Development of an Online Smartphone-Based eLearning Nutrition Education Program for Low-Income Individuals

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ABSTRACT

The objective of this report was to describe the development process of an innovative smartphone–based electronic learning (eLearning) nutrition education program targeted to *Supplemental Nutrition Assistance Program–Education*–eligible individuals, entitled *Food eTalk*. Lessons learned from the *Food eTalk* development process suggest that it is critical to include all key team members from the program's inception using effective inter-team communication systems, understand the unique resources needed, budget ample time for development, and employ an iterative development and evaluation model. These lessons have implications for researchers and funding agencies in developing an innovative evidence-based eLearning nutrition education program to an increasingly technology-savvy, low-income audience.
Key Words: eLearning, nutrition education, low-income, technology, SNAP-Ed (*J Nutr Educ Behav*. 2018;50:90-95.)

INTRODUCTION

Nutrition education involves any combination of educational strategies, accompanied by environmental supports that are designed to facilitate voluntary adoption of food choices and nutrition behaviors conducive to wellness.[1] Literature suggested that nutrition education specific to low-income individuals can improve intake of healthful foods such as fruit and vegetables and increase food resource management skills.[2,3] Electronic learning (eLearning) is the use of electronic educational technology in learning and teaching.[4] Research shows eLearning is an effective way to improve nutrition-related habits such as increasing fruit and vegetable intake and adhering to a diabetes or weight management diet.[2,5,6] Nutrition education through eLearning includes diet trackers, cooking videos, interactive recipes,

the US Department of Agriculture MyPlate campaign,[7] and didactic self-paced slideshows.[5,8,9] To expand on preliminary exploration of eLearning methods in nutrition education among a low-income audience, more rigorous evaluation is needed regarding the use of eLearning nutrition education programs tailored for learners with low-income.

Internet and device access was once considered a barrier for low-income individuals to access the Internet regularly, but inexpensive mobile devices and Wi-Fi in public spaces is alleviating this digital divide.[10] A 2015 report revealed that 74% of low-income Americans used the Internet and 50% of low-income Americans who used the Internet were considered smartphone-dependent and exclusively used smartphones to access the Internet.[10,11] Needs assessment data suggest that Georgians eligible for the

Supplemental Nutrition Assistance Program–Education (SNAP-Ed) have regular and reliable Internet access.[12] It is not always feasible for individuals to attend a face-to-face class, because issues with transportation, child care, and fluctuating work schedules often make it difficult to attend in-person classes.[13,14] As access to the Internet and mobile devices increases among this population, it is important to consider nutrition education eLearning programs, to expand outreach and decrease barriers of attending traditional face-to-face classes.

One viable opportunity for eLearning nutrition education programs is SNAP-Ed. This is a federally funded nutrition education program directed to low-income Americans. The goal of SNAP-Ed is to improve the likelihood that persons eligible for SNAP will make healthy choices within a limited budget and choose active lifestyles consistent with the current Dietary Guidelines for Americans and MyPlate.[15] The SNAP-Ed programs are delivered by each state, and activities must be evidence-based while using comprehensive and multilevel interventions.[15] Electronic learning is a novel and innovative education tool that has not yet been evaluated as a part of a comprehensive SNAP-Ed program. The purposes of this report were to share the lessons learned and
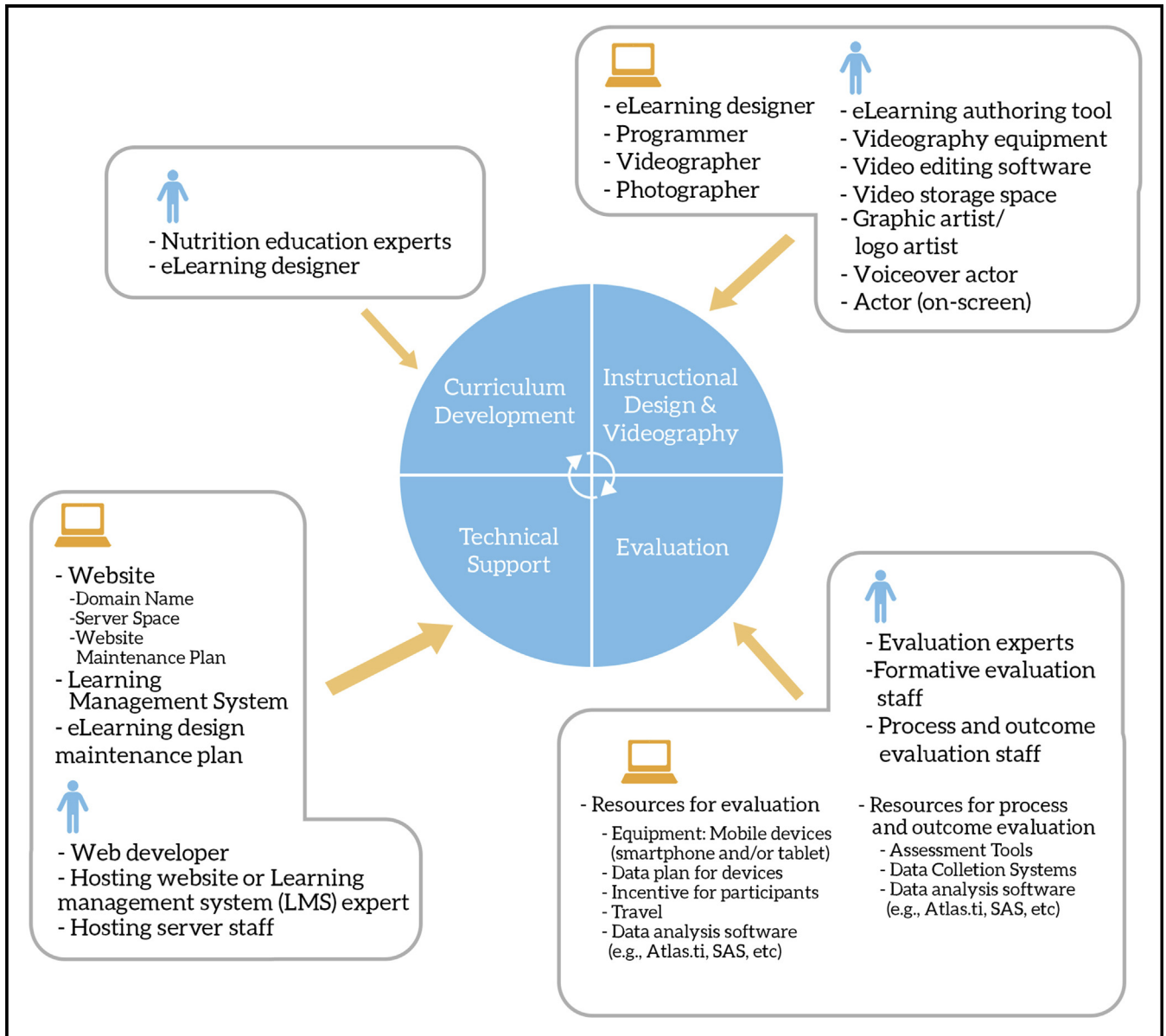
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Figure 1. Iterative development process of evidence-based nutrition education electronic learning (eLearning) program and key personnel/resources needed.

experiences in developing and evaluating a smartphone-based eLearning SNAP-Ed program tailored for low-income adult Georgians, and to serve as a guide for researchers who may be interested in developing similar eLearning programs for their audiences.

DISCUSSION
Iterative Design Approach

As a model to developing a new eLearning program, we found that a nonlinear, iterative design approach best facilitated this complex process (Figure 1). Although the curriculum

(content) served as the basis for program development, it was important to include instructional design and videography experts early in curriculum development. The delivery method of providing education via a smartphone included factors such as the realistic length of a lesson, contextual learning opportunities, and pragmatic logistics of interactive approaches to eLearning. This iterative process was essential to maximizing the potential of a smartphone-based eLearning program and grounding the program in health behavior change, eLearning, and adult learning theories. During the development of this

eLearning program, entitled *Food eTalk*, the content expert worked closely with eLearning designers and videographers to integrate curriculum content with eLearning authoring tool features and augment the content with videos for an optimal user experience. The eLearning designers assisted in developing an eLearning program guided by fundamental eLearning design principles and theory to ensure that the program did not overwhelm the learner with technicalities and extraneous features.[16-18]

The *Food eTalk* eLearning program was based on the previously validated face-to-face *Food Talk* curriculum.[19]