating program manager. Structured interviews conducted during the summer of 2006 with 70 low-income adults in Pennsylvania were instrumental in the conceptualization of the program, and more specifically, in identifying the need for increased attention to cognitive eating behaviors of low-income adults to improve their diet quality (Stotts & Lohse, 2009). Additionally, most participants in that study identified the Internet as the most convenient method for accessing nutrition-related information and 80 percent reported having access to the Internet. This insight, coupled with an extensive review of the literature and existing nutrition education models, led to the development of the About Eating program, which is described in the next section.

2. Program Development

Development of the About Eating program began in 2007, occurred in five stages, and took several years to complete (see exhibit II-3). The design of the About Eating program is theoretically based and centered around the model of eating competence (ecSatter), which is predicated on the assumption that biological, social, and cultural factors play a central role in preventing illness, maintaining good health, and treating disease (Satter, 2007b). The eating competence model takes into consideration the complex process of eating, which consists of learned behavior, social expectations, acquired tastes, attitudes, and feelings (Satter, 2007a; Satter 2008; Satter, 2010). According to Satter, competent eaters have positive attitudes about eating and about food, food acceptance skills that support eating a variety of available food, internal regulation skills that allow them to intuitively consume enough food to give energy and stamina and to support stable body weight, and skills and resources for managing the food context and organizing family meals (Satter, 2007b).

Exhibit II-3.— Stages of Development of PSU’s About Eating Modules

Stage 1: <i>Non-dieting curriculum for college students</i> (2007)	<ul style="list-style-type: none">▪ A team of nutrition educators from seven states developed a 10-lesson online curriculum (called <i>WebHealth</i>) based on a non-diet approach.▪ Four of the lessons focused on eating competence constructs: eating attitudes, food acceptance, internal regulation, and contextual skills.▪ Undergraduate, college students were the target audience at this stage of development.
Stage 2: <i>Eating competence expert review</i> (2007)	<ul style="list-style-type: none">▪ Permission was received from the <i>WebHealth</i> principal investigator to revise the four lessons that were focused on eating competence for use with low-income audiences.▪ Satter examined these lessons for fidelity to the model and her comments guided further refinement of the lessons.▪ Once revised, the lessons were reviewed by 25 individuals recruited from WIC clinics and high school equivalency test centers. Based on their input, features of the lessons (e.g., graphics, content, language, survey placement, and formatting) were revised.
Stage 3: <i>Translation for low-income audience</i> (2007–2008)	<ul style="list-style-type: none">▪ Interviewees from the cognitive interviews and other low-income participants were invited to review the revised lessons in an online format, but had to meet eligibility criteria. Because <i>WebHealth</i> pilot studies revealed a gender-driven response, women were the focus for interviews.▪ Participants reviewed the lessons online and responded to survey questions for each lesson regarding content, usefulness, and appropriateness.▪ In general, lessons were well-received and minimal revisions to the lessons were required.
Stage 4: <i>Implementation and outcome assessment with low-income audience</i> (2008)	<ul style="list-style-type: none">▪ Eligible females were recruited through SNAP-Ed partners and WIC in Pennsylvania for implementation and outcome assessment.▪ One-half of the pilot participants had participated in SNAP in the past year.▪ PSU researchers report that eating competence tenets were apparent in this sample of low-income women (e.g., competent eaters had lower BMI, were less likely to show dissatisfaction with body weight, and more likely to identify themselves as being physically active compared to less competent eaters).
Stage 5: <i>Addition of physical activity module</i> (2009)	<ul style="list-style-type: none">▪ Two <i>WebHealth</i> physical activity modules were merged into one by the PSU program manager and assessed through cognitive interview by 12 adult female WIC participants in northeastern Pennsylvania. Participants ranged from 19 to 38 years with a mean age of 25.3 years.▪ Features of the lesson were revised based on their input.▪ Six low-income women, including one of the 12 interviewees noted above, reviewed the revised physical activity module. The module was revised based on this additional input and then included in the About Eating program as the About Being Active lesson.

3. Description of the Curriculum

The About Eating nutrition education program was specifically designed for Web delivery. In the SNAP-Ed version of About Eating, four of the five lessons focus on eating competence constructs, including eating attitudes, food acceptance, internal regulation, and contextual skills, and are based on the principle

that internal cues of hunger, appetite, and satiety, if recognized, are reliable and can be depended on to inform food selection and guide energy balance and body weight. The fifth lesson focuses on being active and aims to increase participants' current level of physical activity.

The lessons in the About Eating demonstration project include: Your Food Variety; Enjoying Eating; Hunger and Fullness; Time to Eat; and About Being Active. Each lesson is presented visually on the PSU SRC Web site using text and graphics, such as photos, to add interest and assist with readability and comprehension for this target audience (Pennington & Hubbard, 2002; Wearner, 2010). All lessons offer self-assessment, self-reflection, and goal-setting, with pictures, tailored language and content, and user-driven navigation. Each lesson begins with a screen that provides an overview and a button that allows the participant to enter the lesson. This opening screen also shows a bar graph with the lesson completion status. As the participant continues through the lesson, the colored bar indicates how much of the module is left to complete. Some lessons have a survey at the beginning only; others have interactive surveys throughout. The purpose of the surveys is three-fold: to provide an element of discovery about the participants' own eating habits; to reinforce information contained in the lesson; and to make the lesson more user-friendly—techniques often used in small group and one-to-one educational interventions.

The program takes a learner-centered approach by allowing participants to choose specific topics of interest within each lesson as well as to revisit or return to material initially skipped. If a participant is not interested in the topic, she can opt out and continue with the core content of the lesson. For example, in the Your Food Variety lesson, a participant can choose to learn more about how to make cooking easier, picky eating, shopping for food, saving money at the supermarket, and planning for variety in her diet. Each topic area contains tips and ideas on that topic as well as recipes where appropriate. Participants are given the opportunity to print each topic page for home use. At the end of some lessons, participants can reflect on their surveys or scores. The very last screen allows participants to email the About Eating staff with questions or comments.

The only exception to the learner-centered, self-guided approach was in the presentation of the About Being Active lesson. In this case, participants were enrolled in one of two versions of the lesson based on their physical activity level. People who were physically active more than 30 minutes a day completed all five lessons prior to completing the post-survey. People who were physically active less than 30 minutes a day were randomized to the 4+1 or the 5 lesson group, the only difference being that the 4+1 group completed the post-survey before the last lesson which was required to be the physical activity lesson. This was to enable PSU to compare eating competence scores and self-reported physical activity levels for people who completed the post-survey before the activity lesson to those who completed the post-survey after the physical activity lesson.⁸

Overall, the About Eating program gives participants flexibility and an array of choices of content and activities as well as references to additional information on topics of interest. Exhibit II-4 provides an overview of the About Eating lessons, a brief description of each, and its components.

⁸ Although PSU intended to analyze the differences between these two groups, because so few were enrolled in the 4+1 group, they were not able to do so. A total of 19 participants were enrolled in the 4+1 About Eating group, and 134 were enrolled in the group given all 5 lessons before the post-survey.

Exhibit II-4.— Summary of PSU About Eating Lessons

Lesson Name	Description	List of Lesson Content and Activities
Your Food Variety	Addresses acceptance of preferred foods and curiosity of novel food emphasizing pleasure in food selection.	<ul style="list-style-type: none"> ▪ Food preference survey ▪ Do you care about food variety? ▪ Dietary variety can be low for many reasons ▪ Etiquette for trying and refusing new foods ▪ Concern about food variety is global
Enjoying Eating	Focuses on positive and flexible attitudes toward eating, demonstrates various approaches toward eating enjoyment, including comfort with enjoyment of eating.	<ul style="list-style-type: none"> ▪ Food belief differences around the world ▪ Men and women differ in eating enjoyment ▪ Feelings about food Q&A comparison to people in the United States and other countries ▪ List and select factors that affect enjoyment of eating ▪ Fewer Americans are enjoying eating ▪ About orthorexia: healthy eating is an obsession ▪ Orthorexia self-test ▪ Why encourage enjoyment of eating? ▪ Time to reflect (on eating experiences participant thoroughly enjoyed) ▪ Time to plan (participant enters goals to enjoy eating)
Hunger and Fullness	Stresses hunger and satiety awareness, facilitates trust of internal regulation of food behavior.	<ul style="list-style-type: none"> ▪ Internal regulation ▪ Think about how you feel when you are hungry or full ▪ What are your hunger and fullness patterns? ▪ When are you full? ▪ Other learning opportunities and lessons ▪ Dietary control ▪ Internal regulation factors ▪ Emotional eating ▪ Enhancing internal regulation
Time to Eat	Includes planning for meals, considering money, preparation, shopping skills, and nutrition.	<ul style="list-style-type: none"> ▪ Meal habit survey ▪ P-Q-R-S ▪ P is for Planning ▪ Quick and easy meals ▪ Reduce the hassle of food shopping—make a list ▪ Stretch your food dollars
About Being Active	Describes how to be active, joining the learner at her stage of readiness for physical activity.	<ul style="list-style-type: none"> ▪ Exercise IQ survey (about hydration during workouts, body weight changes, appropriate workout level, etc.) ▪ Typical patterns of physical activity and inactivity ▪ What type of activity level is most like yours? ▪ What are your reasons for wanting to be more active? ▪ Dealing with obstacles ▪ Setting goals ▪ Feel good about moving

C. How the Demonstration Project Was Implemented

1. Program Management and Oversight, and Staffing

Program management and oversight was provided by the PSU SNAP-Ed program manager who is also an associate professor in the PSU Department of Nutritional Sciences. The program manager’s primary staff consisted of a project coordinator, who assisted with program administration, development, and implementation tasks, and the staff assistant, who was involved in various other tasks, such as the preparation of reports and the Institutional Review Board (IRB) application as well as the distribution of participant incentives. The About Eating program manager and program coordinator were liaisons with the project manager at the PSU Survey Research Center. The SRC, whose primary mission is to provide services in the areas of survey design, sampling, and data collection; survey data management; and data analysis, was tasked with developing the Web-based systems and protocols to facilitate the implementation of the About Eating program, and to assist in the development of strategies for the collection of evaluation data. The About Eating team worked in collaboration with the SRC team, which included the director, assistant director, and data specialist. Exhibit II-5 provides an overview of the key About Eating team members and their respective roles or involvement with the program.

Exhibit II-5.— Summary of About Eating Project Staff Roles and Responsibilities

Position	Summary Responsibilities	Program Administration	Design/Development	Planning	Implementation	Evaluation Design/Planning	Data Collection	Data Tabulations
Program Manager	General administration of program; oversight of program design, revision, development, and planning; program oversight during implementation and evaluation phases of the project; and dissemination of findings.	•	•	•	•	•		
Project Coordinator	Assist program manager with overall administration of project; assist with demonstration project development and implementation; revision of lessons, recruitment, and management of participants; and coordination with the PSU SRC in the collection of data.		•	•	•	•	•	
Staff Assistant	Assist project coordinator; assist with records management, IRB application, and report preparation; assist with recruiting and retaining participants; and manage distribution of program incentives.			•	•	•	•	
Field Recruiter	Assist with project recruitment; work with recruitment venues, post posters at targeted agencies and organizations, and distribute flyers and other recruitment materials.				•			
SRC Director	Provide oversight for Web-based application of project; oversight of Web-based systems and protocols, evaluation design, implementation, and data collection of Web-based program.	•	•	•	•	•		

Position	Summary Responsibilities	Program Administration	Design/Development	Planning	Implementation	Evaluation Design/Planning	Data Collection	Data Tabulations
SRC Assistant Director	Assist with development of Web-based systems and protocols, the technical evaluation design, data entry, and data collection of Web-based program.	•	•	•	•	•	•	•
SRC Data Specialist	Assist with implementation of Web-based systems and protocols; implementation of technical evaluation design, data entry, and data collection of Web-based program.				•	•	•	•

2. Partnerships

Partners for the About Eating program were those agencies, organizations and businesses that provided critical access to low-income women who were SNAP participants or SNAP eligible. Examples include job training programs, county assistance offices, libraries, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the Expanded Food and Nutrition Education Program (EFNEP). The program manager and project coordinator worked with these groups to obtain their initial commitment to assist with recruitment for the About Eating program. Each group was willing to allow materials to be posted and to provide some assistance with this effort by distributing materials and talking with potential participants. These partnerships proved to be critical in the recruitment of demonstration participants by providing access to low-income women who were potentially eligible.

3. Participant Recruitment and Retention

Recruitment for the About Eating demonstration project began on March 15, 2010, and ended on July 12, 2010. To reach a broad range of SNAP-eligible participants, the PSU About Eating team used multiple recruitment strategies which they divided into the following two groups or approaches:

- **Community outreach.** Eight-tabbed flyers and individual flyers were placed in grocery stores, low-income community venues, such as laundromats, job service agencies, and discount stores, or distributed directly to Expanded Food and Nutrition Education Program (EFNEP) participants; and
- **Department of Public Welfare (DPW) outreach.** Flyers, both eight-tab and individual, were posted in county assistance offices or during job training programs and SNAP-eligible participants were identified through State of Pennsylvania Department of Welfare SNAP databases and contacted by mail, telephone, or through email.

Definitions of Participation Status for the About Eating Program

Recruited— received recruitment materials and visited About Eating Web site

Eligible— recruited participants who met the About Eating eligibility requirements

Enrolled— completed a pre-intervention survey

Participants— accessed at least one About Eating lesson

Completers— completed all five About Eating lessons and the follow-up survey

Noncompleters— started the intervention but did not complete all five lessons or completed all five lessons but did not complete the follow-up survey

Individuals recruited through these strategies were directed to two different Web sites so that PSU could track and determine how many participants were effectively recruited through each. If an individual wanted to enroll but did not have an email address, PSU staff instructed them in how to set up an email address. Community outreach methods resulted in a total of 9,068 outreach flyers being distributed to women potentially eligible for the intervention and DPW outreach methods were used to reach 10,882 women participating in DPW programs. (See exhibit II-6 for more information on the eligibility criteria and reach of each recruitment venue and strategy.) Examples of the recruitment materials used are provided in appendix B.

To increase program participation and completion rates and to compensate participants for their time, PSU provided \$20 gift cards to Target or Wal-Mart upon completion of the five lessons and the follow-up survey. Once recruited, the About Eating team employed a variety of methods to increase participant retention. Specifically, the demonstration project model included built-in lesson reminders throughout the course of the intervention. Emails and Blue Mountain® digital e-cards were used to remind participants to complete each lesson as well as the post-intervention survey. The e-card system was used as an attractive way to remind participants about the course and prompt completion.

4. Program Reach

Overall, 576 individuals were successfully recruited for the About Eating demonstration project and met the eligibility criteria.⁹ A total of 500 of these eligible individuals went on to enroll (complete the pre-survey) and were subsequently randomly assigned to the intervention or control group. Among the 282 women assigned to the intervention group and enrolled, 202 women started the intervention by accessing at least one of the About Eating lessons). (See table II-1.)

5. Program Dosage and Exposure

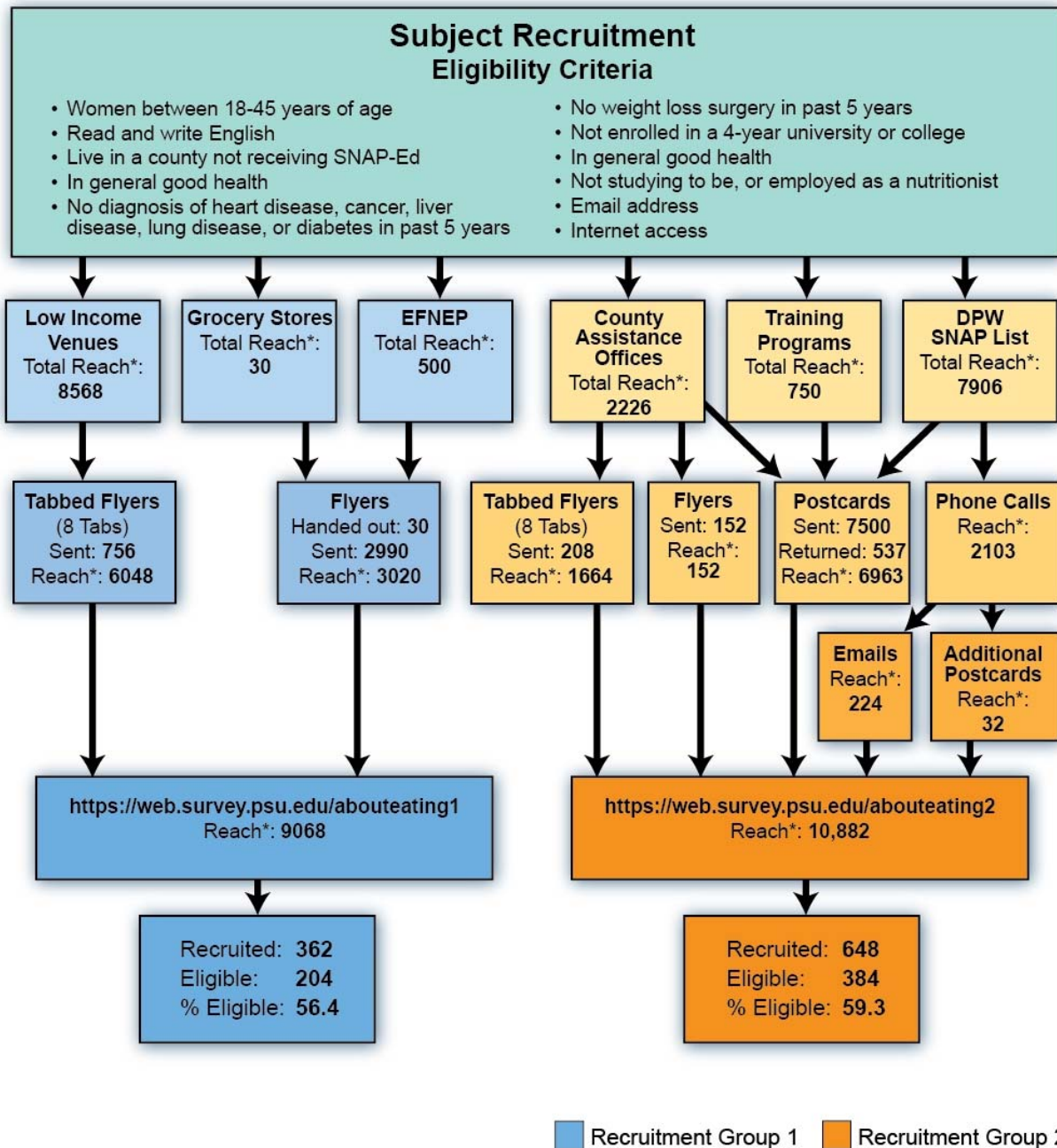
Program dosage and exposure varied both in terms of the number of lessons participants were exposed to as well as the amount of time participants spent on each lesson or in total on the About Eating Web site. Among the group of 202 women who participated (i.e. accessed at least one lesson), 77 percent (155) completed all five lessons, indicating a high retention rate once the women were exposed to the content and format of the lessons (see table II-1).

Among participants who completed the intervention, the mean time spent on a lesson was 9 minutes. On average, intervention completers spent the most time going through the Enjoying Eating lesson (11.68 minutes) and the least time going through the Your Food Variety lesson (7.61 minutes). By comparison, those who did not complete the intervention spent, on average, spent slightly less time (8.43 minutes) on the lessons they did access. However, the amount of time spent on a lesson varied greatly across participants as some intervention completers spent as little as 1 minute on a lesson and others spent as much as 80 minutes on a lesson.¹⁰ The actual time each participant spent actively engaged in the Web site was not able to be tracked, but rather only the total time logged in was accounted for here (see table II-2).

⁹ Initially, a total of 588 individuals successfully recruited were deemed eligible and subsequently randomized to the intervention or control group. However, 12 of these individuals were later determined to be ineligible and were removed from the FNS evaluation, bringing the actual number of eligible participants to 576.

¹⁰ Eighty minutes spent on a particular lesson on the Web site may have been a function of being logged into the lesson and not active, and thus an outlier.

Exhibit II-6.— Recruitment of Participants for the About Eating Demonstration Project



* For this diagram, reach is defined as the number of women reached by recruitment materials distributed through various venues.

Source: PSU About Eating demonstration program project manager

Table II-1.— Completion Status of Intervention Participants

Participation Status	Number and Percent of Enrolled Participants	
	n	%
All five lessons AND post-intervention survey (completers) ^a	152	53.90
All five lessons but not the PSU post-intervention survey	3	1.06
Four lessons	8	2.84
Three lessons	6	2.13
Two lessons	16	5.67
One lesson	17	6.03
Enrolled but did not start the intervention	80	28.37
Total (eligible and enrolled)	282	100

^a Completion of the intervention was determined by completion of all five lessons and the follow-up survey.

Source: PSU About Eating administrative data

Table II-2.— Mean and Range of Time Logged in for Each Lesson in Minutes, by Participation Status

Lesson	Intervention Completers		Intervention Noncompleters	
	Mean	Range	Mean	Range
1. Your Food Variety	7.61	1-51	9.36	1-72
2. Enjoying Eating	11.68	1-48	9.00	1-19
3. Hunger and Fullness	9.86	1-80	7.69	1-21
4. Time to Eat	7.74	1-79	7.50	1-32
5. About Being Active	8.13	1-53	8.60	1-36
Overall Mean Time and Range	9.00	1-80	8.43	1-72

Source: About Eating administrative data

The level of lesson engagement across participants also varied to some degree because a user does not have to complete all components of a lesson to complete the lesson. For example, upon completion of the core Hunger and Fullness lesson, participants were given the opportunity to view and engage in four additional activities, including Dietary Control, Internal Regulation Factors, Emotional Eating, and Enhancing Internal Regulation. For each lesson, there were a variety of optional activities, surveys, questionnaires, and downloadable fact sheets available to participants. Over half (52.45 percent) of all those who started the intervention completed one or more of the 13 additional activities that were available to them.

The process evaluation also examined the order of About Eating lesson completion and found little variation. Despite participants' ability to choose the order in which they completed the lessons, a vast majority started with the first lesson listed on the Web site and nearly one-third (31.2 percent) of program completers completed the lessons in the order shown on the Web site. Analysis of the lesson completion data also found that the two least visited lessons among program noncompleters were Time to Eat and

About Being Active. Each of these lessons was accessed by approximately 24 percent and 28 percent of noncompleters, respectively.

6. Resources and Costs of Program Design and Implementation

This section discusses the cost of planning, designing, and implementing the About Eating program, and a breakout of the reported cost centers. It also includes an analysis of the costs as they related to the number of participants in the intervention. According to the About Eating program manager, only funding received from FNS for participation in the demonstration project was used to design and implement the program in fiscal year (FY) 2010; non-Federal funding was not used for this project. The detailed budget tables PSU provided for this evaluation, including a list of staff resources, are included in appendix B. Costs associated with PSU’s self-evaluation are reported separately in Chapter IV.

a. Costs for program planning and design

Table II-3 shows the actual expenditures that PSU reports as the costs of planning and designing the About Eating demonstration program, totaling \$35,149 in direct and indirect costs. Salaries and benefits were the most substantial cost during this phase of the project, accounting for 78 percent of all costs. The following is a description of the resources that were needed to plan and design the About Eating demonstration project¹¹:

- **Salary and benefits.** This expense includes all staff members providing direct or administrative support for About Eating. Just over 1 FTE was engaged in the project design, but time was actually divided between the principal investigator, project coordinator, and assistant.
- **Travel.** Travel expenses included the cost of the project coordinator, who was not based in State College, to travel to the PSU About Eating office.
- **Non-capital equipment and supplies.** This expense consisted primarily of office supplies.
- **Administration.** The administrative expenditures for this line item included the cost of postage.

Table II-3.— Summary of PSU About Eating Program Planning and Design Costs

Budget Category	Expenditures	Percent of total direct costs
Salary/benefits	\$27,404	78.0
Non-capital equipment/supplies	\$747	2.1
Travel	\$732	2.1
Administrative	\$70	0.02
Total Direct Costs	\$28,953	82.4
Indirect costs	\$6,196	17.6
Total	\$35,149	100.0

Source: Cost data provided by PSU (see completed “Resource and expense tracking form” in appendix B)

¹¹ Budget justification language was provided by PSU to the independent evaluators and FTE information was extracted from Resource and Expenses Tracking Form completed by PSU (see appendix B).

b. Costs for program implementation

Costs included in this section are those that can be associated with the implementation of the About Eating demonstration project and include direct and indirect costs. The resources needed for the About Eating program implementation fall into five primary cost categories: salary and benefits, contracts and grants, materials, administration, and travel.

- **Salary and benefits.** This expense includes all staff supporting About Eating implementation directly or administratively. Approximately 0.23 FTEs were engaged in the project implementation. Time was divided between the principal investigator, project coordinator, and assistant (see appendix B for more detail).
- **Contracts and grants.** This expense includes the eating competence consultant; consulting services from the PSU SRC which included the costs of the incentives SRC provided for program participation; computer equipment, software, and upgrades, such as to statistical software and word processing software and licenses.
- **Materials.** This expense line item includes participant incentives¹² used as reimbursement for time incurred to complete the demonstration project and complete surveys.
- **Administration.** Includes the cost of phone calls, mailings, and similar expenses related to recruitment expenses for implementation of the project.
- **Travel.** The program travel expenditures include the cost of travel for the purposes of recruitment. Staff traveled to targeted recruitment venues to post posters and leave flyers when they could not have the agency or organization distribute materials. Additionally, travel covered the cost of the project coordinator, who was not based in State College, to travel to the PSU About Eating office.

Table II-4 shows the actual expenditures that PSU reports as the costs of implementing the About Eating demonstration project in FY 2010.

Table II-4.— Summary of PSU About Eating Program Implementation Costs (for Federal FY 2010)

Budget Category	Expenditures	Percent of total direct costs
Salary/benefits	\$14,343	36.1
Contracts	\$6,112	15.4
Materials	\$7,819	19.7
Administrative	\$4,066	10.2
Travel	\$349	0.9
Total Direct Costs	\$32,688	82.4
Indirect costs	\$6,995	17.6
Total	\$39,684	100.0

Source: Cost data provided by PSU (see completed "Resource and expense tracking form" in appendix B)

¹² PSU offered participants a total of \$20 in incentives for completing the pre- and post-intervention surveys. Incentives were not purchased with SNAP-Ed funds. As with all other program implementation costs for the About Eating demonstration project, PSU used the demonstration project funds to pay for these incentives.

c. Per participant program cost

Calculating costs per program participant presents some challenges. Depending on the type of intervention, costs per program participant can be calculated based on the number of participants who receive a single intervention dose or complete the entire intervention. In the PSU About Eating program, the costs of recruitment must also be considered. Costs not included are the costs associated with printing materials directly from the Web site.

For analysis of the per participant cost of implementation, the total annual expenditure data for About Eating program implementation (\$39,684) was used as the numerator and the total number of participants exposed to the intervention that year (n= 282) as the denominator, and the per participant program cost was calculated to be \$140.72. The per participant costs would be lower if the costs of staff and other resources used to recruit, process, and monitor the control group were excluded. However, it was not feasible for PSU to separate out the costs for conducting this intervention without controls.

PSU also calculated the costs for recruitment and the per participant recruitment costs (see appendix B10 for details). Per participant recruitment costs for those recruited through low-income venues, grocery stores, and EFNEP (group 1) was \$3.11 compared to \$5.06 for those recruited through county assistance offices, training programs, and DPW SNAP participant lists (group 2). Although the recruitment outcomes were comparable for both groups, group 2 efforts were costlier because they included a greater variety of materials and additional follow-up with postcards and phone calls.

D. Factors Affecting Program Implementation and Opportunities for Improvement

Overall, program-level staff and participants in the About Eating demonstration project reported that many factors in the program's design made it a relevant and relatively easy program to both implement and use. Furthermore, the PSU demonstration project team was enthusiastic and flexible in their approach to implementation and possessed an in-depth understanding of the SNAP audience, which proved to be instrumental in effective program design and implementation. At the same time, interviews with the program implementers and interviews and surveys with program participants revealed several critical challenges to implementing this program successfully, which are summarized in exhibit II-7 and described in more detail below.

Exhibit II-7.— Key Facilitators and Challenges to About Eating Implementation

Facilitators

- Nutrition education content was relevant for and well-received by target audience
- Program was accessible and easy to use for most participants
- Recruitment strategies were diverse and well-planned
- Well-defined implementation strategies
- Strong commitment from key partners

Challenges

- Intensity of efforts needed to recruit SNAP-eligible populations
 - Participant retention
 - Exposure time to intervention
-

1. Facilitators of Program Implementation

▲ Nutrition education content was relevant for and well-received by target audience

The About Eating designers and implementers believe that their knowledge and experience with the target audience allowed them to design a nutrition education program that was well received by the target audience. Participants' high degree of satisfaction with the nutrition education messages and content of the program are evidence that the About Eating team did have a good understanding of their target audiences' interests and needs. When asked to indicate their level of agreement with various statements related to their satisfaction with the About Eating program, 99 percent of participants who completed the About Eating program "agreed" or "strongly agreed" that the information provided on the Web site was factual and interesting. Only 27 percent "strongly agreed" that the About Eating program was designed for someone like them however, an additional 59 percent of participants reported that they "agreed" with this statement. (See table II-5.)

The majority of respondents who participated in the telephone interviews noted via an open-ended question that they really enjoyed the About Eating lessons and learned a lot from the information provided. In particular, participants liked the quizzes, surveys, and other engaging activities embedded in the lessons as well as the charts and graphs. Many said the program made them more aware of their eating habits and the food choices they make. Some felt the information they learned was valuable for helping them to make healthy changes in their diets and feeding their families. Some respondents attributed their own weight loss to their participation in the program and the information they gleaned from the lessons.

Table II-5.— Satisfaction with About Eating Content Among Program Completers (N=152)^a

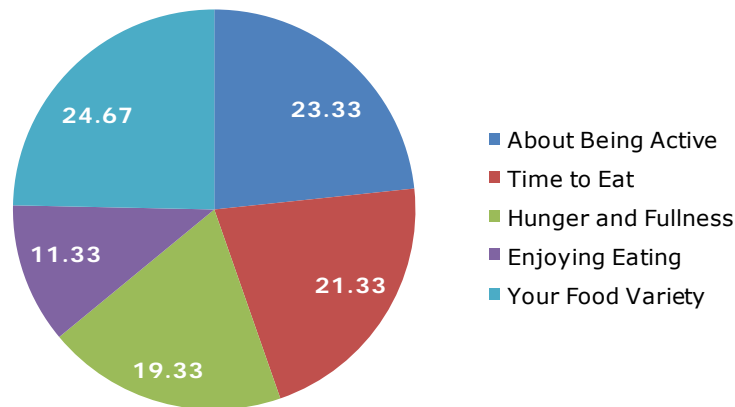
Statement	Percent Who Agree	Percent Who Strongly Agree
The About Eating program made me feel self-conscious	30	14
The About Eating program was designed for someone like me	59	27
I thought the information provided on the Web site was interesting	44	54
I thought the information provided on the Web site was factual	38	61
I found the material in the lessons to be repetitive	17	7

^a Respondents selected a response using a Likert scale to indicate their level of agreement with each statement. Percentages reported here represent "agree" and "strongly agree" responses only.

Source: Participant follow-up survey, descriptive tables for process questions, table B-4 on "Satisfaction with About Eating program, among participants who completed intervention" in appendix B

When program completers were asked which lesson was their favorite, the most common answer was Your Food Variety with About Being Active being a close second. Figure-II-1 depicts the lesson preference of participants who completed the intervention. There was no ordering effect because participants could choose to complete the lessons in any order. These results illustrate the diverse interests of About Eating participants. During in-depth telephone interviews conducted with a convenience sample of nine post-intervention participants, respondents were asked about their favorite and least liked lessons, and why they liked or disliked them. In general, participants reported a preference for lessons that taught them new information relating to their everyday life. The Enjoying Eating lesson, which focuses on food beliefs and culture, was not rated as highly as the other lessons because participants were not expecting this particular content within the framework of this course.

Figure II-1.— Favorite About Eating Module Among Program Completers (N=150)^a

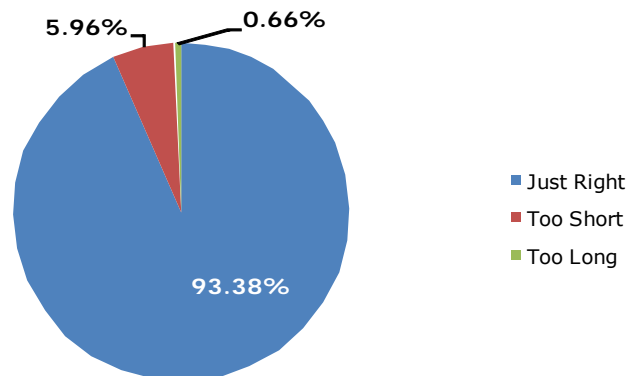


^a Excludes two respondents who reported "Don't know" or had no response to this question.

Source: Post-intervention participant survey, descriptive tables for process questions, table B-7 on "Favorite module in the About Eating program for participants who completed the intervention" in appendix B

In addition to being satisfied with the program's nutrition education content, the post-intervention participant survey revealed that those who participated in About Eating were also satisfied with the amount of time it took to complete the course. Ninety three percent of program completers and more than 80 percent of noncompleters said that the length of time it took to complete the lessons was just right (see figure II-2).

Figure II-2.— Program Completers Reaction to Length of Time It Took to Complete About Eating Program (N=151)^a



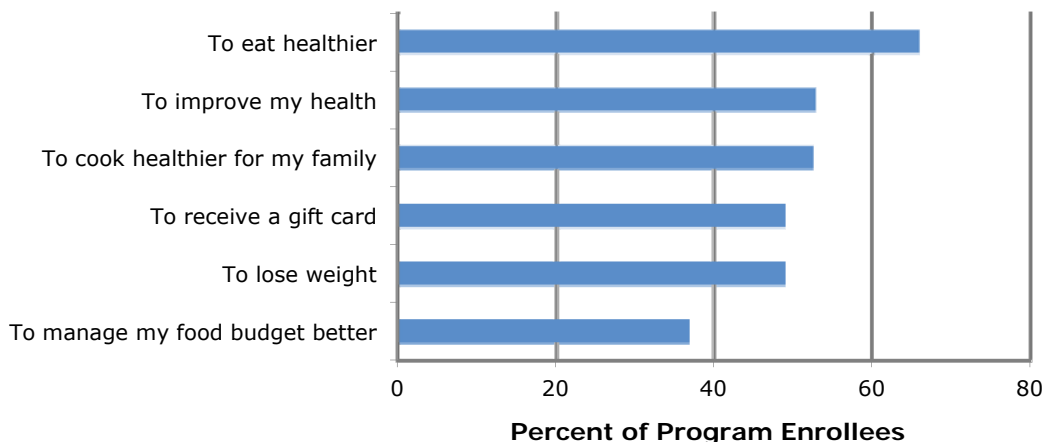
^a Excludes one respondent who reported "Don't know" or had no response to this question.

Source: Post-intervention participant survey

As shown in Figure II-3, four out of the top six reasons women enrolled in the About Eating program were related to their health and wellness, which provides some indication that the program's subject matter was of great interest to the target audience. However, it is important to note that the gift card

incentive that the women were offered to complete the surveys was also an influential factor for nearly half (49 percent) of enrollees (completers and noncompleters).¹³

Figure II-3.— Most Commonly Reported Reasons for Participation in the About Eating Program (N= 282)^a



^a Respondents could select multiple responses.

Source: Participant baseline survey

▲ Program was accessible and easy to use for most participants

The designers and planners of the About Eating program reported that they strongly believe their formative research, which was used to guide the development of and revisions to their online program, was critically important to successfully engaging their target audience. Specifically, the program manager noted that, through formative research and pilot testing, the About Eating team was able to organize content, craft language, and otherwise design the Web site so that it was accessible to a low-income audience. Accessible in this context refers to the ease of use of the About Eating Web-based application.

“You must modify a Web site for a low-income audience. Even though we talk about how SNAP-eligible people are like anyone else, there isn’t an appreciation by many nutrition educators to make materials amenable for SNAP-eligible audiences. People who have never been low-income do not understand this. You cannot just change the reading level, there’s a lot more to it.”

—About Eating program manager

Feedback from participants on the program’s ease of use supports the About Eating teams’ assertions about the accessibility of the program to this population. The majority of participants who completed the About Eating program “strongly agreed” with statements related to the ease with which they were able to access and navigate the Web site as well as read and understand the information provided (see table II-6); more than 97 percent of participants “agreed” or “strongly agreed” with these statements (see appendix B).

¹³ Participants received \$20 in gift cards for completing the PSU pre- and post-surveys, in addition to \$10 for completing the FNS pre-intervention survey, and \$15 for completing the FNS post-intervention survey.

Table II-6.—About Eating Ease of Use Among Program Completers (N=152)^a

Statement	Percent of Program Completers Who Agree	Percent of Program Completers Who Strongly Agree
It is easy for me to get on the Internet or Web	18	81
It was easy for me to move around the Web site	20	79
The directions for each lesson were clear	26	73
I was able to jump to links of interest	28	70
The information provided on the Web site was easy to read	23	76
The information provided on the Web site was easy to understand	24	74

^a Respondents selected a response using a Likert scale to indicate their level of agreement with each statement. Percentages reported here represent “agree” and “strongly agree” responses only.

Source: Participant follow-up survey, descriptive tables for process questions, table B-4 on “Satisfaction with About Eating program, among participants who completed intervention” in appendix B

During the in-depth telephone interviews conducted after completion of the About Eating demonstration project, eight of nine respondents reported that they did not experience any difficulties connecting to the Internet, finding the Web site, or logging on. Additionally, as previously reported, formative research conducted by PSU prior to developing the About Eating program revealed that many low-income adults do have access to the Internet. Indeed, the majority of About Eating program completers reported having access to the Internet at home (84.3 percent) and accessing the Internet on a daily basis (86.9 percent). Table II-7 provides information about where and how frequently program enrollees access the Internet in general.

Table II-7.— Location and Frequency of Internet Access for About Eating Program Enrollees (N= 282)

Indicator	Percent
Internet Access in General, Total	100
Home	84.31
Work	9.15
Friend/family’s house	1.31
Library/community center	3.27
Other	1.96
Frequency of Internet Access in General, Total	100
Once per day	86.93
Few times per week	13.07
Few times per month	0
Few times per year	0

Source: Participant baseline survey, see “About Eating Program Participant Attrition Analysis”, appendix B

It is important to note that noncompleters were less likely than completers to have access to the Internet at home (71.3 percent) and to access the Internet on a daily basis (68.2 percent). For this reason, access-related issues among noncompleters are discussed in the following section as a factor that influences participant retention.

▲ **Recruitment strategies were diverse and well-planned**

The recruitment strategies, procedures, and training provided to the About Eating team well in advance of project implementation prepared them for the recruitment phase of the project. Key informants reported that regular communication among staff members helped them to stay focused and to accomplish their recruitment goals. During the course of the study, the About Eating team maintained their use of the predetermined recruitment strategies but increased the intensity of those strategies and identified and employed additional, complementary strategies to ensure that their recruitment goals were met. Examples of these additional recruitment strategies include handing out flyers at grocery stores and contacting parents at low-income preschools.

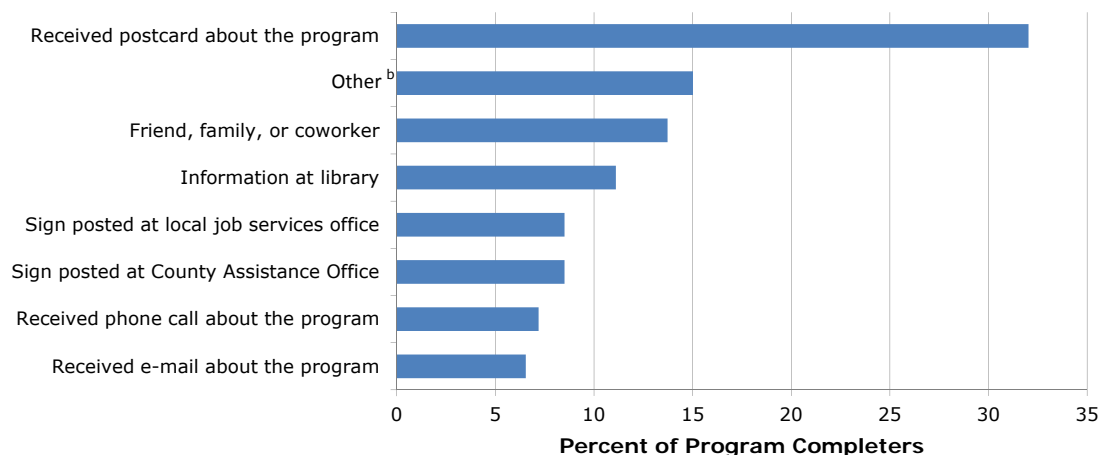
“Planning the variety of recruitment strategies and discussing implementation well in advance of recruitment helped keep us all in the communication loop and well informed of what actions we would take.

—About Eating project coordinator

The About Eating project coordinator reported that libraries were the most effective recruiting locations. She found library staff members most often agreed to post flyers and were helpful to potential participants who were interested in enrolling. Participants who visited libraries typically had Internet access there and could sign up immediately for the course after reading the flyer. County assistance offices were also, reportedly, an effective location to recruit because caseworkers could promote the program directly to potential participants. This face-to-face interaction with SNAP-eligible participants appeared to be most effective for the purposes of recruitment. The least effective locations were community locations without a person onsite to promote the program and encourage participation.

Figure II-4 provides some insight into which recruitment efforts may have been most effective at reaching eligible participants. For example, postcards were the most commonly reported way that About Eating completers heard about the program (32 percent of completers). As noted above, these postcards were distributed through county assistance offices and job training programs as well as to individuals identified through DPW SNAP databases. Friends, family, coworkers, and libraries were other common responses, reported by 13.7 percent and 11.1 percent of completers, respectively. There were some differences between completers and noncompleters with regard to how they heard about the program (see appendix B). For example, noncompleters were more likely to hear about the intervention through libraries than were completers.

Figure II-4.— Most Commonly Reported Ways Participants Heard About the About Eating Program Among Program Completers^a (N= 153)



^a Respondents could select multiple responses; "N" is the number of participants who responded to this question.

^b Includes various less reported recruitment strategies, such as grocery stores, EFNEP, and WIC.

Source: Participant baseline survey, descriptive tables for process questions, table B-1 on "Ways participants heard about PSU's About Eating program" in appendix B

▲ Well-defined implementation strategies

The About Eating team developed a strong, well-defined implementation strategy for both the intervention and the control groups as illustrated in the PSU lesson implementation timeline charts found in appendix B. This strategy outlined the timetable and steps for the implementation process starting sequentially with participant recruitment, access to the study Web site, recruitment survey, randomization into the control or intervention group, timing of access to the lesson links, timing of email reminders, and the last possible day for lesson completion. This well-defined strategy served as a roadmap to implementation of the About Eating program, allowing the team to execute key steps in the complex process as planned and on schedule.

▲ Strong commitment from key partners

Without the strong commitment from a number of partners at the State and local levels, the About Eating team would not have been able to reach their recruitment goals. Committed partners were willing to post flyers, hand out recruitment materials, talk with potential participants to describe the project in some cases, and generally, provide support for the About Eating program. The About Eating team members reported that libraries and county welfare offices were the easiest or most committed partners they worked with during the study period.

“The most effective locations turned out to be libraries. The staff at the library was helpful and most often agreed to post flyers. The patrons of the library had access to Internet to sign up immediately at this location. The county assistance offices provided a great place to recruit, as well, because the caseworkers could directly promote the program to clients and contact the target audience directly.”

—About Eating Project Coordinator

2. Challenges to Implementation and Opportunities for Improvement

During post-intervention interviews, the program manager and staff reported several challenges they faced while implementing the About Eating program. Program participants also provided insight into what challenges or barriers they faced in accessing and completing the About Eating program. In this section, the recommendations for program improvement that were offered by these key stakeholder groups are described.

▲ Intensity of efforts needed to recruit SNAP-eligible populations

Low-income populations can be difficult to recruit for educational interventions. Despite a well-designed original recruitment strategy, efforts had to be increased midstream because fewer than expected enrolled in the program. This meant sending out more flyers to recruitment venues, calling SNAP participants and SNAP-eligibles from the DPW lists, and locating other venues serving low-income populations. Interviews with the About Eating program manager and the project coordinator revealed that in their experience, barriers to recruitment of SNAP-eligible participants include lack of time or interest on the part of the participant or lack of access to computers and the Internet among some low-income audiences.

Additionally, low-income programs and venues the About Eating staff collaborated with had different levels of commitment for the distribution of information about this program. For example, although the DPW is a logical venue from which to recruit SNAP participants and SNAP-eligible populations, it was difficult for PSU to obtain a complete list of client phone numbers or email addresses or to post information on the DPW Web site. This is most likely due to the fact that About Eating was implemented in counties with no prior SNAP-Ed experience for demonstration project purposes. The DPW did provide PSU with names, some telephone numbers, and mailing addresses, but a more complete list would have helped the PSU staff in their recruitment efforts. DPW administrators are typically key collaborators for SNAP-Ed activities, and for this reason it is important to initiate a relationship prior to making any such request.

Opportunities for Improvement. When asked what other recruitment venues may have been effective for this project, the project coordinator said career centers with training programs and organizations with education classes would be useful for recruitment in low income areas because of the access to computers, encouragement from staff members at the site, and consistency of accessing these resources. The program manager and project assistant in charge of recruitment also suggested that “casting a wider net” initially may improve chances of recruiting SNAP-eligible participants within the identified timeframe for this evaluation. However, this would be less of an issue if recruitment into the About Eating program occurs over a longer period of time than was possible under the time constraints imposed for this demonstration project. Regardless, it is difficult to determine just how many SNAP-eligibles will be recruited and eventually enroll and complete the program, thus experience would indicate that using the most effective recruitment efforts would be necessary to keep costs per participant to a minimum.

Recruitment would also be bolstered by a higher level of commitment from the agencies and organizations that served as recruitment venues. Some of these agencies and organizations provided the material and assistance needed to promote this program (e.g., libraries), but others did not have the same level of commitment (e.g., State DPW). Clearly, a commitment to the program is an important component to successful recruitment and should be obtained prior to initiating a program. In particular, coordination with the DPW to facilitate recruitment may need to include in-depth discussions with DPW staff members at the State and local levels to more fully explain this SNAP-Ed program and thus elicit a higher level of commitment. Key to this process is a strong commitment to the project from the State SNAP director, who could set the tone for the other DPW staff members involved in the project. While working with the State DPW staff, a test run of the SNAP recipient lists would be also be helpful to ensure that they can produce the data needed for recruitment.

Additionally, neither the independent evaluation nor PSU's self-evaluation included surveys of women who received outreach but chose not to enroll in About Eating. To improve the cost-effectiveness of the program's recruitment efforts and maximize reach among the target audience, it would be useful to learn more about these women and their reasons for nonparticipation as well as how to overcome the barriers they might face.

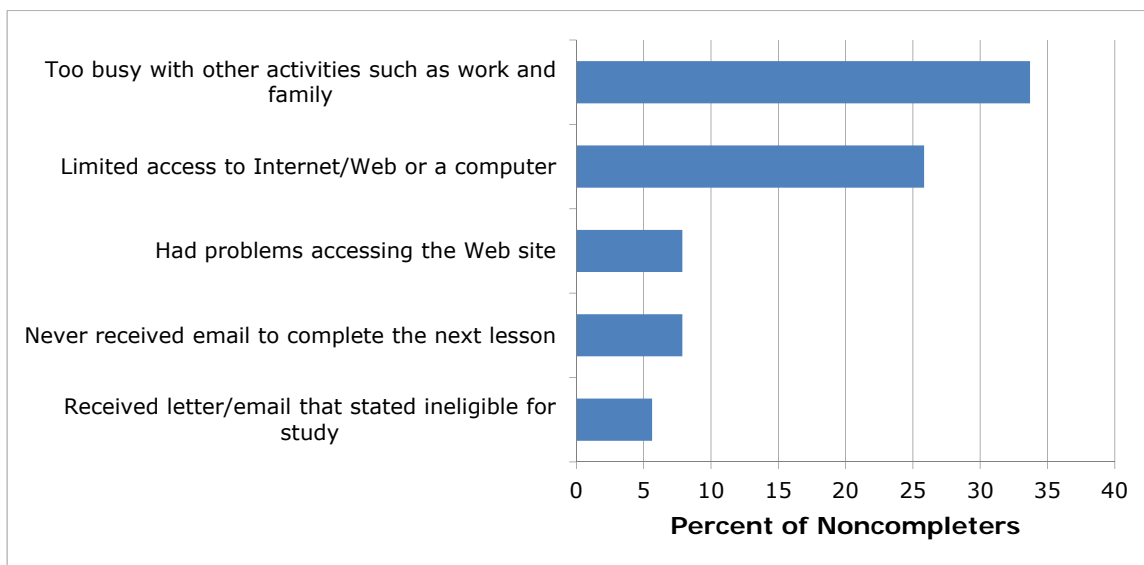
▲ Participant retention

As discussed above, approximately 45 percent of program participants did not complete all five About Eating lessons and the large majority of these noncompleters dropped out after they enrolled but before they engaged in any lesson (see table II-1). When asked about their reasons for noncompletion, respondents most commonly reported that they were "too busy with other activities like work or family" (see figure II-5).

A participant attrition analysis¹⁴ revealed that participants who did not complete high school, had limited access to the Internet at home, and accessed the Internet only a few times per month were less likely to complete the About Eating program. The program manager and her staff consider attrition to be an important challenge to address. Indeed, as shown in figure II-5, the second most commonly reported reason respondents gave for not completing the About Eating program was that they had "limited access to Internet or Web or a computer." Some of the noncompleters also had trouble accessing the Web site or never received an email reminding them to complete their next lesson. (See appendix B for the percentage of respondents who cited each reason for noncompletion of the program.)

¹⁴ Participant attrition analysis compares the characteristics of participants who did and did not complete all of the About Eating lessons.

Figure II-5.— Most Commonly Reported Reasons for Noncompletion of About Eating Program (N= 89)^a



^a Respondents could select multiple responses.

Source: Participant follow-up survey

Additionally, participants who did not complete the About Eating program were not as likely as completers to “strongly agree” with statements related to their satisfaction with the About Eating program’s ease of use and content (see table II-8), which might have decreased their interest in completing the lessons.

Table II-8.— Satisfaction with About Eating Program Among Program Noncompleters (N=89)

Statement	Percent Who Strongly Agree ^a
The About Eating program made me feel self-conscious	11.24
The About Eating program was designed for someone like me	10.11
I thought the information provided on the Web site was interesting	24.72
I thought the information provided on the Web site was factual	24.72
I found the material in the lessons to be repetitive	4.49
It is easy for me to get on the Internet or Web	46.07
It was easy for me to move around the Web site	34.83
The directions for each lesson were clear	34.83
I was able to jump to links of interest	28.09
The information provided on the Web site was easy to read	40.45
The information provided on the Web site was easy to understand	35.96

^a Percentages equal responses “strongly agree.” Respondents selected a response to indicate their level of agreement with each statement.

Source: Participant follow-up survey, descriptive tables for process questions, table B-5 on “Satisfaction with About Eating program, among participants who did not complete intervention” in appendix B

Opportunities for Improvement. Opportunities for improvement point to additional consideration being given to screening potential participants who may experience access-related barriers or to helping potential participants overcome these barriers. One opportunity that emerged in the implementation of this program was the potential role that public libraries can play in helping interested women participate. For example, library staff members can assist individuals with access to computers and the Internet, enabling SNAP participants and SNAP-eligibles to not only enroll but come back at various times to continue their participation in a Web-based course. Thought should be given to the location of public libraries in relation to potential participants and whether these libraries have adequate resources and staff to help. Another promising recruitment venue for About Eating participants was job training programs where computers may be available with staff to assist women in using the Internet. Additionally, distributing a list of library and training center locations at other recruitment venues could promote the use of these settings for program enrollment and participation, particularly for those who do not otherwise have access to computers or the Internet.

As noted in figure II-3 above, approximately one-half (48.9 percent) of About Eating program enrollees reported that the offer of a gift card was an influential reason for their participation. Because all program participants were offered the same incentive, the impact of the incentive on program retention cannot be determined. However, the importance of a financial incentive as a factor influencing retention should be considered as this program continues to be refined and replicated.

▲ **Exposure time to intervention**

An additional challenge to implementation of the About Eating program was the limited exposure time to its lessons. At the time the study was designed, a timing protocol was put into place due to limited computer programming options and budget considerations. This strict timing protocol was followed to ensure time between lessons, but participants were not allowed to return to the lesson at any time after they had completed the lesson. The program manager felt the timing protocol did not allow participants enough time to apply what they had learned and to incorporate changes into their lifestyle.

Opportunities for Improvement. According to the program manager, if the lessons were available to participants for an extended period of time after they had been completed, participants would be able to go back and review selected (or all) lessons. Additionally, by allowing more time between lesson completion and administration of the post-intervention survey, participants could have greater opportunity for reinforcement of concepts and time to influence their behavior at a pace more conducive to change.

Chapter III • Impact Evaluation Methods and Results

A. Conceptual Framework for the Impact Evaluation and Outcome Measures

As previously described, the fundamental objective of the About Eating program is to increase eating competence of low-income women. Pennsylvania State University's (PSU's) demonstration project application presented evidence suggesting that individuals with higher levels of eating competence have higher-quality diets. According to PSU's application, "the higher dietary quality of eating competent persons has been shown by greater food preference, a higher intake of fruits and vegetables, greater intake of several vitamins, minerals, and fiber, a lower intake of dietary fat and saturated fat, and greater adherence to the Mediterranean diet" (PSU, 2008).

For the independent evaluation, the primary outcome of interest was the impact of the program on consumption of fruits and vegetables. A number of secondary outcome measures were considered, as shown in exhibit III-1, to examine attitudes, beliefs, and actions that would be expected to change to facilitate increased consumption of fruits and vegetables. Specifically, the impact analysis assessed the impact of the program on the following secondary outcome measures:

- Snacking: Eat fruits or vegetables as snacks.
- Variety: Eat more than one type of fruit and vegetable each day.
- Preference: Enjoy a variety of fruits and vegetables.
- Availability: Have access to fruits and vegetables at home.

The impact of the program on secondary outcomes for other foods was also considered because of evidence suggesting that individuals with higher levels of eating competence have higher-quality diets. Specifically, the impact of the program on consumption, at-home availability, and preference for 1% or skim milk and at-home availability and preference for whole-wheat bread were examined. Assessment of these secondary outcomes is consistent with the U.S. Department of Agriculture (USDA) Food and Nutrition Service's (FNS) recommendation that SNAP-Ed focus on the behavioral outcomes of consuming whole grains and fat-free or low-fat milk products every day (FNS, 2011). Additionally, the impact of the program on decreased at-home availability of chips, nacho chips, and corn chips and regular soft drinks and the participants' self-rating of their eating habits were examined.

Key Findings*

Primary Impacts

- The About Eating program had no statistically significant impact on daily consumption of fruits and vegetables.

Secondary Impacts

- The About Eating program had no statistically significant impact on the secondary impact measures.

*These findings apply to the impact analysis for all evaluation study participants as well as the analysis limited to individuals completing all the About Eating lessons.

Exhibit III-1.— Primary and Secondary Outcome Measures for the About Eating Program Impact Evaluation

Primary outcomes: dietary intake (follow-up survey only)

Cups of fruits and vegetables consumed each day^a

Cups of fruits consumed each day

Cups of vegetables consumed each day

Secondary outcomes: other dietary behaviors (follow-up survey only)

Number of days participant ate fruit or vegetables as snack during past week

Number of days participant ate more than one type of fruit during past week

Number of days participant ate more than one type of vegetable during past week

Use of 1% or skim milk (drunk or used on cereal) during past week

Secondary outcomes: other dietary behaviors (baseline and follow-up surveys)

Preferences for fruits^{b,c}

Preferences for vegetables^{b,d}

Preferences for whole-wheat bread versus white bread^b

Preferences for skim versus whole milk^b

Availability of fruits and vegetables at home during past week^e

Availability of milk at home during past week (1% or skim milk versus whole or 2% milk)^f

Availability of chips, nacho chips, or corn chips at home during past week^f

Availability of regular soft drinks or sodas at home during past week^f

Self-rating of eating habits^g

^a This measure represents an index of dietary intake created by summing two survey items: one asks for the number of cups of fruit eaten and the other asks for the number of cups of vegetables eaten. Each survey item includes response options that range from “none” to “three or more cups” giving the index a range of “zero” to “six or more.”

^b Measured using a 1–9 scale, where 1 = “extremely dislike,” 5 = “neither like or dislike,” and 9 = “extremely like.”

Responses of “never tried” were assigned a value of 5, and responses of “would not try” were assigned a value of 1.

^c Created a fruit preference index score that was the mean preference for three fruits (apples, oranges, and orange juice).

^d Created a vegetable index score that was the mean preference for seven vegetables (green beans, peas, raw tomatoes, broccoli, cauliflower, raw carrots, and tossed green salad).

^e Created a fruit and vegetable availability index score (0–4) for the at-home availability of four fruits and vegetables (bananas, apples, grapes, and carrots).

^f Participants responded “yes” or “no” to each item.

^g Measured using a 1–10 scale, where 1 = “poor” and 10 = “excellent.”

B. Methodology

1. Evaluation Design and Sample Selection

The About Eating program evaluation was designed to examine the implementation and impact of the program among SNAP participants and SNAP-eligible women aged 18 to 45 living in a sample of 34 Pennsylvania counties not served by SNAP-Ed or six counties with SNAP-Ed service only at county assistance offices. Participants who expressed interest in the study and met the eligibility criteria were randomly assigned to the intervention or control group, with stratification by whether the county offers the Expanded Food and Nutrition Education Program to control for the availability of other nutrition education. Participants in the intervention group received the Web-based About Eating program. Participants in the control group were instructed to visit the USDA Click ‘n Go Web site.

To collect information on the program's impact, a survey was administered to participating women before and after the intervention. To avoid potential reactivity effects, self-reported measures of fruit and vegetable intake and other consumption measures were not collected at baseline. Instead, a measure of food preference (Drewnowski & Hann, 1999), which has been shown to correlate with dietary intake, was collected at baseline. The impact of the program was estimated using adjusted endpoint models that included preference scores as a proxy for fruit and vegetable intake at baseline.

Sample size was estimated following commonly accepted evaluation practices (i.e., 80 percent statistical power and a type I error rate of 0.05 with a two-tailed test). Sample size estimation was based on observing a change in daily consumption of fruits and vegetables combined of 0.30 standard deviation units or better, as specified by FNS. The About Eating program was expected to produce a realized increase among intervention participants of 0.44 cups of fruits and vegetables per day. The sample design for the independent evaluation specified 145 completed surveys in each study group for the follow-up survey. Appendix H provides additional information on the evaluation design and sample size calculations.

2. Instrument Development and Testing

To develop the impact evaluation instruments for the baseline and follow-up surveys, the independent evaluators reviewed PSU's application and the program curriculum to identify the primary and secondary outcome measures. Existing instruments as compiled for the literature review conducted for this study (Altarum Institute and RTI International, 2009) were reviewed to identify those that address these outcomes and are feasible, appropriate for the target audience, reliable, valid, and sensitive to change.

In developing the impact instruments, the appropriateness of the instruments for collecting data on fruit and vegetable outcomes was assessed. Exhibit III-2 provides information on the study population, mode(s) of data collection, reliability, validity, and sensitivity to change for the instruments used to develop the questionnaire items on outcome measures. The majority of the items were taken or adapted from instruments that have been administered successfully with low-income audiences, validated, and demonstrated to be reliable and sensitive to change in previous studies. For the primary outcome measures, consumption of fruits and vegetables, questions from the Food Stamp Program Fruit and Vegetable Checklist (Townsend, Kaiser, Allen, Joy, & Murphy, 2003) and the University of California Cooperative Extension Food Behavior Checklist (Townsend, Silva, Martin, Metz, & Wooten-Swanson, 2008) were used.

Six in-person interviews were conducted to pretest the draft impact instrument. The pretest participants were asked to complete the About Eating lessons before their scheduled interview. After obtaining informed consent, the interviewer went through the draft follow-up survey instrument question by question. After asking each question, the interviewer asked the respondent to provide her response, explain the reason for her response choice, and whether the question or its responses were confusing or difficult to understand. The readability of the instrument was assessed using the Fry Test, which examines the proportion of syllables and sentence length and is a commonly used measure of reading level (Fry, 1968). Generally, the questions were at the fifth-grade reading level.

Exhibit III-2.— Summary of Instruments Used to Develop Impact Instrument for the About Eating Impact Evaluation

Outcome Measures	Instrument	Study Population(s)	Mode(s) of Data Collection	Reliability	Validity	Sensitivity to Change and Other Results
Cups of fruits, vegetables, and fruits and vegetables consumed each day Ate variety of fruits each day Ate variety of vegetables each day Ate fruit and vegetables as snacks during past week Self-rating of eating habits	Food Stamp Program Fruit and Vegetable Checklist (Townsend, Kaiser, Allen, Joy, & Murphy, 2003) University of California Cooperative Extension Food Behavior Checklist (Townsend, Sylva, Martin, Metz, & Wooten-Swanson, 2008)	Low-income women	Self-administered, self-administered in group setting, and interviewer administered individually and in groups	The internal consistency for the 7-item fruit and vegetable subscale was high ($\alpha = 0.80$)	The 7-item fruit and vegetable subscale showed a significant correlation with serum carotenoid values ($r = 0.44$, $p < 0.001$), indicating acceptable criterion validity and showed significant correlation with dietary variables	Demonstrated sensitivity to change for items expected to change as a result of the study intervention
Used 1% or skim milk	NHANES 2005–2006 (CDC, 2007)	General population	Interviewer administered	Not reported	Not reported	Not reported
Preferences for 10 fruits and vegetables, 2 types of breads, and 2 types of milk	(Drewnowski & Hann, 1999)	Women aged 20–41 years old	Self-administered	The internal consistency of the fruit and vegetable preference subscales was high	Not reported	Food preference and consumption was significantly correlated with nearly all item pairs tested; the median Pearson correlation coefficient was 0.40 (range: -0.04 to 0.62)
Availability of fruits and vegetables at home during past week	Fruit, juice, and vegetable availability questionnaire (Marsh, Cullen, & Baranowski, 2003; Cullen et al., 2003)	Parents of 4th and 6th graders	Self-administered and interviewer administered via telephone	The internal consistencies for the fruit and vegetable availability items were high	There was significant agreement between self-reported and observed in-home availability for all fruit juices and most fruits and vegetables	Fruit, juice, and vegetable availability was a significant predictor of child fruit, juice, and vegetable consumption ($p < 0.05$)

3. Survey Administration Procedures and Response

A mixed-mode survey approach was used for survey administration. The baseline survey was administered online following study enrollment. The follow-up survey was administered online with contacts by mail and telephone for individuals in the control group who did not complete the survey online and intervention participants who did not complete all of the About Eating lessons.

The baseline survey took about 10 minutes to complete, while the follow-up survey took about 15 minutes. The baseline and follow-up surveys were administered online via the About Eating Web site. The Survey Research Center (SRC) at PSU administered the online surveys. To control for starting point bias, half of the respondents completed the PSU questionnaire first and the remaining half completed the FNS questionnaire first. For the follow-up survey, versions of the FNS questionnaire were prepared for administration by mail and telephone for participants who did not complete the survey online. Respondents received \$10 for completing the baseline survey and \$15 for completing the follow-up survey. Additional incentives were provided by PSU for surveys completed online. Copies of the final survey instruments are provided as appendix C.

At baseline, 282 participants in the intervention group and 218 participants in the control group completed the survey. At follow-up, 152 participants in the intervention group completed the intervention and the follow-up survey (i.e., completed the evaluation study) and 195 participants in the control group completed the follow-up survey, exceeding the sample size requirement of 145 participants per group at follow-up. A total of 89 individuals in the intervention group did not complete the intervention but completed the follow-up survey. For the intervention group, the response rate for the follow-up survey was 99 percent for participants who completed the intervention (follow-up survey was completed online) and 69 percent for participants who did not complete the intervention (follow-up survey was completed by mail or telephone), with an overall response rate of 85 percent. For the control group, the overall response rate was 89 percent for the follow-up survey.

4. Impact Analysis Procedures

The impact of the About Eating program was estimated via linear regression using adjusted endpoint models that included preference scores as a proxy for fruit and vegetable intake at baseline. Other covariates in the model included age category, race and ethnicity, education level, household size, single-adult household status, marital status, source of Internet access, and frequency of Internet access. Missing data for these covariates ranged from 4 to 7 percent. Two analyses were conducted: (1) an analysis including all study participants and (2) an analysis limited to participants who completed all the About Eating lessons (i.e., analysis of the treated). Appendix H provides additional information on the impact analysis procedures.

The potential impact of attrition from the evaluation study on generalizability of the study results was assessed by comparing the pre-intervention similarity of study participants who provided follow-up data and those who did not.¹⁵ This analysis was accomplished by fitting a logistic regression model that regressed completion status on variables that describe survey responders (age category, race and ethnicity, education level, household size, single-adult household status, marital status, source of Internet access,

¹⁵ Attrition includes individuals who did not complete the intervention and individuals who did not complete the follow-up survey.

and frequency of Internet access). This analysis provided odds ratios that highlight any association between the descriptive characteristics of participants and the likelihood of providing data at follow-up.

C. Impact Analysis Results

This section describes the baseline demographic characteristics of women who participated in the evaluation study and the baseline outcome measures, discusses the results of the attrition analysis, and presents the impact results. A p -value of 0.05 was used for determining statistical significance.

1. Baseline Data

The baseline analysis included 500 respondents, 282 for the intervention group and 218 for the control group. Appendix D, table D-1 provides the baseline demographic characteristics overall and by study condition. Participants were predominately White (92 percent), married or living with a partner (52 percent), and had some college education or completed college (58 percent). The average household size was 3.8 individuals, and 26 percent of respondents were the only adult in the household. Most participants usually accessed the Internet at home (77 percent) and at least once per day (77 percent).

Participants in the intervention and control groups were similar with regard to ethnicity, race, household size, whether single-adult household, education level, and marital status. There was a higher percentage of women aged 25 to 34 in the control group than in the intervention group (49 versus 40 percent, $p = 0.0441$). This difference was addressed in the impact analysis by including age category as well as other demographic variables as covariates in the impact models.

Table III-1 shows the baseline outcome measures overall and by study condition. To avoid potential reactivity effects, information on consumption of fruits and vegetables, consumption of fruits and vegetables as snacks, consumption of a variety of fruits and vegetables, and type of milk used was not collected at baseline. At baseline, participants in the intervention and control groups were similar for the primary and secondary outcome measures asked about in the survey with a few exceptions. The availability of 1% or skim milk, regular soft drinks, and chips, was higher for the intervention group compared with the control group; however, only the difference for chips was statistically significant ($p = 0.0129$).

2. Attrition Analysis

The potential impact of attrition from the evaluation study on generalizability of the study results was investigated by comparing the pre-intervention similarity of study participants (intervention and control groups) who provided follow-up data and those who did not. Appendix D, table D-2 presents the results of the attrition analysis. This analysis included 436 individuals who provided follow-up data and 64 individuals who did not provide follow-up data. Individuals in the two groups were similar with the exception of age: individuals aged 18 to 24 were less likely to complete the follow-up survey than individuals aged 35 to 45 ($p = 0.0022$).

Table III-1.—Baseline Outcome Measures for the Evaluation of the About Eating Program, Overall and by Condition

Measure	Baseline Means (SE)			Difference	Test Statistic ^b	p-value
	Overall ^a	Intervention Group	Control Group			
Food preferences ^c						
Fruits	7.46 (1.72)	7.52 (0.10)	7.39 (0.12)	0.12	0.78	0.4352
Vegetables	6.85 (1.71)	6.82 (0.10)	6.88 (0.11)	-0.05	-0.33	0.7392
White bread	6.61 (2.60)	6.59 (0.16)	6.63 (0.17)	-0.04	-0.17	0.8654
Whole-wheat bread	6.91 (2.53)	6.97 (0.15)	6.83 (0.17)	0.15	0.64	0.5223
Whole milk	5.01 (3.16)	5.11 (0.19)	4.87 (0.22)	0.25	0.87	0.3872
Skim milk	5.63 (3.19)	5.66 (0.19)	5.59 (0.22)	0.07	0.24	0.8090
Food availability						
Fruits and vegetables ^d	2.91 (0.98)	2.93 (0.06)	2.89 (0.07)	0.03	0.39	0.6986
Whole or 2% milk ^e	0.75 (0.43)	0.76 (0.03)	0.75 (0.03)	0.01	0.32	0.7504
1% or skim milk ^e	0.41 (0.49)	0.45 (0.03)	0.36 (0.03)	0.09	1.91	0.0563
Potato chips, nacho chips, or corn chips ^e	0.80 (0.40)	0.84 (0.02)	0.74 (0.03)	0.09*	2.50	0.0129
Regular soft drinks or sodas ^e	0.61 (0.49)	0.65 (0.03)	0.57 (0.03)	0.08	1.85	0.0656
Self-rating of eating habits ^f	5.88 (1.91)	5.86 (0.11)	5.90 (0.13)	-0.03	-0.20	0.8410
Number of respondents	500	282 (56.4%)	218 (43.6%)			

*Indicates statistical significance if the *p*-value is less than or equal to 0.05.

^a For categorical variables, the count (percentage) is provided, and for continuous variables, the mean (standard deviation) is provided.

^b All statistics assess the null hypothesis of no difference between intervention and control groups. For continuous measures, t-tests based on analysis of variance (ANOVA) were used to assess mean differences. For categorical variables, chi-square statistics were used to assess goodness of fit.

^c Indicates preference using 1–9 scale, 1 = extremely dislike, 5 = neither like or dislike, and 9 = extremely like.

^d Index score (0–4) based on reported household availability of four fruits and vegetables.

^e Dichotomous variable indicates the proportion responding yes.

^f Measured using 1–10 scale, 1 = poor and 10 = excellent.

Note: Baseline data not collected for fruit and vegetable consumption, eating fruits and vegetables as snacks, variety of fruits and vegetables consumed, and use of 1% or skim milk to avoid potential reactivity effects. SE = Standard errors.

Source: Baseline Survey, data collected March–July 2010

3. Primary Impact Results

Table III-2 shows the model-adjusted means at follow-up for the intervention and control groups and the estimated impact on average daily number of cups of fruits and vegetables, cups of fruits, and cups of vegetables consumed. At follow-up, the mean number of cups of combined fruits and vegetables consumed each day was 2.49 for the intervention group and 2.59 for the control group. Based on the results of the impact analysis, there is no indication that the About Eating program had an impact on participants' average daily consumption of fruits and vegetables.

USDA's Food Guidance System recommends that women between the ages of 19 and 50 eat 1.5 to 2 cups of fruit each day and 2.5 cups of vegetables each day (USDA, 2011).¹⁶ Women in the intervention and control groups were not meeting the USDA recommendations for fruits and vegetables. These findings are similar to those reported by Guenther, Dodd, and Krebs-Smith (2006) using 24-hour dietary recall data from the 1999–2000 National Health and Nutrition Examination Survey and 1994–1996 Continuing Survey of Food Intakes by Individuals.

Table III-2.— Primary Impacts for the Evaluation of the About Eating Program

Measure	Model-Adjusted Follow-Up Means (SE)		Estimated Impact ^a (95% CI)	p-value
	Intervention Group	Control Group		
Cups of fruits and vegetables	2.49 (0.10)	2.59 (0.11)	-0.10 (-0.39, 0.19)	0.4847
Cups of fruits	1.18 (0.06)	1.21 (0.06)	-0.03 (-0.20, 0.14)	0.7071
Cups of vegetables	1.31 (0.06)	1.38 (0.06)	-0.07 (-0.23, 0.10)	0.4268
Number of respondents	235	191		

^a Program impact (with 95 percent confidence limits) was estimated via linear regression (SAS PROC GLM) using adjusted endpoint models that include preference scores as a proxy for fruit and vegetable intake at baseline.

Additional covariates included respondent demographics and Internet usage.

Notes: SE = standard error. CI = confidence interval.

Source: Baseline Survey, March–July 2010 and Follow-Up Survey, May–September 2010

4. Secondary Impact Results

Table III-3 shows the model-adjusted means at follow-up for the intervention and control groups and the estimated impact on participants' other dietary behaviors. Based on the results of the impact analysis, there is no indication that the About Eating program had an impact on participants' choosing fruits and vegetables as snacks, eating a variety of fruits and vegetables each day, increasing use of 1% or skim milk, food preferences, food availability, and participants' self-rating of eating habits.

¹⁶ These recommendations are for women who get less than 30 minutes per day of moderate physical activity, beyond normal daily activities.

Table III-3.— Secondary Impacts for the Evaluation of the About Eating Program

Measure	Model-Adjusted Follow-Up Means (SE)		Estimated Impact (95% CI) ^a	p-value
	Intervention Group	Control Group		
Ate fruit or vegetables as snacks ^b	3.46 (0.15)	3.40 (0.16)	0.06 (−0.38, 0.50)	0.7851
Ate variety of fruits ^b	2.58 (0.14)	2.54 (0.16)	0.03 (−0.39, 0.46)	0.8731
Ate variety of vegetables ^b	3.70 (0.14)	3.39 (0.16)	0.32 (−0.11, 0.74)	0.1461
Used 1% or skim milk ^c	0.30 (0.04)	0.34 (0.04)	0.85 (0.52, 1.38)	0.5084
Food preferences ^d				
Fruits	7.49 (0.10)	7.44 (0.11)	0.05 (−0.23, 0.34)	0.7103
Vegetables	6.82 (0.09)	6.83 (0.10)	−0.01 (−0.27, 0.24)	0.9177
White bread	6.45 (0.14)	6.63 (0.16)	−0.18 (−0.60, 0.24)	0.4001
Whole-wheat bread	6.84 (0.14)	6.84 (0.15)	0.00 (−0.40, 0.41)	0.9935
Whole milk	5.24 (0.15)	5.32 (0.17)	−0.08 (−0.54, 0.38)	0.7312
Skim or non-fat milk	5.62 (0.16)	5.65 (0.18)	−0.03 (−0.51, 0.46)	0.9060
Food availability				
Fruits and vegetables ^e	2.91 (0.07)	2.79 (0.08)	0.12 (−0.09, 0.33)	0.2697
Whole or 2% milk ^c	0.93 (1.92)	0.94 (1.64)	0.84 (0.48, 1.46)	0.5308
1% or skim milk ^c	0.39 (0.04)	0.36 (0.04)	1.11 (0.70, 1.78)	0.6512
Potato chips, nacho chips, or corn chips ^c	0.81 (0.03)	0.74 (0.03)	1.47 (0.90, 2.40)	0.1216
Regular soft drinks or sodas ^c	0.68 (1.11)	0.61 (1.21)	1.35 (0.88, 2.08)	0.1738
Self-rating of eating habits ^f	5.99 (0.10)	5.86 (0.11)	0.13 (−0.17, 0.44)	0.3958
Number of respondents	241	195		

^a Program impact (with 95 percent confidence limits) was estimated via linear regression (SAS PROC GLM) for continuous outcomes and logistic regression (SAS PROC LOGISTIC) for dichotomous outcomes. Impact estimates were based on adjusted endpoint models that include preference scores as a proxy for fruit and vegetable intake at baseline. Additional covariates included respondent characteristics and Internet usage. Impact estimates are provided as odds ratios for dichotomous outcomes.

^b Reported as the number of days in the past week.

^c Dichotomous variable indicates the proportion responding yes.

^d Indicates preference using 1–9 scale, 1 = extremely dislike, 5 = neither like or dislike, and 9 = extremely like.

^e Index score (0–4) based on reported household availability of four fruits and vegetables.

^f Measured using 1–10 scale, 1 = poor and 10 = excellent.

Notes: SE = standard error. CI = confidence interval.

Source: Baseline Survey, March–July 2010 and Follow-Up Survey, May–September 2010

D. Impact Analysis Limited to Participants Who Completed All the About Eating Lessons

Analyses were conducted that were limited to study participants who completed all About Eating lessons (i.e., received full dosage) and the follow-up survey. Appendix E presents the results of the analysis of the treated, with the key findings summarized below.

1. Demographic Characteristics

Appendix E, table E-1 provides information on the baseline demographic characteristics for participants in the About Eating program who completed the follow-up survey and received full program dosage. The baseline analysis included 347 respondents, 152 for the intervention group and 195 for the control group.

There were some differences between participants in the intervention group and control group. There was a significantly higher percentage of women aged 25 to 34 in the control group than in the intervention group (51 versus 38 percent, $p = 0.0105$). There was a significantly higher percentage of women who access the Internet at home in the intervention group than in the control group (85 versus 75 percent, $p = 0.0227$). There was a significantly higher percentage of women who access the Internet daily in the intervention group than in the control group (87 versus 74 percent, $p = 0.0029$). Thus, it appears that having access to the Internet at home and accessing the Internet daily may have facilitated completion of all About Eating lessons. Participants in the intervention and control groups were similar with regard to race, ethnicity, household size, whether they were the only adult in the household, education level, and marital status.

2. Primary Impact Results

Appendix E, table E-2 shows the model-adjusted means at follow-up for the intervention and control groups and the estimated impact on average daily number of cups of fruits and vegetables, cups of fruits, and cups of vegetables consumed. Based on these results, there is no indication that the About Eating program had an impact on participants' average daily consumption of fruits and vegetables for individuals completing all the About Eating lessons.

3. Secondary Impact Results

Appendix E, table E-3 shows the model-adjusted means at follow-up for the intervention and control groups and the estimated impact on participants' other dietary behaviors. Based on these results, there is no indication that the About Eating program had an impact on participants' other dietary behaviors for individuals completing all the About Eating lessons.

Chapter IV ● Assessment of PSU's Self-Evaluation

A. Methodology

Determining the effectiveness of the evaluation conducted by Pennsylvania State University (PSU) required a clear understanding of the planning, design, and implementation of the evaluation based on both objective and subjective measures. To the extent possible, the assessment was based on objective information such as the evaluation report prepared by PSU. Qualitative methods were used to gather in-depth information as well as perspectives of key players in the evaluation (e.g., program administrator). Exhibit IV-1 describes the data sources used for the assessment, and appendix F provides copies of the forms and instruments used in the assessment.

The assessment of PSU's evaluation of the About Eating program included a detailed description of their evaluation methodology, including management, staffing, and costs of the evaluation; an assessment of the quality of PSU's evaluation, including strengths and weaknesses; a comparison of PSU's study design and results with the Food and Nutrition Service (FNS) independent evaluation; and an assessment of lessons learned based on the quality assessment, cost analysis, and reported factors affecting evaluation implementation. Appendix I provides additional information on the methodology for assessing PSU's self-evaluation.

Key Findings

- PSU's self-evaluation demonstrated most of the characteristics of a rigorous evaluation but could benefit from some improvement. The study was underpowered because of recruiting and retention challenges; the high attrition rate limited the generalizability of the study findings; and enhanced quality control was needed for PSU's Survey Research Center (SRC).
- Based on the comparison of the results of the PSU self-evaluation and the independent evaluation, one cannot conclude that the About Eating program had the anticipated impact on eating competence or consumption of fruits and vegetables.

B. Description of PSU's Self-Evaluation

This section describes the methodology PSU used to evaluate the About Eating program and provides information on the management, staffing, and costs of the evaluation. The description is based on PSU's demonstration project application (PSU, 2008) and its evaluation report (PSU, 2011).

1. Research Objectives and Outcome Measures

As described in prior chapters, the About Eating program employed the Satter model of eating competence (ecSatter), a biopsychosocial model that addresses intrapersonal approaches to eating and food-related behaviors (Satter, 2007b, 2008). As described in PSU's application, the goals of the About Eating program were to (1) examine the effect of the About Eating program to enhance the ability to balance caloric intake from food and beverages with calories expended and (2) assess the impact of the program on eating competence in general, as well as the specific constructs of eating attitudes, food

Exhibit IV-1.—Description and Use of Data Sources for the Assessment of PSU’s Self-Evaluation

Data Source	Description and Use
PSU application	The application to request funding as a demonstration project provided information on the proposed evaluation procedures. Information was abstracted from PSU’s application to describe their evaluation approach and identify any differences between their planned and actual evaluation approach.
Evaluation review form	This form included eight evaluation components (e.g., viable comparison strategy and data analysis), each of which was scored on a 1 to 5 scale. The form was completed using information from PSU’s application and evaluation report and additional information obtained in the key informant interviews conducted following the evaluation. The completed review form was used to prepare a descriptive assessment of the quality of PSU’s evaluation that identified the strengths and weaknesses of the evaluation and detailed areas for improvement.
Evaluation cost form	This form, completed by PSU, documented the resources used and costs incurred to evaluate the About Eating program. The completed form and the findings from the key informant interviews were used to prepare a descriptive assessment of the cost of conducting the evaluation.
PSU evaluation report	PSU was provided with an outline for preparing a report on their evaluation methodology and results. The study team reviewed and abstracted information from the report to complete the assessment of the quality of PSU’s evaluation and to compare PSU’s study design and results with the FNS independent evaluation.
Key informant interviews	Using structured interview guides, the study team conducted in-depth interviews with key informants, including the program manager, project coordinator, field recruiter, and SRC staff, before and after the evaluation was conducted. The findings from these interviews informed all aspects of the assessment of PSU’s self-evaluation, in particular, the assessment of the management of the evaluation and lessons learned from conducting the evaluation.

acceptance, internal regulation, and contextual skills (PSU, 2008). Specifically, The PSU self-evaluation included the following outcome measures: increase of two points or more on the eating competence score (ecSI/LI), improved food management behaviors used by the Expanded Food and Nutrition Education Program (EFNEP); improvements in dietary restraint, disinhibition, and hunger measured using the Three Factor Eating Questionnaire subscales; increased preferences for fruits and vegetables measured using the Drewnowski Food Preference Survey; lower body mass index; and improved weight satisfaction.

Among these outcome measures, this assessment of the PSU self-evaluation focused on those measures that are most likely to be related to the consumption of fruits and vegetables (the primary outcomes of interest for the FNS independent evaluation):

- overall eating competence as measured by ecSI/LI;
- eating competence subscales of attitude, context skills, internal regulation, and food acceptance; and
- EFNEP food management behaviors (e.g., using the Nutrition Facts label to make food choices and planning meals to include all food groups).

2. Research Design and Sample Selection

The study population for the About Eating program included SNAP-eligible women, aged 18 to 45 living in one of the 34 counties not served by SNAP-Ed or one of the six counties with service consisting only of County Assistance Office activities conducted by the Pennsylvania Nutrition Education Network (40 eligible counties). As discussed in chapter II, women with conditions affecting eating competence were restricted from participating in the study. Participation required English literacy and access to the Internet.

The PSU research design was a fully randomized experimental study (see exhibit IV-2), with stratification for EFNEP vs. non-EFNEP county. PSU conducted a power analysis to determine the required sample size. As detailed in its application and evaluation report, based on a power of 0.8 and an attrition rate of 50 percent, the sample size needed to detect a change of 2 points on the ecSI/LI scale was 290 (145 each for the intervention and control groups) (PSU, 2011).

To assess the impact of the addition of a physical activity lesson on the overall program, PSU incorporated a Sequential Multiple Assignment Randomized Trial (SMART) of a stepped care strategy so that two treatment conditions were considered as shown in exhibit IV-2: the 5 lesson group and the 4+1 lesson group (i.e., the post-survey was completed after the fourth lesson, followed by the lesson on physical activity). For the SMART component of the study, a sample size of 25 was needed to detect a change of 4 points on the ecSI/LI at a power of 0.8. The actual sample size was not adequate for PSU to conduct analyses by treatment condition.

Exhibit IV-2.— Research Design for the PSU Self-Evaluation

Group	Treatment
Intervention	About Eating Web-based module
1. At least 30 min daily physical activity	5-lesson module, self-selected order, evaluation post-module (5 lesson group)
SMART component	5-lesson module, physical activity lesson last, evaluation post fourth lesson (4+1 lesson group)
2. Less than 30 min daily physical activity	5-lesson module, physical activity lesson last, evaluation post-module (5 lesson group)
Comparison treatment/control group	USDA Click 'n Go Web site

Source: PSU Models of Food Stamp Nutrition and Education Demonstration Project Application, 2008

3. Survey Administration Procedures and Response

Women enrolled in the study participated in PSU's evaluation and in the independent evaluation. PSU conducted data collection via the Internet from March 22, 2010, through August 30, 2010. Respondents

completed surveys before and after completing the online educational modules. Survey respondents received a total of \$20 in gift cards for completing the pre-survey and post-survey and received online greeting cards to encourage continued participation in the study. Respondents in the intervention group received the post-survey 14 days following completion of the intervention, and respondents in the control group received the post-survey 31 days after completing the pre-survey. The study did not collect information on participants' use or response to the USDA Click 'n Go Web site. Participants in the intervention and control groups received two e-mail reminders to complete the post-survey. Depending on group assignment and responsiveness to lesson completion (for the intervention group), the study length ranged from 29 to 74 days.

Table IV-1 provides the survey response rates for PSU's evaluation. Of 1,010 interested respondents, 588 were eligible for study participation.¹⁷ Of the 288 intervention group participants, 154 completed the intervention and post-survey (54 percent retention rate). Of the 224 control group participants, 148 completed the post-survey (66 percent retention rate).

Table IV-1.— Survey Response Rates for the PSU Self-Evaluation

Study Progress	Total Sample	Intervention (n)			Control (n)
		Total	5 Lesson Group	4 + 1 Lesson Group	
Pre-survey completed	512	288	253	35	224
Began the intervention	352	204	178	26	NA
Intervention attriter	50	50	43	7	NA
Post-survey completed	302	154	135	19	148
Retention rate (percentage)	59.0%	53.5%	53.4%	54.3%	66.1%

Source: PSU Evaluation Report, 2011

4. Impact Analysis Procedures

PSU compared the About Eating intervention group with the Click 'n Go control group using independent t-tests, one-way analysis of variance (ANOVA), and Chi square depending on the variable type. PSU plans to conduct additional analyses to understand better the characteristics of women whose eating competence improved as a result of participating in the program. These additional analyses may exclude the ineligible cases that were erroneously included in the final survey data set.

5. Management, Staffing, and Costs of the Evaluation

As noted in chapter II, both the implementation and evaluation of the About Eating intervention was managed by the program manager (also referred to as the principal investigator) with assistance from the project coordinator and a staff assistant. An important feature of the About Eating program evaluation is its partnership with the PSU Survey Research Center (SRC). The program manager contracted with the SRC for the assignment of eligible women to the treatment and control groups for the study and other evaluation parameters of the program and provided oversight of all SRC activities for the evaluation.

¹⁷ The survey data file delivered by the SRC erroneously included 12 cases that were ineligible because the individual was a student or had cancer or diabetes in the past 5 years. Six of these cases completed the pre- and post-surveys and were included in the analysis conducted by PSU. The dataset error was discovered after the analysis had been completed; thus, the results include these ineligible cases.

Total costs for the evaluation were \$10,175 with salary and benefits being the largest expense at 80.5 percent of this total. Time spent by the program manager in the design and implementation phase contributed significantly to the evaluation of the About Eating program. Many cost components associated with the evaluation (e.g., survey design, data collection, data entry and coding) were costs for the implementation of About Eating. This is the case because the intervention was designed as a Web-based nutrition education program, and therefore the survey design, programming, and other evaluation components were subsumed under the cost of the design and implementation of the intervention. The Web-based nature of this demonstration project provides for a larger volume and variety of evaluation data. Web-based interventions typically have the potential for a larger volume of evaluation data if the program manager plans in advance for their automatic collection. The About Eating program compiled a large collection of in-depth data available for analysis.

The following is a description of the major costs centers related to PSU’s self-evaluation of the About Eating program and the types of expenditures accounted for in each:¹⁸

- **Salary/benefits.** This includes all staff supporting the About Eating evaluation directly or administratively during the evaluation phase (2 months total) of the demonstration project. The staffing for the About Eating evaluation included the following:
 - Principal investigator = 0.01 FTEs
 - Project coordinator and staff assistant = 0.06 FTEs each
- **Contracts and grants.** This includes a small dollar amount for miscellaneous costs specific to the evaluation, which SRC received.
- **Noncapital equipment and supplies.** This line item included expenditures for supplies that supported the evaluation component for the evaluation.
- **Administrative.** The administrative expenditures include minor administrative costs.

Table IV-2 shows the actual expenditures PSU reports as the costs of its About Eating evaluation in Federal FY 2010 with breakouts by budget category. Appendix B includes the detailed budget tables PSU provided for this evaluation.

Table IV-2.— Summary of PSU About Eating Program Evaluation Costs (FFY 2010)

Budget Category	Total	Percent of total direct costs
Salary/benefits	\$8,193	80.5
Contracts	\$60	0.6
Non-capital equipment/supplies	\$126	1.2
Materials	\$0	—
Travel	\$0	—
Administration	\$2	<0.1
Total Direct Costs	\$8,381	82.4
Total Indirect Costs	\$1,794	17.6
Total Costs	\$10,175	100

¹⁸ Budget justification language was provided by PSU to the independent evaluators and cost and FTE information were extracted from the PSU About Eating Resource and Expense Tracking Form (see appendix B).

C. Assessment of the Quality of PSU's Self-Evaluation

Although FNS' SNAP-Ed Guidance encourages all States to evaluate the effectiveness of their SNAP-Ed interventions, measuring and identifying the results of nutrition education in terms of concrete changes to dietary behaviors is a challenge for both FNS and its State and local partners. In FY 2004, 74 percent of SNAP-Ed implementing agencies reported that they conducted outcome evaluations on at least some aspects of services. However, their evaluations often did not distinguish between activity monitoring and outcome evaluations (USDA FNS, 2006). Based on interviews with staff from 17 implementing agencies, the focus of their evaluations was to some extent on behavior change among participants, but to a much greater extent on program use (e.g., quantifying the number of events held, the number of participants reached, and the number of contacts per participant). Forty-three percent of implementing agencies surveyed in 2004 indicated that significant barriers to conducting successful evaluations included a lack of funds and expertise on the part of their local project staff and subcontractors (USDA FNS, 2006).

In order to compare findings from an intervention's self-evaluation with a rigorous independent evaluation, a scoring tool was adapted based on the one used by the Center for Substance Abuse Prevention in development of the National Registry of Evidence-based Programs and Practices (NREPP) database (see <http://nrepp.samhsa.gov/> for additional information). The evaluation review form, provided in appendix F, includes eight evaluation components and requires a reviewer to assign a numerical score ranging from one to five for each component. Reviewers were provided the following anchors for scoring each component:

- 1 = missing or so poorly described that its value to the evaluation cannot be determined;
- 2 = is inappropriate, misunderstood, or misrepresented in such a way that it cannot contribute to an effective evaluation of the program. The actions or materials reported are not appropriate for the evaluation effort proposed;
- 3 = shows a general understanding of its role in the evaluation. However, key details have been overlooked or not thoroughly reported. Needs moderate revision to be considered acceptable;
- 4 = is appropriate for the evaluation, technically correct, and is described well enough to show a general understanding of its role in the overall evaluation. Evidence shows that it will or has been implemented properly, but minor details may be missing or unclear; and
- 5 = is appropriate for the program being evaluated and is presented in a way that shows the evaluator has a clear understanding of its role in the evaluation.

Scores of 1, 2, and 3 indicate components that are not aligned with the overall evaluation design in a way that makes them unlikely to contribute to useful or interpretable information. Scores in this range indicate opportunities for improvement in future evaluations. Scores of 4 and 5 indicate components that are well matched to the design; these components are likely to contribute useful or interpretable information to the overall evaluation. Scores in this range indicate evaluation components that could be replicated in future evaluations.

Using the evaluation review form, two members of the impact evaluation staff (one rater was the designated impact evaluation leader for the independent evaluation) rated each evaluation component. Inter-rater agreement was assessed, and a consensus score for each evaluation component was determined. Table IV-3 provides the results of the completed review form.

Table IV-3.— Assessment Scores for the PSU Self-Evaluation

Evaluation Component	Score
Research objectives and hypotheses	4
Viable comparison strategy	4
Sampling size and strategy	4
Outcome measures	4
Data collection	3
Data analysis	4
Attrition/nonresponse between pre and post-surveys	3
Missing data (i.e., survey item nonresponse)	5

^aAppendix I provides a description of the criteria used to assess each evaluation component.

Exhibit IV-3 provides a descriptive assessment of the strengths and weaknesses of PSU’s self-evaluation. The PSU evaluation had clearly defined research objectives and hypotheses, used a viable comparison strategy, was designed with an adequate sample size based on the power analysis, used reliable and valid outcome measures, and had little missing data (i.e., survey item nonresponse) for the impact analysis. With regard to data collection, the reviewers expressed some concerns about quality control during the data collection process because of the numerous iterations required by SRC to provide an error-free final survey data set. For example, in the original data set, some cases were erroneously coded to the experimental group (intervention vs. control), and some cases that were ineligible were allowed to continue with the evaluation study and complete the pre- and post-surveys. During the early stages of data collection, timely status reports were not provided. Also, despite random assignment to the intervention and control groups (1:1 ratio, 50 percent assigned to the intervention group, and 50 percent to the control group) there were initially more cases assigned to the control group than the intervention group, an anomaly that was not adequately explained and required changing the randomization to increase the probability of cases being assigned to the intervention group (1:4 ratio). Such errors and problems cast some doubt on the integrity and quality of the data collection process and survey data set for both the self-evaluation and the independent evaluation.

The analysis procedures used to prepare the results presented in the evaluation report were technically sound. Despite PSU’s efforts to increase study enrollment, recruitment challenges made the study slightly underpowered. The high attrition rate (close to 50 percent) limits the generalizability of the study findings.

D. Comparison of Evaluation Methods and Results for the PSU and Independent Evaluations

Exhibit IV-4 compares the study design for the PSU self-evaluation with the study design employed for the independent impact evaluation. Because of the nature of the intervention, the PSU self-evaluation and the independent impact evaluation used the same research design, and participant data for the PSU and independent evaluations were collected concurrently. Working with PSU, questions needed for the independent evaluation were added to PSU’s questionnaires at baseline and follow-up, with half of respondents answering the PSU questions first and half answering the FNS questions first, via random assignment to survey version.

Exhibit IV-3.—Summary of Strengths and Weaknesses for the PSU Self-Evaluation

Strengths

- The staff employed a fully randomized experimental design.
- The staff conducted a power analysis to support the sample size estimation.
- The staff used valid and reliable instruments for measuring program impact.
- The impact analysis was well done. The analysis compared completers with noncompleters and examined areas in which the program may or may not have influenced eating competency.
- Very few data were missing for the impact analysis.

Weaknesses

- The expected change in the primary outcome measure of eating competence was stated in quantifiable terms, but the expected change for the EFNEP food management behaviors and other outcome measures was not stated in quantifiable terms.
- Recruitment challenges made the study slightly underpowered.
- The high attrition rate (45 percent) limits the generalizability of the study findings.
- There was a lack of quality control during Internet data collection and delivery of the final survey data by SRC.

There were a few differences in the methods employed for the two evaluations. PSU's primary outcome measure was improvement in eating competence, whereas the primary outcome measure for the independent evaluation was increased consumption of fruits and vegetables. PSU did not attempt to collect data from women who dropped out of the intervention or did not complete the post-survey (control group), whereas the independent evaluation attempted to administer the post-survey to these individuals by using an alternate mode of data collection (i.e., mail or telephone).

Table IV-4 and table IV-5 present the results of the evaluation conducted by PSU. Table IV-4 provides the pre- and post-study comparisons, made using paired t-tests, for the EFNEP food management behaviors. About Eating participants reported an increased frequency that was statistically significant for using the Nutrition Facts label to make food choices, using a budget for food, feeling confident about managing money to make healthy food available, planning meals to include all food groups, and successfully using a recipe to cook from scratch. Compared with the baseline, the About Eating participants reported running out of food before the end of the month less frequently at follow-up. By contrast, Click 'n Go participants reported statistically significant increases only in tracking food-related expenses and including all food groups in meal planning, and no change in the frequency of running out of food.

PSU assessed program impacts by comparing mean changes in food management behaviors between the About Eating and Click 'n Go groups. The only significant finding was in the change in comparing prices to save money ($t = 2.56, p = 0.011$) with Click 'n Go participants decreasing the frequency of comparing prices to save money ($-0.19 \pm .91$) compared with little change by the About Eating participants (0.06 ± -0.79).

Exhibit IV-4.—Comparison of Study Designs for the PSU and Independent Evaluations

Evaluation Component	PSU Evaluation	Independent Evaluation
Comparison strategy	Fully randomized experimental design, with stratification for EFNEP versus non-EFNEP county. Intervention group received About Eating program, and control group was instructed to visit Click 'n Go Web site. For intervention group, two treatment models were examined based on level of physical activity.	Employed same research design as PSU. The two treatment models were pooled for all analyses.
Study population and required sample size	SNAP-eligible women aged 18–45 living in one of the 34 counties not served by SNAP-Ed or one of the six counties with service consisting only of County Assistance Office activities conducted by the Pennsylvania Nutrition Education Network (40 eligible counties, with actual participation in 39 counties). Women with conditions affecting eating competence were restricted from participating in study. Intervention group = 145 Control group = 145	Women enrolled in the study participated in PSU's evaluation and the independent evaluation. Intervention group = 145 Control group = 145
Primary outcome measures	Two-point increase on eating competence score.	Increase in average daily consumption of fruits and vegetables by 0.44 cups.
Data collection	Pre- and post-intervention surveys administered via Internet by SRC. To control for starting point bias, half of the respondents answered the PSU questions first and half of the respondents answered the FNS questions first.	Pre- and post-intervention surveys administered via Internet by SRC. Nonrespondents to Internet post-survey were mailed hardcopy of FNS questionnaire and subsequently contacted by phone if completed mail survey was not received.
Impact estimate	Pre- and post-test change between intervention and control group.	Pre- and post-test change between intervention and control group.
Data analysis	Compared About Eating intervention group with Click 'n Go control group using independent t-tests, one-way ANOVA, and Chi square depending on variable type. General linear model univariate analyses were conducted for selected outcome measures. Compared characteristics of intervention completers and noncompleters.	Estimated program impact via linear regression using adjusted endpoint models that included preference scores as a proxy for fruit and vegetable intake at baseline and demographic covariates. Estimated two types of impact models: (1) all study participants and (2) analysis of treated models, excluding individuals who did not complete all the About Eating lessons. Conducted attrition analysis to investigate potential impact of attrition on generalizability of results.

Table IV-4.— Results of PSU Self-Evaluation: EFNEP Food Management Behavior Outcome Measures^a

Behavior ^b	Intervention Group Means (SD)				Control Group Means (SD)			
	Pre-survey	Post-survey	<i>t</i>	<i>p</i>	Pre-survey	Post-survey	<i>t</i>	<i>p</i>
Run out of food before the end of the month	2.73 (1.2)	2.40 (1.2)	3.6	<0.001	2.65 (1.3)	2.54 (1.3)	NP	NS
Use Nutrition Facts label to make food choices	3.08 (1.1)	3.27 (1.2)	2.5	0.013	3.05 (1.1)	3.14 (1.1)	NP	NS
Use a written spending plan or budget for food	2.67 (1.4)	2.94 (1.3)	2.97	0.008	2.78 (1.4)	2.98 (1.4)	NP	NS
Keep track of expenses for food-related purchases	2.79 (1.3)	2.93 (1.3)	NP	NS	2.86 (1.3)	3.10 (1.3)	2.19	0.03
Confident about managing money to make healthy food available to you	3.06 (1.2)	3.33 (1.1)	2.0	0.004	3.12 (1.1)	3.23 (1.2)	NP	NS
Plan meals to include all food groups	3.24 (1.0)	3.42 (1.0)	3.21	0.002	3.21 (0.9)	3.36 (0.9)	2.15	0.03
Make recipe from scratch that comes out right	3.68 (1.1)	3.85 (1.0)	2.0	0.047	3.59 (1.1)	3.66 (1.1)	NP	NS
When deciding what to eat think about healthy food choices	3.60 (0.9)	3.64 (1.1)	NP	NS	3.59 (1.0)	3.73 (1.0)	NP	NS
Eat out (including fast food restaurants)	2.75 (0.7)	2.68 (0.8)	NP	NS	2.68 (0.8)	2.59 (0.7)	NP	NS
Compare prices to save money	4.05 (0.9)	4.12 (0.8)	NP	NS	4.04 (0.9)	3.86 (1.1)	2.5	0.014

^a Pre/post behaviors were compared using paired t-tests within study group.

^b Frequency scores range from 1 (Do not do this behavior) to 5 (Almost always do this behavior).

Notes: NP = not provided; NS = not significant.

Source: PSU Evaluation Report, 2011

Table IV-5 presents the pre- and post-study comparisons for eating competence and the subscales. For the About Eating group, the difference between the pre and post values was not statistically significant. Likewise, the change between the About Eating and Click ‘n Go groups was not statistically significant, suggesting that the About Eating program did not affect eating competence.

Table IV-5.— Results of PSU Self-Evaluation: Eating Competence Outcome Measures^a

Measure	Intervention Group			Control Group		
	Pre-survey	Post-survey	Difference	Pre-survey	Post-survey	Difference
<i>ecSI/LI</i>	29.3 ± 8.2 <i>n</i> = 149	28.5 ± 9.0 <i>n</i> = 147	-0.6 ± 7.3 <i>n</i> = 142	28.8 ± 8.2 <i>n</i> = 141	28.4 ± 9.3 <i>n</i> = 143	0.1 ± 6.2 <i>n</i> = 136
Median	30.0	28.0	-1.0	29.0	28.0	0.0
Range	7 to 48	7 to 48	-21 to 30	0 to 48	5 to 48	-17 to 18
Subscales						
Attitude	10.4 ± 2.9 <i>n</i> = 151	9.8 ± 3.0 <i>n</i> = 149	-0.6 ± 2.7 <i>n</i> = 146	10.2 ± 3.1 <i>n</i> = 146	9.8 ± 3.3 <i>n</i> = 146	-0.3 ± 2.7 <i>n</i> = 146
Context skills	8.4 ± 3.4 <i>n</i> = 152	8.6 ± 3.5 <i>n</i> = 154	0.1 ± 3.1 <i>n</i> = 152	8.4 ± 3.4 <i>n</i> = 145	8.6 ± 3.6 <i>n</i> = 145	0.3 ± 2.4 <i>n</i> = 145
Internal regulation	5.9 ± 2.1 <i>n</i> = 154	5.7 ± 2.2 <i>n</i> = 153	-0.2 ± 1.9 <i>n</i> = 153	5.9 ± 2.2 <i>n</i> = 147	5.6 ± 2.3 <i>n</i> = 148	-0.3 ± 1.9 <i>n</i> = 147
Food acceptance	4.4 ± 2.2 <i>n</i> = 152	4.6 ± 2.3 <i>n</i> = 153	0.1 ± 2.0 <i>n</i> = 151	4.1 ± 2.1 <i>n</i> = 146	4.3 ± 2.2 <i>n</i> = 144	0.2 ± 1.8 <i>n</i> = 142
Eating competent						
Yes	62 (41.6%)	47 (32.0%)	NA	50 (35.5%)	51 (35.7%)	NA
No	87 (58.4%)	100 (68.0%)	NA	91 (64.5%)	92 (64.3%)	NA

^a Pre, post, or change in ecSI/LI or subscale scores was not significantly different between About Eating and Click ‘n Go groups.

Notes: NA = not applicable.

Source: PSU Evaluation Report, 2011

PSU conducted analyses to assess the impact of the About Eating program on participants’ food security.¹⁹ When food security was included in the impact models, a significant impact of About Eating was observed on “Running out of food for the end of the month,” (*p* = 0.044). In addition, food security showed a significant interaction so that in the intervention group, those who were food secure (but not the food insecure) had a significant increase in managing money to make healthy food available; in the control group both food secure and food insecure had small increases. PSU also reported that several trends were observed indicating that food security status was important in describing the impact of the About Eating program (PSU, 2011).

Based on the results of the PSU self-evaluation and the independent evaluation, one cannot conclude that the About Eating program had the anticipated impact on eating competence or consumption of fruits and

¹⁹ PSU used the following question to collect information on participants’ food security status: “How often do you run out of food before the end of the month?” The response options were seldom, sometimes, most of the time, and always.

vegetables. It has been suggested that individuals with higher levels of eating competence have higher-quality diets, including a higher intake of fruits and vegetables. Because the About Eating program did not improve eating competence or consumption of fruits and vegetables, the hypothesis for a relationship between the two measures could not be tested in this study.

E. Lessons Learned

This section summarizes the facilitators and challenges related to implementing an evaluation of the About Eating program as identified by the key informants, describes the PSU project manager's plans to disseminate and use the results of the evaluation, discusses the effect of this experience on PSU's plans for future evaluations of the About Eating program, and provides suggestions for improving future evaluation studies.

1. Facilitators and Challenges to Implementation of Evaluation as Planned

As with any innovative or newly developed project, there can be unexpected changes to the original plan, including the evaluation plan. Program managers do their best to design an evaluation plan that will accurately measure program outcomes, but ultimately there are events that can be seen as facilitators and challenges to implementation of the evaluation as planned. The following section describes the facilitators and challenges to the implementation of the PSU's self-evaluation.

a. Facilitators

▲ Program manager's experience in evaluation

The About Eating program manager has extensive experience in evaluation design and implementation. She has the experience to plan and execute the type of evaluation plan required for this demonstration project. Her work as a SNAP-Ed coordinator at the State level for many years has provided her with nutrition education intervention experience with SNAP-eligible audiences. These experiences provide technical expertise in evaluation and understanding of low-income audiences, which enable her to conduct a study of this nature. Additionally, the PSU SRC provided the experience in data collection and survey data management needed to collect the pre- and post-survey data for the evaluation.

▲ On-campus resources assisted with the design, implementation, and evaluation of the project

On-campus resources, such as the SRC, were available to partner with the program manager to design and implement the evaluation component of this program. Using SRC enabled the About Eating program to conduct an in-depth assessment of the program's reach and dosage (including the numbers of lessons participants engaged in, activities they used in each lesson, and the number of minutes spent on each lesson), as well as data on outcome measures at pre- and post-intervention. The university setting has numerous resources available to researchers, and provides the types of opportunities to which other organizations and agencies may not have access. Although the on-campus partner charges for its services, it is still a unit within the university and is considered an internal partner rather than an outside consultant. Benefits of an internal partner include a common mission, limited financial red tape, and a better understanding of the services provided by this partner.

b. Challenges

▲ Web site used for control group

The PSU program manager stated that using the USDA Click ‘n Go Web site²⁰ for control participants may not have been the best choice as an alternative Web site. This USDA SNAP-Ed Connections Web site includes the following topic areas: Eat Healthy Every Day, Be Physically Active Every Day, Balance Your Lifestyle, Manage Your Food Resources Wisely, and Keep Your Food Safe. These topics are closely aligned with the About Eating program, although eating competence is not a core focus. For this reason, it may have been difficult to demonstrate the impact of the About Eating program when the control group also received a nutrition education intervention.

▲ Use of SRC presented challenges in quality and fidelity

In interviews with the program manager, she noted that SRC staff availability and responsiveness presented some challenges, especially regarding database quality and fidelity. The interviews with SRC staff indicated that SRC experienced staffing changes during the time period of the study. Specifically, the assistant director’s position was eliminated; another administrative staff member left, and a new staff member was assigned to the About Eating project. The SRC director stated that they had misjudged the magnitude of the project and that the contract amount was lower than it should have been for this project. In the end, SRC staff spent many more hours than originally anticipated in the planning, implementation, and reporting of project data.

Interviews with three State-level About Eating administrators and three SRC administrators indicate that there was limited oversight of the SRC activities. As suggested in the opportunities for improvement in Chapter II, more frequent meetings between the program manager and the SRC staff could have prevented issues such as problems with randomizing participants to the control and intervention groups and errors in assigning participants to the physical activity five-lesson group versus 4 +1 group who received the post-survey before they completed the physical activity lesson—both of which are described below.

▲ The randomization formula for assigning participants to the control and intervention groups did not appear to function properly

Also, despite random assignment to the intervention and control groups (1:1 ratio, 50 percent assigned to the intervention group, and 50 percent to the control group) there were initially more cases assigned to the control group than the intervention group, an anomaly that was not adequately explained by SRC. As a result of questions posed to the program manager by the independent evaluator, the program manager questioned SRC about the randomization ratio, and the randomization ratio was changed to increase the probability of cases being assigned to the intervention group.

▲ SRC software limited some types of process data that could have been collected

Process data describing participant habits related to use of the Web site, such as the number of times files were downloaded from the lessons, were not collected. The program manager stated that these data were not collected because of SRC software limitations. These process data would have informed the About Eating program of how many times participants downloaded files, problems that participants had in getting into files, and similar types of logistical issues.

²⁰ USDA Click ‘n Go Web site:

http://snap.nal.usda.gov/nal_display/index.php?info_center=15&tax_level=2&tax_subject=261&topic_id=1243

▲ **The FNS independent evaluation plan overlapped with PSU plans for interviews with About Eating participants**

Although the evaluation design remained essentially the same as PSU had planned, the program manager stated that she did not conduct any in-depth interviews with participants because the FNS independent evaluation design included these interviews. PSU did not want to increase burden or cause confusion for the participants, and made the decision to eliminate this component of its evaluation plan. Although the program manager received some informal input from participants, the demonstration project did not collect its own formal participant interview data.

2. Intended Use of Evaluation Results

At the time of report submission, the PSU About Eating program manager planned to disseminate her findings in a variety of ways, including publishing a manuscript on the impact of the intervention in peer-reviewed professional journals such as the *Journal of Nutrition Education and Behavior* or the *Journal of the American Dietetic Association* and completing another manuscript on cognitive dietary behaviors of low-income women for submission to a journal such as *Appetite* or other health care journals targeting low-income and underserved populations. In addition, the program manager is considering a manuscript focusing on attitudes and practices of low-income women toward physical activity. Presentations are planned both internally at PSU and externally at professional conferences. The program manager also hopes to offer the USDA SNAP-Ed Connection a link to the About Eating Web site in the future if the outcomes warrant this.

3. Suggestions for Improving Evaluations

A well-designed impact evaluation accomplishes several tasks that permit the investigator to draw a reasonable and supportable conclusion about the effect of the program and the likelihood that any changes observed in the sample participants would be replicable in the broader target population. No single design can address every potential concern; however, some approaches are commonly viewed as preferable. Most aspects of PSU's evaluation were appropriate and technically correct, and their evaluation was implemented properly. Several areas were identified that could benefit from improvement.

- ▲ **Recruitment and retention challenges led to an underpowered study.** Recruiting and retaining participants for an online intervention of low-income individuals is challenging. For future evaluation studies, PSU may want to consider that participant dropout rate can be particularly high with an online intervention and over-recruit study participants to meet sample size needs for impact analyses.
- ▲ **The high attrition rate—close to 50 percent—limits the generalizability of the study findings.** The attrition analysis conducted by the independent evaluator found that individuals ages 18 to 24 were less likely to complete the follow-up survey than individuals ages 35 to 45. Suggested approaches for addressing the high attrition rate were previously discussed, and include increasing participants' access to the Internet and allowing additional time to complete the lessons.
- ▲ **Subcontracting with SRC to deliver the online intervention and administer the pre- and post-surveys presented challenges in quality and fidelity of the data collection.** Although some of these challenges could not have been anticipated, such as the changes in staff at SRC during the study period, PSU can take steps to ensure better quality control for future evaluation studies. For example, in future collaborations with SRC it is suggested that PSU prepare a detailed statement of work that specifies quality control procedures to be followed by SRC throughout the study and that they conduct weekly meetings with SRC so that problems can be identified early and appropriately addressed.

Pennsylvania State University's (PSU) About Eating demonstration project targeted SNAP participants and SNAP-eligible women, ages 18–45, living in one of the 34 counties not served by SNAP-Ed or one of the 6 counties with service consisting only of county assistance office activities conducted by the Pennsylvania Nutrition Education Network. Participants from 39 counties were included in the impact and process evaluations. A total of 1,010 individuals were recruited through a variety of venues, agencies, and organizations, and 576 (57 percent) met the eligibility criteria for participation in the demonstration project. Of the 500 women who enrolled in the program, 282 were assigned to the intervention group and directed to the About Eating Web-based program, which consists of four lessons on eating competency and one on physical activity. Control group participants (n=218) were directed to the U.S. Department of Agriculture's (USDA) Click 'n Go Web site. This final chapter presents a summary and discussion of the key findings as well as recommendations for program and self-evaluation improvement.

A. Key Process Evaluation Findings: Factors Supporting Implementation

The complexity of implementing an online intervention required a significant amount of planning and testing, both of messages and technology. Key informants interviewed for this study identified the following factors that facilitated the implementation of the intervention.

- **Relevance of nutrition education content.** The About Eating designers and implementers strongly believe that their knowledge and experience with the target audience allowed them to design a nutrition education program that was well received by the target audience. Participants' high degree of satisfaction with the nutrition education messages and content of the program suggest that the About Eating team did have a good understanding of their target audiences' interests and needs. Overall, program completers found the information provided through About Eating to be factual and interesting and the amount of time it took to complete each lesson was reasonable and appropriate. Additionally, four of the top six reasons completers reportedly enrolled in the About Eating program were related to their health and wellness, which indicates that the program's subject matter was of great interest to the target audience.
- **Program was accessible and easy to use for most participants.** The About Eating program manager noted that, through formative research and pilot testing, her team was able to organize content, craft language, and otherwise design the Web site so that it was accessible to a low-income audience. Feedback from participants on the program's ease of use supports the About Eating team's assertions about the accessibility of the program to this population. The majority of participants who completed the About Eating program found the program to be easy to use and were able to access and navigate the Web site as well as read and understand the information provided. Of the women who enrolled in the program and engaged in at least one lesson, more than three-quarters completed all five lessons of the program. At the same time, it is important to recognize that many of those recruited never enrolled in the program and 45 percent of those who enrolled never returned to the About Eating Web site to engage in any of the lessons.
- **Strong planning processes were in place.** The About Eating program staff developed and employed well-defined plans for recruitment, retention, and logistics of conducting the Web-based program. Though some adjustments were required during the study period (e.g., increased intensity of recruitment efforts), these plans served as a roadmap for the study and allowed the

PSU team to stay on course, meet recruitment goals, and successfully carry out the recruitment and implementation of the program.

B. Key Process Evaluation Findings: Challenges to Implementation

This project faced some significant challenges as it was implemented. The complexity of implementing an online intervention required significant planning and testing of both messaging and technology. Some of the key challenges faced by PSU were:

- **Participant retention.** About 45 percent of program enrollees did not complete all five About Eating lessons. The post-survey and in-depth interviews with noncompleters revealed that competing priorities, limited access to the Internet or a computer, and lower levels of satisfaction with various aspects of the program may have affected participant retention rates.
- **Limitations in capacity and oversight of the Survey Research Center (SRC).** The About Eating program manager described several challenges related to working with the SRC during the study period, including limited SRC staff availability and responsiveness and erroneous processes that were employed by the SRC. SRC staff indicated that staff turnover during the study period as well as their underestimate of the project scope did pose some challenges on their end. Both stakeholder groups acknowledged that the About Eating team had limited oversight of the SRC activities, which, if enhanced, might have prevented some of the quality and fidelity related issues.
- **Intensity of efforts required to recruit SNAP participants and SNAP-eligible populations.** Although the original recruitment strategy the About Eating team developed was well designed, it proved to be less effective than planned and required midstream corrections. In interviews with the About Eating program manager and the project coordinator, they said that in their experience, barriers to recruitment include lack of time, interest in nutrition courses, and access to the Internet. Additionally, the low-income programs and venues the About Eating staff worked with had different levels of commitments to distributing information about this program.

C. Key Impact Evaluation Findings

Based on the results of the impact analysis, the About Eating program did not have the anticipated impact on participants' daily consumption of fruits and vegetables or on the secondary outcomes of snacking, variety, preference, and availability. Likewise, the About Eating program did not have the anticipated impact on consumption, at-home availability, and preferences for 1% or nonfat milk and preference for whole-wheat bread. These findings hold true for all evaluation study participants and for the analysis that was limited to individuals who completed all the About Eating lessons (i.e., analysis of the treated).

The lack of statistically significant findings suggests that the About Eating program was not effective at increasing daily consumption of fruits and vegetables among low-income women in Pennsylvania. As previously discussed, program attrition was relatively high; however, analyses limited to individuals who completed all the About Eating lessons revealed similar results.

D. Key Findings from the Assessment of PSU's Self-Evaluation

The independent evaluators conducted an assessment of the quality of PSU's self-evaluation and compared the methods and results of PSU's self-evaluation with those of the independent evaluation.

- **Improvements could enhance rigor of self-evaluation.** With regard to rigor, PSU's self-evaluation demonstrated most of the characteristics of a rigorous evaluation but could benefit from some improvements. The study was underpowered because of recruiting and retention challenges; the high attrition rate limited the generalizability of the study findings; and subcontracting with SRC presented challenges in quality and fidelity of the data collection.
- **Unable to test the relationship between eating competence and fruit and vegetable consumption.** It has been suggested that individuals with higher levels of eating competence have higher-quality diets, including a higher intake of fruits and vegetables. The results of the PSU self-evaluation and the independent evaluation of About Eating showed no impact on either eating competence or consumption of fruits and vegetables, thus the relationship between the two measures could not be tested in this study.

E. Recommendations

The About Eating program presented a unique opportunity to examine an online intervention directed at SNAP participants and eligibles. The complexity of developing, testing, and implementing such an intervention is significant. However, it is likely that other States will want to implement online systems in the future, so it is important that the findings from the process and impact evaluation be considered when attempting to replicate this kind of nutrition education intervention.

Based on the findings from the independent evaluation, the About Eating program did not result in a measurable increase in daily consumption of fruits and vegetables. This may be due to limitations of the evaluation or program implementation. Despite the lack of change observed for primary outcomes, participants who completed the About Eating program found the Web application to be accessible and easy to use and the content to be factual and interesting. About Eating planners and implementers reported that it was their level of knowledge and understanding of the target audience that allowed them to develop an appropriate and engaging program. Additionally, the About Eating team reported having a strong recruitment and implementation plan in place, which allowed them to stay on course throughout the study period. Several partners proved to be critical to their success in terms of recruitment.

Several challenges related to recruitment, retention, and processes handled by the SRC were identified by both the About Eating team and this evaluation, indicating that there is room for improvement. Some of these opportunities for improvement as well as recommendations for improving the About Eating self-evaluation are noted below.

1. Key areas for program improvement

Input from program staff and participants suggest revisions are needed to make this Web-based intervention reach more SNAP participants and SNAP-eligibles, motivate participants to stay engaged, and facilitate behavior change. As this program is refined and this program and other on-line nutrition education programming is considered by SNAP-Ed implementing agencies, the following actions should be considered for program improvement.

- **Enhance recruitment into the program.** The program could more fully utilize venues that provide access to computers and the Internet, such as libraries or job training programs, as well as partner organizations that exhibited a greater level of commitment during the study period (e.g., county assistance offices). These types of venues are also beneficial because they have staff onsite who could encourage participation for both recruitment and retention purposes. Relationships with organizations that were not as engaged in the recruitment process but offer a rich source of potentially eligible participants, such as the Pennsylvania Department of Public Welfare (which administers SNAP and job training programs), should be fostered to increase their buy-in and commitment to assisting with recruitment efforts.
- **Increase flexibility in amount of time available for each lesson.** About Eating program implementers suggest that increased time with each lesson—that is, allowing participants to go back to a lesson they have already viewed to spend more time with it—would allow participants more time to make related behavior changes. They noted that these limits were only in place for purposes of the demonstration project evaluation. Removing these limits, coupled with efforts to increase exposure to the lessons both in terms of the number of lessons accessed and the amount of time spent on each lesson, perhaps through more timely or increased use of reminder emails and e-cards, could increase the effectiveness of the intervention.
- **Incorporate linkages to community nutrition education programming.** The evaluation results also suggest that PSU should consider building in a new program component that refers About Eating participants to other programs that offer direct education in nutrition and food resource management. This would include the Expanded Food and Nutrition Education Program (EFNEP), SNAP-Ed, and other programs in the community that provide education in the form of group classes, such as Feeding America’s Operation Frontline. Referring participants to these other nutrition education programs could enhance the impacts of the About Eating program on fruit and vegetable consumption by reinforcing the key nutrition concepts in the About Eating lessons. For women with young children, referrals could also be made to the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). However, to ensure consistency with the eating competence model, referrals to other programs should only be provided to those participants who express an interest in additional, related information.

2. Suggestions for improving evaluations

The assessment of PSU’s self-evaluation identified several areas that could benefit from improvement. First, recruitment challenges discussed in both the process evaluation findings and assessment of the PSU evaluation made the study somewhat underpowered. For future evaluation studies, PSU may want to overrecruit study participants to ensure an adequate sample size for the impact analysis. The high attrition rate limits the generalizability of the study findings; however suggested approaches for addressing the high attrition rate have been identified. Finally, subcontracting with SRC to deliver the online intervention and administer the pre- and post-surveys presented some challenges in quality and fidelity of the data collection. Proactively establishing quality control procedures and increased communication may help address some of these concerns.