A Logic Model Framework for Community Nutrition Education

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ABSTRACT

Logic models are a practical method for systematically collecting impact data for community nutrition efforts, such as the Food Stamp Nutrition Education program. This report describes the process used to develop and test the Community Nutrition Education Logic Model and the results of a pilot study to determine whether national evaluation data could be captured without losing flexibility of programming and evaluation at the state level. The objectives were to develop an evaluation framework based on the Logic Model to include dietary quality, food safety, food security, and shopping behavior/food resource management and to develop a training mechanism for use. The portability feature of the model should allow application to a variety of community education programs.

KEY WORDS: logic model, nutrition education, food stamps, diet quality, food safety, food security, food resource management

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INTRODUCTION

Logic models have been adopted as program planning and evaluation tools by some state Extension systems and other community service providers as a practical method for systematically collecting impact data and summarizing outcomes. For example, the University of Wisconsin-Extension and Ohio State University Extension programs use a logic model for their annual reporting systems to consolidate outcomes from all statewide programs. The US Centers for Disease Control and Prevention has developed a logic model for education programs that teach physical activity to show comparable impact from program to program.[1] Similar program planning and evaluation models are used by nonprofit organizations, such as the United Way of America.[2]

Food Stamp Nutrition Education (FSNE), funded in part by the Food and Nutrition Service (FNS), US Department of Agriculture (USDA), is a nationwide nutrition education effort that is administered and implemented by different state agencies. FSNE operates under approved state plans to target Food Stamp Program participants and applicants with basic food and nutrition education.[3] When programs are implemented in widely different situations (eg, different states implementing the same or different curricula, different agencies developing programs within the same topic area), national impact is more easily identified and credibility is enhanced when a common outcome and indicator system is used.

A system for measuring outcomes across all FSNE projects, based on common goals and objectives, allows stakeholders to determine if programs and social marketing campaigns are performing as expected. The need for such a system grew from professional discussions that resulted in a comprehensive review of evaluation methodology used in nutrition education.[4] Subsequently, the FNS and the Economic Research Service (ERS) of the USDA sponsored the development of "white papers" to review evaluation methodology commonly used in 5 areas: systems and environmental change, food shopping practices, food safety, dietary quality, and food insecurity and security. The papers were published as a special issue of the *Journal of Nutrition Education*.[5-9] Major concepts addressed in these papers were linked in a model for nutrition education that illustrates rela-

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tionships of model components to the health and independence of participants (Figure 1).

This baseline work was the inspiration for the development of the Community Nutrition Education Logic Model (CNE Logic Model). The goal of the CNE Logic Model is to guide the development and evaluation of nutrition education programs implemented through a variety of sponsoring agencies. The potential for the model's use across community systems beyond FSNE became apparent during the development process, so early steps were taken to ensure the portability of the model across programs. This report describes the process and philosophy used to develop and test the CNE Logic Model and outcomes from the first year of implementation.

DESCRIPTION OF THE LOGIC MODEL CONCEPT

There are 3 major components of logic models (Figure 2): inputs, outputs, and outcomes that are developed in the context of a program's assumptions and external factors.[10] In all logic models, inputs are the resources that are made available for the planning, implementation, and evaluation of projects; examples of inputs are human resources, funding, facilities, equipment, and curricula. Outputs are divided into activity and participant categories. Activity outputs are the educational program component (eg, classes, newsletters, demonstrations), and participant outputs are the demographics of the individuals, families, and communities who are reached. Outcomes describe the changes or impacts that occurred because of the program outputs. Impacts can be evident as an immediate result of the program (short term) or may not be apparent for some period of time in the future (medium term). The impact on society as a whole may not be revealed in the evaluation of individual programs but may be evident from nationwide data. The possibility of showing societal impacts (long term), collectively documented across a coordinated system of programs, further justifies the need for a national system of program evaluation.[11]

Change most likely occurs on a continuum and not in discrete intervals. Yet recognizable cutoff points are necessary to facilitate consistent reporting across programs and projects. For the CNE Logic Model, short-term outcomes and indicators were defined as those that reflect increased awareness, knowledge, and skills. Medium-term outcomes and indicators were deemed those that reflected action taken and changed behaviors. Long-term outcomes and indicators were tied to personal health and nutritional independence factors that could be measured by research, population data, and public policy outcomes.

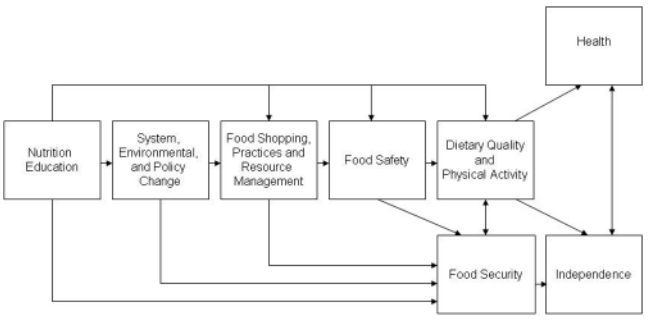

Figure 1. Nutrition education can have widespread effects on health and independence. Reproduced with permission from Hersey JC.[12]

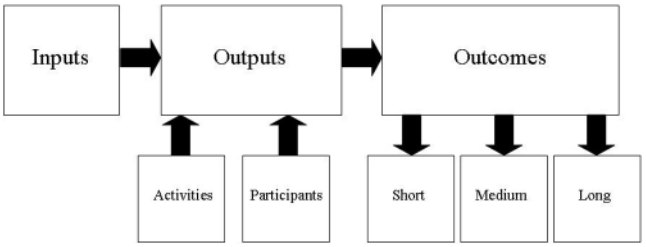

Figure 2. Relationships of logic model components.

METHOD USED TO DEVELOP THE CNE LOGIC MODEL

A committee was convened in 2001 to address issues of program evaluation for FSNE. The committee was composed of 9 Cooperative Extension Service nutrition education specialists and leaders. One individual served as the committee chair, and 4 subgroups of 2 members each were formed to address the various white papers.[5-9] The committee was charged with 2 objectives: to develop an evaluation system for FSNE based on the 5 evaluation white papers with a logic model format and to develop a Web-based interface for training and gathering evaluation data from FSNE across the nation. The reason for developing the system was to track comprehensive and longitudinal nutrition education accomplishments and to facilitate communication of outcomes to a variety of local, state, and national stakeholders. The implementation and training of professionals in the use of the model were the final steps of the process. The logic model format was selected as the framework for the evaluation system.

The committee agreed that attainment of personal health and the ability to independently provide for nutritional needs are the ultimate goals of nutrition education (see Figure 1). This is an adaptation of a previous model of nutrition education.[12] Many antecedent processes are necessary for an individual to accomplish behavior change and achieve these 2 goals. However, for the purposes of reporting the impact of FSNE, demonstrated skills and changed behavior are the measurable outcomes because of their clear relationship to the attainment of personal health and nutritional independence.

The CNE Logic Model (Figure 3) was based on 3 assumptions. First, outcomes from projects with different implementation protocols can be compiled into a report that reflects the outcomes of FSNE nationally. The CNE