eLearning and Nutrition Education for Lower-Income Audiences

Society for Nutrition Education and Behavior Conference

July 23, 2017

Lauren Au, PhD, RD
Lorelei Jones, M.Ed
Barbara Lohse, PhD, RD, CDN
Jessica Silldorff, MPH
Sarah Stotz, PhD, RD, CDE
Program Overview

1. Development of eLearning Nutrition Education Programs
2. Implementation of eLearning Nutrition Education Programs
3. Evaluation of eLearning Nutrition Education Programs
4. Questions and Answers
Development of eLearning Nutrition Education Programs
Development of Online Nutrition Education Program for EFNEP Audience

Lorelei Jones
EFNEP Coordinator
North Carolina State University
5 Tips to eLearning Development Success

1. Know your audience
2. Be aware of the costs
3. Not all LMS are created equal
4. Identify data that will need to be collected
5. Technicians do not know nutrition – devote enough time to refine apps, games, etc.
Planning

- Face to Face

- Federal Policy

- NEW Technology Policy

- Proven Curriculum

- Participants

- Minimal time requirement
- Adult Learning and eLearning theory
- Include hands-on engagement

- Simulate in-class experience
- Data usage
- Ease

- Impacts greater or equal to face to face
Engagement Strategies

Client Enrollment
Face-to-Face
(Complete entry paperwork, data about how referred to EFNEP)

Client Graduation
Face-to-Face
(Complete graduation paperwork and submit qualitative story)

In-person lessons

Recruitment using social media

Intentional Online Lessons - Blended Lessons or example inserts

Make-up online lessons

Program Highlights and Referrals using social media or web

Legend:
Green - Standard Programming
Blue - Potential technology additions
Yellow - Research foundation

Note: Technology does not replace standard programming; rather it complements it.

Strengthening the Evidence and Determining Best Practices through Research
Work Group

- 6 States - NH, VA, PA, NE, KS, NC
- Technology Committee Members

Research

- Lit review
- Platforms

Strategy

- Single Lesson
- Feasibility Study
Development Process

• Curriculum elements that produce positive participant response
  • Videos
  • Conversational
• Smooth transition between face-to-face and online lessons
• Food and Physical Activity engagement included
• Behavior change/practice of learning encouraged
Begin Pilot Creation Process

Create All Content

Rough Edit Content

Put Rough Edit Content into Learning Platform

Select Learning Platform that Allows Easiest Validation of Online Lessons

Make Edits and Platform Decisions Based on Feedback from Participating States

January 2017

Feb/March 2017

April 2017

April/May 2017

Summer 2017

Video (LB, PLB, Location, B-Roll, etc.)

Graphics (NCSU Graphics)
Tip 1

SAMPLE BUDGET
$1500 → SNAP
$300 → Cash
$800 → Total

Shopping List:
- Lettuce

Menu:
- Spaghetti with meat sauce
- Simple Grilled Salads
- Baked Apples
- Low-Fat Milk
Knowledge Vision
Digital Chalk
Feasibility Testing

Participant attends current seated class
- Seated classes are recruited for study
- Identification system for study participants that separates data by state – Unique state login and WebNEERS identification number for participants

Participant asked to participate in online study and provided login information for online lesson
- Participants complete the “Plan: Know What’s for Dinner” lesson and are asked to participate in online lesson following this pre-requisite
- EFNEP Educator provides instructions and link for online lesson to participant by email.
- EFNEP educators will collect and report number of participants who chose to participate and those who do NOT to participate.

Participant completes online lesson
- Branding by University
- Paraprofessional notified that participant has started lesson
- Knowledge check statistics
- Paraprofessional notified that participant has completed lesson
- Participant receives certificate of completion
- Time on task data

Post-lesson participant survey and evaluation
- Participants are asked to complete survey regarding their experience using online lesson.
- EFNEP evaluation data for online participants compared to traditional participants
- Results used to inform revision of pilot lesson and continuation of lesson translation
Development and Formative Evaluation of an eLearning Nutrition Education Program for SNAP-Ed Eligible Adults

Sarah Stotz, PhD, RD, CDE, LD,
Jung Sun Lee, PhD, RDN,
and for the University of Georgia SNAP-Ed Program

Department of Foods and Nutrition
University of Georgia
July 23, 2017

Funding: USDA SNAP-Ed and RNECE South Innovation Sub-Award
University of Georgia SNAP-Ed eLearning Nutrition Education Program: *Food eTalk*

- Develop evidence-based smartphone-accessible nutrition education classes tailored to the unique needs of SNAP-Ed eligible Georgian adults
- Serve an increasingly tech savvy audience
University of Georgia SNAP-Ed: 

**Food eTalk**

- **Audience:** SNAP-Ed eligible adult Georgians
- **Content** based on validated nutrition education curriculum in Georgia\(^1\) (*Food Talk*, EFNEP)
- **DASH diet, Health Belief Model, eLearning theory,** adult learning theory
- **Interactive,** short lessons, user-friendly interface, mobile-first design, augmenting videos\(^2\)
- **Southern influence**

---


Food eTalk Development: Iterative Design Approach

- Curriculum Development
- Instructional Design & Videography
- Technical Support
- Evaluation
Food eTalk Development:
Key Personnel and Resources Needed

- **Curriculum Development**
  - eLearning authoring tool
  - Videography equipment
  - Video editing software
  - Video storage space

- **Instructional Design & Videography**
  - eLearning designer
  - Programmer
  - Videographer
  - Photographer
  - Graphic artist/logo artist
  - Voiceover actor
  - Actor (on-screen)

- **Technical Support**
  - Website
    - Domain Name
    - Server Space
    - Website
    - Maintenance Plan
  - Learning Management System
  - eLearning design maintenance plan
  - Web developer
  - Hosting website or Learning management system (LMS) expert
  - Hosting server staff

- **Evaluation**
  - Equipment: Mobile devices (smartphone and/or tablet)
  - Data plan for devices
  - Incentive for participants
  - Travel
  - Data analysis software (e.g., Atlassi, SAS, etc)
  - Assessment Tools
  - Data Collection Systems

- **Evaluation experts**
  - Formative evaluation staff
  - Process and outcome evaluation staff
# Food eTalk Development: Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>Dietitian, eLearning designer, website developer, video production team</td>
<td>$106,000</td>
</tr>
<tr>
<td>Equipment</td>
<td>eLearning authoring program, website domain, video production equipment, video storage equipment, learning management system subscription</td>
<td>$9,576</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Smartphones, tablets, cases, data plans, incentive gift cards</td>
<td>$12,400</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$127,976</td>
</tr>
</tbody>
</table>
Food eTalk Development: Funding

- Expensive, non-traditional budget items
- Justification to funder for unique resources and personnel
- Sources:
  - USDA SNAP-Ed
  - RNECE-South Innovation Sub-Award
  - Georgia Nutrition Council
Food eTalk Demonstration
# Food eTalk Development: Timeline

<table>
<thead>
<tr>
<th>Task</th>
<th>Time</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum development</td>
<td>~ 1 month</td>
<td>Adapted from Food Talk</td>
</tr>
<tr>
<td>Hire project team</td>
<td>~ 2 years</td>
<td>Funding delays stymied hiring process</td>
</tr>
<tr>
<td>eLearning program development</td>
<td>~1.5 years</td>
<td>Iterative process</td>
</tr>
<tr>
<td>Prototype testing</td>
<td>~ 3 months</td>
<td>Collaboration with UGA Cooperative Extension</td>
</tr>
<tr>
<td>Revisions</td>
<td>~ 4 months</td>
<td>Based on prototype testing</td>
</tr>
<tr>
<td>Integration of eLearning program, website, LMS</td>
<td>~ 6 months</td>
<td>Crucial step not met for formative evaluation</td>
</tr>
<tr>
<td>Internal testing</td>
<td>~ 2 months</td>
<td>Graduate student support</td>
</tr>
<tr>
<td>Launch/maintenance</td>
<td>ongoing</td>
<td>Tech support staff</td>
</tr>
</tbody>
</table>
Food eTalk Development: Formative Evaluation

Mixed-methods formative evaluation to explore adult SNAP-Ed eligible Georgians’ experience of an eLearning nutrition education program.  

Food eTalk Development: Formative Evaluation Key Findings

- Traditional smartphone use to inform eLearning format
  - Short bouts of use
  - Specific learning topics
  - Video-based, entertaining

- Motivation and barriers
  - Voluntary nature of SNAP-Ed
  - Special consideration for relevant content to increase motivation to engage
  - Consider external incentives
  - Unique approaches to address barriers to healthful eating
5 Tips to eLearning Nutrition Education Development

1. Know your audience
2. Be aware of the costs
3. Development takes longer than you expect
4. Identify data that will need to be collected; not all LMS are created equal
5. Information tech experts do not know nutrition
Implementation of eLearning Nutrition Education Programs
eLearn Implementation and Working with Partners

Jessica Silldorff, MPH
Leah’s Pantry
July 23, 2017
Tips for Working with Developers

1. Provide a lot of detailed direction about what you want – look, feel, user flow, appropriateness of photos/imagery, voice talent, etc.

2. Maintain open communication with frequent check-ins (at least 1x/week)

3. Work iteratively, test often

4. Expect tasks to take longer than estimated

5. Prioritize tasks/features
EatFresh.org Mini Course
5-10 minute online SNAP-Ed lessons

• **Direct Education**: self-paced online course
• English & Spanish
• Mobile-friendly
• 15 total topics
• Pre/post questionnaires: confidence, intent to change
Users help characters overcome challenges in making healthy choices
Quick activities reinforce lessons learned in each topic.
Bright Spots

• Use as pre-training tool to quickly ramp up staff
  - Able to dig deeper during an in-person training

• Provide technical assistance and presentations to partners
  – Webinars, calls, trainings, demo videos, guides/lesson plans

• Develop supportive resources for use in different settings
  – Ex: 60- and 90-minute lesson plans for computer labs
• Include EatFresh.org Mini Course in county work plans
  - Ex: “Activity 3.1: Use existing and developing technology to reach 200 SNAP participants in Year 1. Messages will encourage participants to learn more at EatFresh.org and take the EatFresh.org Mini Course.”

• Top-down approach
  - Ex: UC CalFresh, Catholic Charities of California, WIC (pending), Department of Aging and Adult Services training contract
Challenges

- Voluntary, preventive intervention
- Computer skills barriers
- Low return rate
  - Incentives help!
- Lack of partner promotion follow-through
  - Stages of Change issue for both partners and our users
Partner with Us!

Contact us if you are interested in using the EatFresh.org Mini Course in your program or for a research project.

We would love to work with you!
Evaluation of eLearning Nutrition Education Programs
Two Randomized Trials
In-person Group vs. Online

Limit sodium to less than
2300 mg = 1 teaspoon
each day
Measurements

Knowledge

Attitudes

Behaviors

Satisfaction
Timeline

- Recruitment & random assignment
- Nutrition education
- 2-4 month follow-up
- 9 month follow-up
Knowledge Increases
Main source of salt is processed foods

- Baseline
- Post-test
- 2-4-mo follow-up
- 9-mo follow-up

Percent Correct

ONLINE*
IN-PERSON*

* indicates significant difference
Knowledge Increases
Amount of sodium recommended

Baseline Post-test 2-4-mo follow-up 9-mo follow-up
Percent Correct

ONLINE

IN-PERSON
Behavior Changes

Read nutrition label

Score: 1 = never   2 = once in a while   3 = sometimes   4 = often   5 = always
Behavior Changes
Ate salty foods (from list of 11 foods)

Days per week

Baseline  2-4 mo follow-up  9 mo follow-up

IN-PERSON*

ONLINE*
SATISFACTION
Satisfaction High with Both In-Person & Online Education

- **Satisfied**
  - In-person: 89%
  - Online: 95%

- **Shared info**
  - In-person: 85%
  - Online: 81%
Preference for Online Increased with Exposure Especially For Spanish Speakers

**IN-PERSON Group**

- Prefer In-person: 37% (English), 67% (Spanish)
- Prefer Online: 63% (English), 33% (Spanish)

**ONLINE Group**

- Prefer In-person: 3% (English), 4% (Spanish)
- Prefer Online: 97% (English), 97% (Spanish)
Online Training Video Helpful

• Reduced issues with logging in or finishing class (from 34% to 15%)
• Majority (88%) reported the video was very helpful
Take Home Message

• In-person and online nutrition education are effective:
  • Reducing sodium intake

• Multiple modalities of nutrition education useful in WIC
  • About half said would prefer combination of in-person and online
Acknowledgments

• Lorrene Ritchie, PhD, RD
• Shannon Whaley, PhD
• Martha Meza
• Klara Gurzo, MA


Contact: Lauren Au, PhD, RD (leau@ucanr.edu)

Funding from the USDA Center for WIC Nutrition Education Innovations at the Baylor College of Medicine; PI Karen Cullen.
Transitioning *About Eating*, An Effective Online Program, to a Worksite Wellness Option

Barbara Lohse, PhD, RD, CDN  
balihst@rit.edu
About Eating is unique

- The 6 modules can be completed in any order;
- Within each module, learners can make selections, then revise their decisions before the end of the module;
- Little pressure to engage in module components that don’t interest learners;
- Learners can return to lessons as many times as they want.
Evaluation

- Pre and post program
- Includes EARS items
- Post module evaluation

- Unique surveys available
- Tracking by email address
  [and unique site code]
Congratulations on completing About My Size.

We are interested in what you liked, what you didn't like, your ideas for changes and any other comments. Your responses below will help us know your thoughts about the lesson. Please choose the best answer that reflects how you think or feel by clicking on the circle. When finished, you will be shown the About Eating Program start page. There you can choose another lesson or revisit a lesson you previously completed.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes, definitely</th>
<th>Yes, sometimes</th>
<th>No, not very much</th>
<th>No, not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lesson was difficult to read.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Getting around the website was difficult.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This lesson was interesting.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This lesson was useful for me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I liked the pictures.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Overall, the length of the lesson was good.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I liked the overall design and/or color.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Compared Online to Online
Tenets of the Satter Model of Eating Competence

“...intra-individual approach to food selection and eating behaviors focused on enjoyment, attention to internal regulation of intake, food acceptance, and food resource management skills. . .”

- Build relationships—don’t criticize; help learners have self-efficacy
- Dignify eating “bless eating”
- Emphasize providing, not depriving
- Trust people to learn and grow
- Identify and discard restrained eating
- Stress family meals
- Join learners where they are
- Teach meal planning

JNEB 2007;39:S189-S194

PRINCIPLES OF ADULT LEARNING

- Self-directed; self-learning
- Draws on accumulated life experiences when learning
- Learning readiness may be time or role change specific
- Intrinsically motivated
- Problem-centered; application immediately

EDUCATORS HELP ADULTS LEARN BY

Explaining reasons for what is being taught
Focus on tasks rather than content to memorize
Address real life problems
<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>About Eating (n=155)</th>
<th></th>
<th></th>
<th>Comparison (n=148)</th>
<th></th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run out of food before the end of the month?</td>
<td>Pre Mean (SD)</td>
<td>Post Mean (SD)</td>
<td>P</td>
<td>Pre Mean (SD)</td>
<td>Post Mean (SD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.7 (1.3)</td>
<td>2.4 (1.2)</td>
<td>&lt; 0.001</td>
<td>2.7 (1.3)</td>
<td>2.5 (1.3)</td>
<td>NS</td>
</tr>
<tr>
<td>Use nutrition facts on the food label to make food choices?</td>
<td>3.1 (1.1)</td>
<td>3.3 (1.2)</td>
<td>0.01</td>
<td>3.0 (1.1)</td>
<td>3.1 (1.1)</td>
<td>NS</td>
</tr>
<tr>
<td>Keep track of some or all of your food-related expenses?</td>
<td>2.7 (1.4)</td>
<td>3.0 (1.3)</td>
<td>0.008</td>
<td>2.8 (1.4)</td>
<td>3.0 (1.4)</td>
<td>NS</td>
</tr>
<tr>
<td>Use a written spending plan or budget for food?</td>
<td>2.8 (1.3)</td>
<td>2.9 (1.3)</td>
<td>NS</td>
<td>2.9 (1.3)</td>
<td>3.1 (1.3)</td>
<td>0.03</td>
</tr>
<tr>
<td>Feel confident about managing your money to make healthy food available to you?</td>
<td>3.1 (1.1)</td>
<td>3.3 (1.1)</td>
<td>0.001</td>
<td>3.1 (1.1)</td>
<td>3.2 (1.2)</td>
<td>NS</td>
</tr>
<tr>
<td>Plan meals to include all food groups?</td>
<td>3.2 (1.0)</td>
<td>3.4 (1.0)</td>
<td>0.002</td>
<td>3.2 (0.95)</td>
<td>3.4 (0.9)</td>
<td>0.03</td>
</tr>
<tr>
<td>Make a successful recipe from scratch?</td>
<td>3.7 (1.1)</td>
<td>3.9 (1.0)</td>
<td>NS</td>
<td>3.6 (1.1)</td>
<td>3.7 (1.1)</td>
<td>NS</td>
</tr>
<tr>
<td>Compare prices to save money?</td>
<td>4.1 (0.94)</td>
<td>4.1 (0.84)</td>
<td>NS</td>
<td>4.0 (0.87)</td>
<td>3.9 (1.1)</td>
<td>NS</td>
</tr>
</tbody>
</table>
Confidence managing money for food: $P = 0.002$ (Food Secure), NS (Food Insecure)

Uses a written budget/spending plan: $P = 0.07$ (Food Secure), NS (Food Insecure)

Keeps track of food related purchases: $P = 0.02$ (Food Secure), NS (Food Insecure)
Unique to Worksite Well-being Education

- Demographic and psychographic heterogeneity
- Motivators differ from classroom or healthcare provider use
- Ongoing engagement
- Compatibility with corporate culture
Transform *About Eating* by… listening to worksite experts

- Words, phrases matter: Remove the “Low-income” on home page; what is low dietary control? Internal regulation factors? Remove the phrase, “Don’t go 5 hours w/o eating.”

- Clearly articulate why something in the program matters-don’t assume that because it is there, learners will understand that it is important e.g., Why does pleasure matter? Why does the eating pattern of other countries matter?

- Make sure progress bars make sense; scoring on surveys is understandable.

- If possible, link with other company-sponsored or promoted materials, e.g., websites, apps, social media. Example, shopping list app. . .

- Add a read aloud component

- Interactivity

- Viewers want more videos and animations
Welcome to About My Size!

SIZE ACCEPTANCE is . . .

- To accept the natural diversity in body shape and size.
- To affirm human beauty and worth regardless of weight, physical size, and shape.

Being size accepting can be challenging. Magazine racks spill out headlines to grab your attention.

- "Toning your abs."
- "Look slimmer and trimmer."
- "Sculpt your body."
- "10 quick steps to looking better."
- "Perfect body in 10 days!"

What is the perfect body? Are you more interested in a healthy body or one that looks a certain way? When you look in the mirror, do you like what you see? Or, do you wish you had just a little more muscle here or a little less fat there? Do you think there is an "ideal" body?
<table>
<thead>
<tr>
<th>Newspaper banner</th>
<th>News stand with <strong>man holding</strong> paper with headline How to have the perfect Body.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Then, Headlines tell you how to get the perfect body.</td>
<td>What’s important is how YOU see your body</td>
</tr>
<tr>
<td></td>
<td>Younger thin man picks up paper, thin girl picks up paper, and short woman with larger ears and nose picks up paper</td>
</tr>
<tr>
<td>Planning to Change?</td>
<td>Younger Man standing in front of mirror Image in mirror is a muscled man, boy looks determined</td>
</tr>
<tr>
<td>Seeing something else?</td>
<td>Thin girl in front of mirror but image in mirror is of a larger, “fat” woman. Girl sighs, I am too heavy</td>
</tr>
<tr>
<td>Comfortable in your own skin?</td>
<td>Short, large eared, nosed woman stands in front of mirror; image is tall woman, smaller nose, smaller ears. Woman smiling—show a thumbs up or heart.</td>
</tr>
<tr>
<td>Is there a perfect body?</td>
<td><strong>Show the 3 mirrored images</strong></td>
</tr>
</tbody>
</table>
| Specific issues | Faster writing  
Results of writing should look like a cursive or printed sharpie, not typewritten text  
Rather than place the figures—draw them in with color coming in as they are drawed. |
|----------------|-----------------------------------------------------------------------------------------------------------|
| Newspaper banner | Needs to look more like a newspaper banner, it just looks like a report  
Change banner to: Your perfect body! |
| Open page of newspaper, show this heading in the top of a newspaper column | Continued from Page 1….  
What’s important is how YOU see your body |
| Does what you see . . . | Thin girl in front of mirror but image in mirror is of a larger, “fat” woman. Girl shoulders slump. I am too heavy. |
| . . . differ from what others see? | Younger Man standing in front of mirror  
Image in mirror is a muscled man, boy holds weights in his upstretched hands |
| . . . differ from what you want to see? | Short, large eared, nosed woman stands in front of mirror ; image is tall woman , smaller nose, smaller ears. Woman smiling—show a thumbs up or heart. |
| . . . feel just right? | Show the 3 people (not the mirrored images) |
Welcome to About My Size!

**SIZE ACCEPTANCE** is . . .

- To accept the natural diversity in body shape and size.
- To affirm human beauty and worth regardless of weight, physical size, and shape.

Being size accepting can be challenging. Magazine racks spill out headlines to grab your attention.

- "Tone your abs."
- "Look slimmer and trimmer."
- "Sculpt your body."
- "10 quick steps to looking better."
- "Perfect body in 10 days!"

What is the perfect body? Are you more interested in a healthy body or one that looks a certain way? When you look in the mirror, do you like what you see? Or, do you wish you had just a little more muscle here or a little less fat there? Do you think there is an "ideal" body?
Thank you!

Questions??