

Exploring the impact of a food safety educational intervention on the self-efficacy of food safety in adolescents through qualitative research methods

Lindsay Murphy and Dr. Jennifer Richards
The University of Tennessee, Knoxville
Department of Food Science and Technology



TOGETHER: A FOOD SAFE AMERICA



Behavior Change Model

- Beliefs
- Self Efficacy
- Locus of Change

What is Self Efficacy?

The belief in one's capabilities to organize and execute the courses of action required to manage prospective situations.

(Bandura, 1995)

How Does Self Efficacy differ from Knowledge and Behavior?

Knowledge

- Any illness that humans get from food is a foodborne illness.
- The bacteria with an onset time of 30 minutes to 8 hours is *Staphylococcus aureus*.

Behavior

- I wash my hands before eating or preparing food.
- I don't eat food that has been sitting out on the table or counter for longer than 2 hours.

Self Efficacy

- I can show you how to prevent cross-contamination.
- I can reduce the risk of food poisoning.

Self Efficacy of Food Safety (SEFS)

The degree to which an individual believes he or she has responsibility for and can positively impact the safety of his or her own food.

(Byrd-Bredbenner 2007)

Self- Efficacy of Food Safety

Factors Impacting Food Safety:

- personal hygiene
- sanitation
- cross-contamination
- cooking and cooling temperatures
- foodborne illness
- high-risk behaviors

Purpose

Use qualitative data collection methods to further describe the baseline data and participants' experiences with the Hands On intervention

Why Focus Groups?

- Qualitative Data
 - Explanatory
 - Exploratory

Context of the Study

- Builds on an existing food safety intervention that is achieving long-term use and sustainability

Hands On: Real World Lessons for Middle School Classrooms



Hands On: Real World Lessons For Middle School Classrooms

- Comprehensive curricular program designed to *model* best practices in adolescent instruction and teach food safety practices



Purpose

- Lessons are built around common core and individual state content standards
- Designed to reinforce concepts on state assessments



Pin Color	Number of Implementations
Red	1
Blue	2-3
Green	4-5
Yellow	6+

Curriculum Design

- Introduce high energy, inquiry-based activities with real life applications into the classroom
- Provide opportunities for critical thinking and problem solving
- Deliver food safety education to middle school students that is directly tied to state standards for core subjects
- Lay the foundation for safe food handling skills



SCIENCE

- Scientific Inquiry (ex: how to set up a lab, identifying variables, gathering data, etc.)
- Learning about bacteria (ex: What causes it to grow? How can we kill the bad bacteria?)
- Basic cell structure and function



LANGUAGE ARTS

- Reading non-fiction source material for detail and understanding
- Process writing (ex: expository writing)
- Verbal and written communication skills



MATHEMATICS

- Scale and Ratio (ex: magnification of bacteria)
- Exponential growth (ex: bacterial growth)
- Simple statistical analysis and graphical representation of data (ex: mean, median, mode, range, box-and-whiskers plots)



SOCIAL STUDIES

- Understanding standards of living throughout the world
- Informal research skills
- Geospatial mapping skills

Schools that Participate Receive

- Free professional development training for teachers
- All curriculum materials and supplies (loops, slides, gloves, modeling clay, petri plates, etc)
- Reimbursement for consumables (copies, construction paper, markers, food supplies, etc)

All provided at ***NO COST*** to the school

Methods

Objective 1: develop and validate a focus group protocol

Objective 2: identify a sample for the focus groups and secure informed consent

Objective 3: Administer the focus groups at each school location

Objective 1: Development & Validation of Protocol

- Previous study conducted baseline survey (Beavers et. al, 2012):
 - Highest SEFS = Hand Washing
 - Lowest SEFS = Cross Contamination & Cooking Temperatures

Objective 1: Development & Validation of Protocol

- Included questions from 3 major constructs:
 - Factors that influence personal SEFS
 - Impact of the food safety intervention on SEFS
 - Intersection between their daily lives and the role of SEFS

Objective 1: Development & Validation of Protocol

- Five to eight participants
- A moderator
- An assistant moderator
- No teachers were present for the discussions
- The location of the focus groups was selected by the teacher

Administering Focus Group

- Sessions lasted approximately 50 minutes
- Participants wore name tags with their first name and an assigned number

Objective 2: Identify a Sample

- Participants were selected from 5 schools that implemented *Hands On* during the 2011-2012 school year
- The focus group was held at each school 2-4 weeks after implementation
- Project was subjected to a review by UT's Institutional Review Board.

Objective 2: Identify a Sample

- Parents provided consent
- 7th grade Students ($n=29$) provided assent
 - 41% male participants
 - 59% female

 - 76% African-American
 - 21% Caucasian
 - 3% Hispanic

Objective 3: Administer Focus Groups

- Participants received an introduction and instructions including:
 - Description of the purpose of the focus group
 - The participants' rights and responsibilities
 - Introduction to the research team conducting the focus group
 - Notes were taken by the Assistant Moderator and supplemented by moderator notes
 - School level incentives were provided (materials and supplies)
 - Student participants were provided healthy snacks as an incentive

Results

- General Food Safety
 - All Participants knew food could make them sick.
 - 64% learned through personal experience and family members
 - 36% learned from teachers & school

Results

- Hand Washing
 - 65% said they learned about hand washing prior to attending school
 - 50% of the students identified bathroom signs as the greatest reminder
 - Parental and teacher reminders also cited as significant reminders

Results

- Cross Contamination (CC)
 - 100% said CC can make you sick
 - 100% could cite ways to prevent CC
 - Most still uncomfortable with their perceived ability to prevent CC because of their lack of experience relating to cooking tasks.

Results

- Overall Food Safety
 - 100% said yes when asked if anything could be done to help keep you from getting sick from your food
 - Common responses when prompted to explain what could be done to prevent foodborne illness:
 - wash your hands
 - put up leftovers
 - cook food thoroughly

Results

- Overall Food Safety
 - 65 % cited their science teachers as the source for telling them how to not getting sick from food
 - 35% indicated they learned this from a family member.
 - This result indicates that the *Hands On* program is effectively teaching students positive food handling behaviors to prevent foodborne illnesses

Results

- Impact of *Hands On* Intervention
 - Bacteria growth in Petri Plate cited as the biggest impact of the curriculum
 - 62% say they now wash their hands more thoroughly and frequently

Conclusions

- Students with high SEFS are likely to be less receptive to additional messages
 - In fact, their procedural knowledge and ability to transfer knowledge to positive food safety behaviors may be low.
- Low SEFS generally is a result of lack of understanding of relevance or experience.

Implication for Practice

- Educational Interventions should:
 - Peak students' curiosity
 - Cause them to challenge their own assumptions of their knowledge and ability
 - Be directly relevant to their daily lives
 - Provide opportunities to practice positive food safety behaviors

Questions



Contact

Jennifer Richards
Jennifer.Richards@utk.edu
865-976-1089

Lindsay Murphy
handson@utk.edu
865-974-7107



@handson_class



HandsOnClassrooms



Hands On
Classrooms