

# Discussion Map and Cooking Classes: Testing the Effectiveness of Teaching Food Safety to Immigrants and Refugees

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## ABSTRACT

**Objective:** To evaluate the effectiveness of a food safety map as an educational method with English language learners.

**Methods:** English language learner community members (n = 73) were assigned randomly to participate in 1 of 3 experimental conditions: food safety map, cooking class, and control. Participants in the food safety map and cooking class conditions completed a pre-education demographic and cooking history questionnaire, a post-education knowledge and intention questionnaire, and a 2-week post-cooking and food safety habits assessment. Participants in the control group received no educational training but completed the pre- and 2-week post-education assessments.

**Results:** The cooking class and the map class were both effective in increasing food safety knowledge. Specifically, by comparing with the control group, they significantly increased participants' knowledge of safely cooking large meat ( $\chi^2$  [df = 2, n = 66] = 40.87;  $P < .001$ ;  $V^* = .79$ ) and correctly refrigerating cooked food ( $\chi^2$  [df = 2, n = 73] = 24.87,  $P < .001$ ;  $V^* = .58$ ). The two class types generated similar positive educational effects on boosting food safety behavioral intention (measured right after the class). The data collected 2 weeks after the classes suggested that individuals who took the classes followed the suggested food behaviors more closely than those in the control group ( $P < .01$ ).

**Conclusions and Implications:** The food safety map is simple to use and prepare, beneficial for oral and visual learners, and inexpensive. Compared with a food safety cooking class, the map produces similar learning and behavioral outcomes.

**Key Words:** food safety education, food safety, English language learner, conversation map (*J Nutr Educ Behav.* 2014;46:547-553.)

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## INTRODUCTION

Immigrant, refugee, and English language learners are special populations to consider regarding food safety education because some came from extreme hardship to a safer situation. Food pattern changes probably occur in this transition as well. Therefore, food safety interventions are needed that include culturally appropriate messages to help them maintain healthier lifestyles and learn new food preparation techniques. Under-

standing the learning styles and preferences of different migrating populations will allow food safety principles to be translated into effective community-based food safety education programs.

Different cultural groups do not share the same priorities or perspectives; thus, cultural groups respond differently to food safety communication based on their perceptions and worldviews.<sup>1</sup> Because much of the world's population learns new things and cultural ways in a non-written

format, dialogue is recommended as a way to foster understanding about differences between cultures and exchanges of information. Dialogue is defined as the interaction between people that develops shared understanding, leading to feelings of trust, agreement, and creative problem solving.<sup>2</sup> Communicating through dialogue empowers community members by supporting attitudes of openness, empathy, and equality that can enrich a broad-based community health improvement process.

Kreps et al<sup>3</sup> suggested that a major challenge facing community health education is making relevant information accessible to various cultural groups in society. Accurate perceptions of the similarities and differences between the world of food safety science and the context of the ethnic group affect the ability to communicate effectively with others.<sup>4</sup> Therefore, food safety education could be enhanced by adapting

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to the world of cultural groups by incorporating dialogue.<sup>5</sup>

Realizing that some refugees and immigrants prefer to converse about important topics, the authors developed a food safety discussion map (Figure). This discussion map was modeled after conversation maps used with diabetes education, which are self-discovery learning tools that engage audiences through dialogue.<sup>6</sup> The food safety discussion map facilitates dialogue with a game-type board; topic cards are used to bring forth information from various parts of the map. Facilitators have a script of suggested talking points. Participants share their experiences and relate the information to their lives. The resulting discussion unveils misconceptions and myths related to food safety, allowing the facilitator to make corrections and take advantage of teaching points. Through this study, the authors hoped to learn whether the food safety discussion map worked the same, better, or worse in terms of participant knowledge gain, intention to apply new skills, and actual application of skills compared with a standard cooking class that incorporates food safety concepts. The food safety discussion map teaching method could potentially take less time and require fewer resources than the cooking class.

The primary goals of this study were to (1) evaluate the effectiveness of a food safety discussion map as an educational method to increase knowledge and promote positive changes in food safety behaviors among English language learners and (2) identify the potential for this educational method as an acceptable alternative to traditional cooking classes in achieving the same educational outcomes.

## METHODS

A 1 by 3 between-subject field experimental design guided data collection. Refugee and immigrant participants were recruited through word of mouth and subsequent phone calls to potentially interested community members; international students were recruited through either listserv e-mails or word of mouth. Inclusion criteria included: male or female adults,  $\geq 18$  years of age, who were primary food preparers



Figure. Food safety discussion map.

in their homes. Individuals who agreed to participate were randomly assigned to 1 of 3 different conditions (cooking class, food safety discussion map class, or no education). The map and cooking class groups were facilitated or led by a Family and Consumer Science Extension agent who was trained in food safety concepts. All procedures were approved by the North Dakota State University's Institutional Review Board.

## Procedures

In the food safety discussion map group, principles of food safety were introduced and instructed through participants' engagement in a discussion map in a single 2-hour session. When using the map, participants gathered around a game-type board and discussed food safety topics. Topic cards were used to illustrate information from various parts of the map. Hands-on activities and visual demonstrations also were included in the food safety discussion map protocol. The food safety discussion map was pre-tested by faculty, staff, and county Extension agents during the development stage. Verbal feedback was collected from the various groups and the suggested modifications were integrated into the educational tool. The researchers tested the resulting revised map with international col-

lege students, collected verbal feedback, and finalized the map.

Participants in the cooking class group attended 2 sessions. Using a peer-reviewed script and structured activities, Extension staff provided cooking classes that stressed basic cooking skills and integrated food safety concepts covered in the map activity.<sup>7</sup> Each cooking class lasted approximately 2 hours.

All map and cooking classes had 5–8 participants. Upon completion, participants in the map activity and cooking classes received a food safety kit consisting of a food thermometer, a picture-based refrigerator magnet with recommended temperatures, a cutting board, a vegetable brush, a refrigerator thermometer, a “wash your hands” mirror cling, and a \$25 gift card for groceries. Control group participants only received a gift card.

Participants in the food safety discussion map class and cooking class groups completed a short paper-and-pencil questionnaire regarding basic demographic information and cooking history (ie, who cooks for the family, whether they cook for children, where they learned their cooking skills) before the class started. Immediately after the classes, participants completed a paper-and-pencil questionnaire that assessed knowledge gained and intention to change food safety behaviors.

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