



Implementing and Evaluating A Comprehensive Learner-Centered Education Program to Promote Fruit and Vegetable Intake among WIC Children and Their Families

WIC Special Project Grant FY 2004

Prepared By:

Patricia Crawford, PhD, RD
Co-Director,
Dr. Robert C. and Veronica Atkins
Center for Weight & Health
University of California, Berkeley

with assistance from
Dana E. Gerstein, MPH, RD

and

Kim Frinzell, RD, Chief,
Statewide Training and Resources Branch
California Department of Public Health
Women, Infant, and Children (WIC) Program

with assistance from
Nancy Crocker, MS, RD

March 2008

This work was supported by USDA, Food and Nutrition Services,
Grants Management Division
through the WIC Special Project Grants Program FY 2004

Table of Contents

	Page
Appendix List of Contents	3
Acknowledgements	5
Executive Summary	6
Overview of the Study	8
Evaluation Tool Reports:	
Leader Interest Survey	12
Teacher Survey	31
Class Design Review	42
Class Observation Tool	46
Cost Survey	51
Participant Survey	55
Participant Focus Group Discussions	64
Lessons Learned	73
Sustainability and Transferability	76
Application	78
Appendix	79

Appendix: List of Contents

Figures and Tables

- Figure 1:** Illustration of ten key principles of Learner-Centered Education (LCE).
- Figure 2:** Narrative description of Finding the Teacher Within (FTW) activities.
- Figure 3:** Flowchart of the Finding the Teacher Within (FTW) activities.
- Figure 4:** Learner-Centered Education evaluation Advisory Board.
-
- Table 1:** Ten California WIC agencies that participated in Learner-Centered Education evaluation study.
- Table 2:** Community programs designed to promote fruit and vegetable consumption in study communities.
- Table 3:** Baseline summary statistics for WIC teachers who completed Teacher Survey.
- Table 4:** Previous education classes and/or trainings attended by teachers who completed Teacher Survey, 2005-2006.
- Table 5:** Baseline Likert scale means among WIC teachers from Teacher Survey, 2005-2006.
- Table 6:** Mean change for Likert scale questions among WIC teachers from Teacher Survey, 2005-2006.
- Table 7:** Summary of comments from Teacher Survey, 2005-2006.
- Table 8:** Mean change for significant Likert scale questions for control group subset teachers from Teacher Survey.
- Table 9:** Statistics related to intervention agencies' hours, salary, and expenses during the implementation period from Cost Survey.
- Table 10:** Statistics related to control agencies' hours, salary, and expenses during the implementation period from Cost Survey.
- Table 11:** Statistics related to the number of intervention staff participating in teaching and approximate pay during the implementation period.

Appendix: List of Contents (cont'd)

Figures and Tables (cont'd)

Table 12: Statistics related to the number of control staff participating in teaching and approximate pay during the implementation period.

Table 13: Statistics related to the intervention agencies' hours, salary, and expenses reported spent during the sustainability period.

Table 14: Statistics related to the control agencies' hours, salary, and expenses reported spent during the sustainability period.

Table 15: Statistics related to number of intervention staff participating in teaching and approximate pay during the sustainability period.

Table 16: Statistics related to number of control staff participating in teaching and approximate pay during the sustainability period.

Table 17: Baseline summary statistics for the WIC Participant Survey, 2005-2006.

Table 18: Study agencies randomly selected to participate in focus group discussions.

Table 19: Demographic characteristics of WIC mothers who volunteered to participate in the focus group discussions.

Survey Tool Samples

- Leader Interest Survey
- Teacher Survey
- Class Design Review Tool
- Class Observation Checklist
- Cost Survey
- WIC Participant Survey
- WIC Participant Focus Group Discussion Questions
- WIC Participant Focus Group Discussion Survey

Acknowledgements

The study investigators, Patricia Crawford, Dana E. Gerstein, Kim Frinzell, Nancy Crocker, and Heather Reed, wish to acknowledge and express our gratitude to many people who worked on several aspects of this project. Without contributions from these dedicated individuals, the project would not have been able to meet its objectives.

<p>California WIC Program:</p> <p>Linnea Sallack Chief California WIC Program</p> <p>Michele van Eyken Deputy Chief Nutrition and Program Services</p> <p>Linda Cowling Chief Training and Career Development Unit</p> <p>Carol Chase Vera Clark Linda Cowling Mike Elfant Poppy Strode Anne Peterson Rita Whitmore Kim Wietsma</p>	<p>UC Berkeley Center for Weight and Health (CWH):</p> <p>Yolanda Becerra-Jones Eve Donovan Temika Green Sarah Kim Anna C. Martin Shelley Mandel Fe Moncloa Claudia Olague Lorrene Ritchie Sherri Rose Natalie Studer</p> <p>California Local WIC Agencies:</p> <p>Madera County: Chris Bilbrey Lorraine Bruggemann</p> <p>Community Bridges: Cathy Cavanaugh Rosario Quintero Teri Smith</p> <p>Stanislaus County: Sharon Cummings Elaine Emery</p> <p>Tulare County: Cecelia Alejandro Chavez Courtney Engleman</p>	<p>California Local WIC Agencies (cont'd):</p> <p>Planned Parenthood: Elena Guzman Sherry Norwood</p> <p>West Oakland: Delinda Horton</p> <p>Orange County Health Care: Esther Ho Maridet Ibanez Laurence Obaid Duc Quan</p> <p>Kings County: Peggy Redfern Laura Sanders Jennifer Sheldon</p> <p>Human Resource Council: Shirlee Runnings Cynthia Wieland</p> <p>Santa Clara County: Norliza Tayag-Cruz</p> <p>Global Learning Partners (GLP):</p> <p>Joy Norris Peter Perkins Valerie Uccellani</p>
---	---	---

We especially wish to recognize all the additional local WIC agency staff and their WIC participants for their cooperation and willingness to “go the extra mile” to support this project and help make it successful.

Executive Summary

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) was established by the federal government in 1974 to promote the nutritional health of low-income pregnant women and young children. California WIC is the nation's largest WIC program, providing WIC services to over 60% of all infants born in the state. In addition to providing food for mothers and children, WIC provides nutrition education and referrals to health and other social services. Nutrition education is often offered through group education classes covering topics such as: breastfeeding promotion, infant feeding, anemia prevention, and healthy eating. These classes, which vary by setting, content, and teaching methods have been based on a traditional, often didactic teaching model.

Over the course of the last ten years, California WIC has been actively seeking new ways to engage WIC participants in the nutrition education process. One of the most promising has been the learner-centered education (LCE) approach. LCE redefines the traditional teacher-learner roles so that the learners do much of the talking; and in effect, take more responsibility for learning. Preliminary work with this new teaching approach was very well received by WIC participants as well as by WIC teachers and leaders. Building on this early success, California WIC staff created a learner-centered education training program, and soon after applied for funding to test the feasibility of using this teaching method and to compare the efficacy of this approach with that of a more traditional didactic education approach.

With support from the USDA, Food and Nutrition Services, a three-year evaluation study of the feasibility and efficacy of learner-centered nutrition education was conducted. Ten California WIC agencies participated in the study. Five agencies implemented LCE in their Fruit and Vegetable nutrition classes and five served as control agencies using usual teaching methods in their Fruit and Vegetable education classes.

At the end of the study, we found that the learner-centered teaching approach had several distinct advantages over the traditional education classes:

- **First, and most importantly: WIC participants in learner-centered classes were more likely to report changing their eating behaviors.** WIC participants who attended a LCE Fruit and Vegetable class were 1.2 times more likely to eat more vegetables than control participants ($p=0.03$). LCE class participants reported adopting new ways to include more fruits and vegetables in their diets at home. New practices included: starting a garden, replacing visits to fast food outlets with offerings of fresh fruits and vegetables, and increasing the variety of fruits and vegetables that are offered.

“It really encouraged me to get out there and do a garden.”

Quote from WIC participant who attended a LCE Fruit and Vegetable class

- **Second, WIC participants reported greater satisfaction with learner-centered education classes.** Participant satisfaction is critically important for the WIC Program to be successful. This study showed that participants in the learner-centered education classes were more likely to rank their learning experience higher. These participants significantly increased their enjoyment of learning from other participants ($p=0.03$).

[Using a learner-centered approach, the teacher] “asked us for our opinions, and that was fine because we learn more when we are talking... I think that is why I felt comfortable, because she gave us the confidence that we could say to her what we were thinking.”
Quote from WIC participant who attended a LCE Fruit and Vegetable class

- **Third, WIC teachers using a learner-centered approach were more satisfied with the WIC nutrition education teaching experience.** Teachers engaged in the learner-centered approach, as compared to those using the traditional approach, reported that the things they liked best about teaching were active class discussions, participants asking questions, and more class participation ($p=0.028$). These teachers came to value participants talking and learning from each other, a hallmark principle of LCE ($p=0.081$).
- **Fourth, WIC Agency leadership identified many positive outcomes from their adoption of learner-centered education classes.** WIC leadership observed that dialogue between agency leadership, teachers, and participants was enhanced. One WIC leader reported that their teachers who used the LCE approach had gotten participants to set goals that they had previously deemed impossible.

Based on these findings, we recommend that WIC agencies and other similar programs offering health education consider integrating learner-centered principles and practices into their nutrition education programs. Nutrition education classes need to be designed to emphasize participants’ learning needs. Additionally, this study points to the importance of training and ongoing support for teachers and WIC leadership in order to implement and sustain this approach to education.

Given the observed benefits to WIC participants, teachers, and leaders, **the learner-centered approach has the potential to significantly advance the impact of nutrition education in WIC.**

Overview of the Study

Introduction:

California WIC, in partnership with the UC Berkeley *Dr. Robert C. and Veronica Atkins* Center for Weight and Health (CWH), was awarded a Special Project Grant in 2004 from USDA, Food and Nutrition Services to use a repeated measures controlled study design to evaluate the effectiveness of Learner-Centered Education (LCE) to facilitate behavior change.

Description of Learner-Centered Education (LCE):

LCE, an innovative approach to adult learning that includes all voices (educators *and* learners), encompasses the key elements required for personalized, engaging learning. LCE redefines the traditional, didactic educator-learner roles. In LCE, the educator-learner relationship is a partnership based on mutual respect and exchange of ideas. In this capacity the partners may end up switching roles, the educator may become the listener and learner and the learner may become the educator. Learners in the LCE approach do at least 50 percent of the talking and doing during any given period. In group classes, this would include time for the learners to talk with one another, rather than just listening and talking to the educator.

In traditional didactic learning, the educator decides on the topic, the content, and the method of teaching, and provides information without necessarily consulting the learner. Some of the key differences between this traditional approach and the learner-centered approach are that in LCE:

- The learner is responsible for identifying the information they already know and practice, and what they want to learn more about.
- The educator is responsible for listening to the learner and determining what she or he already knows, practices, and wants to learn. In this interactive fashion, the educator is able to facilitate dialogue with learners, and tailor the session to the learners' needs. Educators acknowledge that learners must be the decision-makers; in other words, learners decide *if* they will learn and *what* they will learn. Educators cannot make these decisions for learners.

LCE in the California WIC Program:

As the nation's largest WIC program, California WIC serves approximately 1.4 million participants in over 600 sites operated by 82 local WIC agencies. These agencies are contracted to provide WIC services and are primarily counties and non-profit organizations. Most agencies have several different sites; and they are each fairly unique in their administrative structure, funding, caseload demographics, and in the amount of resources available to them. Almost 3500 staff are employed by the California WIC program.

California WIC has significant experience implementing learner-centered approaches, and has received significant positive anecdotal feedback regarding this teaching method. Local agency WIC staff found LCE training extremely useful; the most rewarding outcome has been the response from WIC participants. Participants are actively engaged

in classes, asking questions, sharing information, and using the written educational materials. This level of engagement is necessary for significant changes to occur in knowledge, attitude, and self-efficacy, and for positive behavior change to occur as a result. Based on this rich experience and feedback, California WIC was in an ideal position to formally evaluate the impact of the existing LCE program.

Theoretical Basis of Project:

What makes learner-centered education successful?

Adults are required in daily life to be decision-makers, and they generally expect to be treated as such. They need to be honored for their years of experience and their ability to make decisions. They are autonomous and capable of choosing what is best for their lives. LCE is based on a set of adult learning principles and practices. **Figure 1** (page 81) describes ten key LCE principles and practices. They may appear obvious and fundamental, yet their implementation can be challenging and learning these principles requires training and experience.

Learner-centered education also accommodates the *Transtheoretical Model* (also known as *the Stages of Change Model*). This model takes into account that behavioral change does not occur instantaneously but rather happens over a period of time. During that time, it is essential that individuals are provided with enough information and confidence to make their own decision about changes they may make. The LCE approach is focused on tailoring the adult learning session to be consistent with what the participant needs and wants; supporting movement from one stage to the next. The tenets of LCE are therefore consistent with the assumptions of the model.

Description of Intervention:

Finding the Teacher Within (FTW) Training Model

California WIC staff developed an intensive, year-long training project entitled *Finding the Teacher Within* (FTW) to help California WIC agencies integrate LCE into their nutrition education classes. The FTW project required additional staff and travel time; therefore, local agencies applied and were selected to participate based on their available resources and level of commitment to the training. Local agency leaders attended four train-the-trainer workshops and conducted two 1-2-day long workshops with their staff throughout the year. **Figures 2 and 3** (pages 82-83) provide an overview of FTW activities.

FTW Fruit and Vegetable Class

Improving fruit and vegetable intake during early childhood is likely to have a long-lasting effect upon dietary intake as the child matures. Studies have shown that dietary intake patterns and preferences track from childhood to adolescence and from adolescence to adulthood.

USDA sponsored this large-scale evaluation study in order to test the effectiveness of LCE to improve participants' fruit and vegetable consumption behaviors and evaluate participants' satisfaction with WIC nutrition education classes. Therefore, a learner-centered Fruit and Vegetable class was used as the intervention focal point.

Study Design:

Ten California WIC agencies participated in this evaluation study: five as intervention agencies and five as control agencies. Intervention agencies were interviewed and accepted to participate in *FTW*. Leaders from the intervention agencies (agencies participating in 2005 *FTW* training program) attended four train-the-trainer workshops in Sacramento over the course of the training period, and with the support of the state staff led two workshops at their local agencies to help train their staff on the principles and practices of LCE. The *FTW* training program provided agency leaders with State support and local agency networking opportunities to help them design and implement LCE classes, including the LCE Fruit and Vegetable class.

Control agency leaders responded to a request for volunteers issued by the state. Control agencies were given funding for participant incentives and guaranteed participation in 2006 *FTW*. These agencies were matched with intervention agencies on several defining factors: participant caseload, geographic location, and participant's primary language spoken. Educators from the control agencies continued to lead their classes following a conventional, didactic teaching model; none of the control agencies had previously participated in *FTW*. Additional information about the participating agencies is provided in **Table 1** (page 85).

The study goals were two-fold: to evaluate the effectiveness of LCE in facilitating behavior change, and to assess the feasibility and sustainability of implementing LCE in California WIC's nutrition education services. In order to assess the effectiveness of LCE in facilitating behavior change, longitudinal data was collected on **participant's fruit and vegetable consumption behaviors**, which included:

- Changes in perceived barriers to offering more fruits and vegetables to their family,
- Changes in the way in which participants prepared and offered fruits and vegetables to their family,
- Movement in the stage of change model with respect to offering their family more fruits and vegetables, and
- Improvements in the number of servings of fruits and vegetables that participants consumed in the last month.

Intervention participants attended a LCE Fruit and Vegetable class at an intervention agency between the baseline and endpoint data collection, while control participants attended a Fruit and Vegetable class led using a conventional, didactic teaching approach at a control agency. **Both the intervention and control Fruit and Vegetable classes were based on the same class objectives, to have participants:**

1. Review the benefits of fruits and vegetables,
2. Examine ways to offer more servings of fruits and vegetables to their families, and
3. Select at least one way to offer more fruits and vegetables to their families.

Seven different survey tools were designed and used to gather baseline and endpoint data from agency leaders, teachers, and participants: Leader Interest Survey, Cost Survey,

Teacher Survey, Class Design Review Tool, Class Observation Tool, Participant Survey and Participant Focus Groups Discussions.

The California WIC Program designated an Advisory Board to ensure that the evaluation program was supported among key stakeholders and to provide support regarding the application of results. Advisory Board meetings were scheduled twice during the evaluation period. Members for the Advisory Board were solicited based on expertise and ability to provide technical support. Advisory Board members are listed in **Figure 4** (page 84).

This evaluation study was funded from October 1, 2004 through September 30, 2007. The first three months were used for planning and survey tool design followed by baseline data collection and the beginning of the 2005 FTW training period. Endpoint data collection was conducted at the beginning of the second year of funding. Data analyses and dissemination was completed in the third and final year of funding.

Leader Interest Survey Report

The Leader Interest Telephone Survey is a qualitative data collection tool used to gather information from agency leaders participating in an evaluation study of the Finding the Teacher Within (FTW) program. Data collected from this tool indicated that: 1)

intervention agencies (those participating in FTW) integrated more LCE principles and practices than the control agencies, 2) participating in FTW promoted more dialogue between the class designers and teachers in a variety of ways, and 3) intervention agency leaders valued and encouraged staff involvement in order to increase both staff and participant satisfaction with the education process in WIC.

These findings demonstrate the feasibility of implementing LCE principles and practices in California WIC and the effectiveness of using an intensive training program to get staff involved and committed to this new approach to nutrition education in WIC.

Survey Goals and Objectives

The primary goal of the Leader Interest Telephone Survey was **to test the study hypothesis that it is feasible and effective to implement and sustain learner-centered education (LCE) in California WIC nutrition education services.** A secondary goal of this survey was to identify community-wide efforts and/or programs or events that may have influenced participants' fruit and vegetable consumption. The findings from this survey further assisted in the interpretation of findings from the quantitatively-driven evaluation study tools (for example, Class Design and Observation Tools, Teacher Survey, and WIC Participant Survey).

The data collected using this survey tool identified:

1. LCE principles that have been incorporated into the nutrition education classes,
2. Agency leaders' feelings about participating in the Finding the Teacher Within Training Program and implementing the learner-centered approach,
3. Resources that were allocated and necessary for participating in FTW and for implementing learner-centered approach,
4. Benefits and challenges that affected sites' ability to participate in FTW and implement the learner-centered approach or any other participant education program at their agency,
5. Agency leaders' perceptions of the educator's satisfaction as well as their own with the education process at WIC, and
6. Community-wide programs and events that could have potentially impacted participant's fruit and vegetable consumption behaviors.

Survey Administration and Study Sample

The **baseline Leader Interest Telephone Surveys were conducted in the winter of 2004-05**, prior to the start of the 2005 FTW Training Program. The surveys were conducted again in the **winter of 2005-06, post-intervention, at the completion of FTW**. Note: The 2005 FTW was the evaluation study intervention.

Baseline Survey Administration:

All agency leaders from each of the five intervention and five control agencies involved in the study were interviewed by telephone using the Leader Interest Assessment Survey. Agency leaders were contacted to schedule a one-hour block of time between the months of November 2004 and February 2005. Agency leaders were sent an Informed Consent form, by either fax or email, to review and return signed before their scheduled phone interview. Approximately one week before their interview, a copy of the questions that would be discussed during the interview was emailed to the leaders participating in the survey. The surveys differed slightly for the intervention and control agencies; a copy of the survey can be found in the Appendices (pages 105-112).

The Center for Weight and Health project manager conducted all of the telephone interviews at baseline and post-intervention. The project manager documented all responses with pencil and paper. Probing questions were used when agency leaders did not have a response to a question or veered off subject. All interviews were completed within 35 – 55 minutes.

Post-Intervention Survey Administration:

The baseline survey was revised for the post-intervention data collection in the fall of 2005. All agency leaders who participated in the baseline survey were asked to participate in the post-intervention survey. Introduction and background questions were omitted, and many questions were reframed to focus on the period of January – December 2005, the study period. All post-intervention surveys were complete between December 1, 2005 and January 10, 2006.

Study Sample:

Intervention agencies: Eight lead staff from the five intervention agencies completed the Leader Interest Survey at baseline. Three of these agencies had two lead staff complete the survey independently. All eight of these staff had planned to participate in the 2005 FTW; however, at post-intervention, two of the eight leaders that had completed the baseline survey were no longer employed at their respective agencies and were not able to complete the post-intervention survey. The other six leaders, representing the five intervention agencies, completed the survey post-intervention.

Control Agencies: Six lead staff from the five control agencies participated in the baseline survey. One agency had two lead staff complete the survey independently. One of the six leaders from the control agencies who had completed the baseline survey was on maternity leave and not available to complete the survey post-intervention. The five other leaders who had completed the baseline survey represented four of the five control agencies participating in the evaluation study.

Leader Interest Telephone Survey sample size:

<u>Baseline:</u> n = 14
Intervention: n = 8
Control: n = 6
<u>Post-Intervention:</u> n = 11
Intervention: n = 6
Control: n = 5

It is important to note that three of the five control agencies participated in the 2006 FTW, which began shortly after the post-intervention Leader Interest Survey was conducted. These leaders' responses to the post-intervention survey questions appear to reflect their preparation for their participation in the 2006 FTW (for example, recent changes made in the way they designed their classes as a result of attending the Global Learning Partner [GLP] Courses*).

* *Global Learning Partners (GLP) organization provides training and consultant services for adult learning events. California WIC contracted with GLP to provide two intensive four-day courses (one introductory and one advanced) in learner-centered education for WIC staff.*

Methods

All documentation from the baseline and end-point interviews was reviewed by two social scientists from the CWH's evaluation team. Both staff summarized the findings and met several times during the analysis phase to discuss the key findings and themes.

Findings**Baseline Information Describing Agency Leaders****Length of time working at WIC:**

Intervention Agencies: Leaders' approximate length of employment at their current WIC agency ranged from 6 months to 4.5 years, with a majority (7 out of 8 leaders) working at their agency at least 1.5 years. The mean reported duration of employment at their current WIC agency was just over two years. Several leaders worked at other WIC agencies prior to their employment at the agency they were currently employed.

Control Agencies: Leaders' approximate length of employment at their current WIC agency ranged from 2 – 18 years, with a majority (4 out of 6 leaders) working at their agency ≥ 10 years. The mean reported duration of employment at their current WIC

agency was 9-10 years. Several leaders had worked at other WIC agencies prior to their employment at the agency they were currently employed.

Working at WIC: Factors agency leaders enjoyed most at baseline:

Intervention Agencies: Intervention leaders reported they liked teaching, developing courses, classes and curriculum, and ongoing job training. They also reported enjoying their interaction with the WIC participants and other staff. They loved to talk to the participants and work with them to make healthful choices. Some reported that they love working at WIC because of the services they provide; they find it very rewarding. “I love giving back to the community.” “I love community nutrition and interacting with people.” “I really enjoy knowing I am helping someone out.”

Control Agencies: Control leaders reported they enjoyed sharing useful information with participants, which ultimately helps the participants. The two leaders with the shortest reported lengths of employment at their current WIC agencies enjoyed the nutrition education component of WIC, working on staff trainings and interacting with the other staff. One leader said she liked working at WIC, particularly in California, because they are always finding ways to improve the system and do things better. One leader shared her frustration with not being able to see the immediate change in participants’ behaviors when new information is presented to them.

Working at WIC: Factors agency leaders enjoyed most at baseline

<p>Intervention agencies:</p> <ul style="list-style-type: none"> • Teaching • Developing courses, classes & curriculum • Continued on the job training • Interacting with participants • Interacting with other staff • Community nutrition • Helping others • Providing services population would not otherwise receive • Giving back to the community 	<p>Control agencies:</p> <ul style="list-style-type: none"> • Developing staff trainings • Sharing information and providing educational resources with participants • Finding better ways to do things • Nutrition education component • Interacting with other staff • Making a difference and seeing results first hand
---	---

Working at WIC: Factors agency leaders enjoyed least at baseline:

Intervention Agencies: Intervention leaders reported not enjoying the administrative tasks (for example, paper work). Also, some reported frustration with the bureaucratic nature of the organization. They stated that it often takes a long time for decisions to be made within the organization and for information to be passed down to the agency and clinic levels. “Changes in the organization happen *very* slowly.” One leader reported being unhappy with the ratio of staff to participants. “The services suffer when there is not enough staff for participants, and you cannot always find a teachable moment.”

Leaders also frequently reported frustration with participants who do not appreciate or are not grateful for WIC services (food vouchers, nutrition education services and other resources), particularly the nutrition education classes. The unpredictable nature of participants, such as not showing up on time, was also frustrating. Leaders reported often hearing the participants complain about having to attend classes, “Do I have to go to the class?”

Control Agencies: Control leaders reported they did not enjoying the enormous amount of administrative work (for example, paper work and reports). One leader noted being so overwhelmed by the amount of administrative work that she often loses focus of the program’s overall purpose. Another shared “sometimes I feel more like an accountant than I do a dietitian.”

Control leaders also reported they did not enjoy the constant system changes, limited budget, and lack of participant appreciation for the nutrition education provided. A few leaders were disappointed by other staff that complain and were not committed to being at WIC to serve the population.

Working at WIC: Factors agency leaders enjoyed least at baseline

<p>Intervention agencies:</p> <ul style="list-style-type: none"> • Administrative tasks • Bureaucratic nature of organization • Lack of participant appreciation of WIC services, nutrition education services in particular • Participants resistance to attending class • Unpredictable nature of participants • Poor ratio of staff to participants 	<p>Control agencies:</p> <ul style="list-style-type: none"> • Administrative tasks • Bureaucratic nature of organization • Lack of participant appreciation of WIC services, nutrition education services in particular • Constant system changes • Limited budget • Other staff members who are not as committed
---	--

Baseline: Summary of Agency Leader’s WIC Employment History and Perceptions about Working at WIC:

Leaders from the control agencies, on average, had been working at their respective WIC agency for a longer period of time than the intervention leaders. This is consistent with the findings from the quantitative data collected from the Teacher Survey. Teachers in the control agencies had worked at WIC longer than those teachers in the intervention agency ($p = 0.003$). Both intervention and control leaders reported that they found enjoyment from sharing information with participants and supporting the WIC population. Two intervention leaders from different agencies reported teaching as something they enjoyed most about working at WIC, while none of the control leaders reported teaching as something they enjoyed most about working at WIC. Both intervention and control leaders reported they did not enjoy many of the same things: the administrative work and bureaucratic nature of the organization. Control leaders additionally noted frustration with other *staffs’ attitudes, which could also have been a barrier to participation in FTW and implementation of learner-centered principles and practices.*

Class Design Process at Baseline and at Post-Intervention

Data collected from agency leaders’ descriptions of their class design processes at baseline and post-intervention were analyzed and organized into two themes described below. See box below (page 19) with list of additional themes noted in the agency leaders’ descriptions of their agency’s class design process post-intervention.

More intervention agencies had incorporated LCE principles and practices in their class design process after participating in FTW (post-intervention):

At baseline, some LCE principles and practices were already being integrated into the class design process. This was noted more often among the intervention agencies (those preparing to participate in the 2005 FTW) than in the control agencies. This finding was not surprising, as intervention agency leaders and class designers were required to attend intensive LCE courses led by Global Learning Partners (GLP) prior to participating in FTW.

At baseline, all five intervention agencies were integrating some LCE principles and practices in their class design process, as compared to three out of five of control agencies. The intervention leaders reported using LCE principles and practices they learned in the GLP courses. Some of the intervention leaders had other staff review the class design prior to its implementation (*before* teaching the class to WIC participants), and some solicited design feedback from other staff *after* its implementation, practices consistent with LCE principles. *“I love it! I have already started to implement it in my*

class design and in creating my lesson plans. I am hoping that the participants won't be so resistant to come to class," commented one intervention leader at baseline. At baseline, some control leaders also had other staff review class designs before they were implemented, while some asked staff to review designs after they were implemented.

These data indicate that there was no true baseline data collection in this study; in other words, all agencies had at least some exposure to LCE principles and practices. Intervention agencies were already implementing some LCE principles and practices in their class design processes at baseline, and control agencies were implementing some LCE principles and practices at baseline and endpoint. It is possible that a greater impact may have been observed from participating in FTW if there was a true baseline data collection.

FTW helped promote dialogue between the class designers, teachers and participants in the intervention groups:

There was a significant increase in dialogue among the intervention agency class designers, teachers, and participants during the class design process. In particular, class designers and teachers in the intervention groups had more dialogue post-intervention compared to their baseline. All five intervention agencies reported exchanging more information between the class designers and teachers about the class design; whereas none of the five control agencies increased that same exchange.

Dialogue was promoted in a number of unique ways among the intervention agencies: At post-intervention, all intervention agencies had teachers review the class designs and provide feedback prior to implementing a new class; and some had *all* staff review the design prior to implementation. One agency developed a more formal and extensive process for staff to review the design prior to its use. Intervention agencies also demonstrated classes to the staff prior to implementation. Several agencies solicited feedback from staff after the class demonstrations, and many were making a greater effort to incorporate the feedback. Some agencies reported that teachers also gave their feedback after the class was implemented. One agency reported that *all staff became more involved in the process of perfecting the class designs since going through FTW*. Several intervention agencies reported using LCE class designs from the California WIC website to save time. This efficient practice may have allowed leaders more opportunity to get staff involved in the design process.

Promoting dialogue between the class designer, teacher, and participant is an important LCE practice. These conversations were not implemented as successfully as those noted above. The LCE practice of piloting class designs with participants and getting their feedback increased among the intervention agencies compared to baseline. Compared to baseline, four out of five intervention agencies piloted more classes with participants; whereas only one out of five control agencies piloted more classes with participants. Agencies that had participated in FTW did not pilot classes as much as would have been expected.

One LCE practice that did not increase significantly in either the intervention or control agencies over the course of the evaluation was that of observing teachers lead a class and

providing them feedback on their teaching style. Four out of the five intervention agencies were not observing teachers and providing feedback on a regular basis. One agency stated the reason was lack of time. Four out of five control agencies also had not integrated teacher observations with feedback. Interestingly, one control agency leader reported observing at least one class taught by each staff and providing feedback.

Based on leaders' comments, FTW may not be appropriate for some small agencies that do not conduct classes, as many LCE practices are applicable only to group learning.

Post-intervention: Common themes from agency leader descriptions of the class design process:

<p>Intervention agencies:</p> <ul style="list-style-type: none"> • Nutrition education teams were established. • Agencies were using existing class designs and adapting them. • Most staff were providing more feedback. • Classes were consistently being demonstrated at meetings prior to their implementation. • In some agencies, teaching staff were demonstrating the classes at the meetings instead of the leaders. 	<p>Control agencies:</p> <ul style="list-style-type: none"> • Leaders would have liked more energetic and motivated staff. • Not all staff like to teach the classes. • Staff do not provide feedback. • Lesson plans were often ignored or sometimes lost after the monthly meetings. • Some agencies were using principles and practices learned from attending GLP courses to design their classes.
---	--

Class Design Process: Summary of Changes

Post-intervention, more LCE principles and practices were integrated in the class design process in all the intervention agencies compared to baseline. Only two out of five of the control agencies had integrated some LCE class design principles and practices at post-intervention compared to baseline. It is evident from these findings that participating in FTW increases the dialogue between the class designers and the teachers. However, there is less evidence of more dialogue between class designers and participants as a result of pilot testing, and no evidence of teacher observations and feedback – two LCE practices that would have likely yielded significant results in the Class Observation and Class Design Review tools (qualitative survey tools described and discussed elsewhere).

Participation in Finding the Teacher Within (FTW)

Baseline: Intervention and control leaders' perceptions regarding FTW participation:

Intervention Agencies: At baseline, the most important reason intervention agencies reported for participating in FTW was that they wanted to enhance participants' learning experience and to **boost the morale of the whole teaching staff**. Some leaders wanted to participate to get staff buy-in on the importance of learner-centered principles and practices. Attending the Advanced GLP course helped a few agency leaders appreciate how learner-centered principles and practices could impact participants by getting them involved in their learning process and making the classes more meaningful. Leaders disliked hearing that WIC participants do not like the classes. One of the larger agencies had five clinics, all operating in their own unique way. The leaders wanted to get all their clinics' nutrition education services on the same page, thus their desire to participate in FTW. Leaders said they had not previously participated in FTW because they had been under-staffed, involved in too many other programs, and had not had enough time to commit to this training.

Half of the intervention agency leaders (4 out of 8) reported they had spoken to others who previously participated in FTW. They heard that it was hard work and took a lot of time, but was definitely worthwhile and was highly recommended. Agency leaders who had participated in FTW said they found WIC participants were more comfortable in the classes such that they were participating more; for example, sharing their own experiences and asking questions. Most agency leaders became more enthusiastic after hearing about others' FTW experiences. Some intervention agencies specifically looked forward to networking with other agencies.

Control Agencies: At baseline, control agency leaders seemed confused about the differences between FTW and other training programs. Some leaders knew FTW involved getting participants to interact more. One leader knew a lot about FTW and how it helped agencies implement the learner-centered approach. All agencies indicated they had considered participating in FTW at some time. Control agency reasons for not participating in FTW as follows:

- Staff shortages were relevant for a number of agencies (one agency was without a director for a while),
- Too much of the agency leader's time away from the clinics,
- Other priorities: One agency reported a decreasing caseload, requiring all efforts to be focused on increasing caseload,
- Hiring freeze which eliminated staff travel,
- Lack of staff knowledge and buy-in about the learner-centered approach and philosophy, and
- Lack of overall readiness to take on the additional workload.

Baseline: Intervention leaders' perceptions about FTW participation:

In general, most intervention agency leaders were excited and looked forward to participating in FTW. One leader did voice concern about having to close all her clinics to conduct the on-site trainings. See box below for a complete list of intervention agency leaders' feelings and concerns about participating in FTW.

Baseline: Intervention leaders' perceptions about FTW participation**Leaders looked forward to:**

- Learning from others.
- Gaining more knowledge about how to be a more effective teacher.
- Supporting staff to understand the benefits of LCE and getting their buy-in.
- Making education more enjoyable for the participants.
- Creating a positive experience for all staff and building enthusiasm among staff around teaching.
- Improving communications between the staff who design the class and those who teach the classes.
- Making staff comfortable with the learner-centered approach.
- Helping participants learn more effectively.
- Improving class designs.

Leaders were concerned about:

- Staff who have been working at an agency for a long time, as they might be the most resistant to change and new things. One agency leader reported *"Some staff call in sick... [to] avoid role-playing the new classes."*
- Staff shortages.
- Coming back from the Sacramento training and not being able to pull off the on-site training.
- Limited classroom space.
- Not enough time for the nutrition education team to sit down together to make plans for the classes.
- Closing all sites for the trainings, particularly since the agency is trying to keep their caseload up.
- FTW not being applicable since her agency is so different from the others; for example, a very small agency with a small number of staff who travel to different sites. This agency leader was concerned about one staff member that will be trained, because this individual does not want to teach classes.

Baseline: Intervention leaders’ perception of staff’s attitude regarding FTW participation:

The majority of leaders reported their employees were very enthusiastic about participating in FTW. They were anxious to start the learning process. One leader noted she felt good about her staff’s buy-in to FTW; which meant the additional workload would not fall on any one person. Another leader reported that while not all her employees were on-board, she was confident their attitude would change once they learned more about the process: *“In a way, it will be almost easier (for them) to do the classes because the participants lead the conversation and class.”*

One leader shared specific concerns about a staff member that had not been able to attend the second GLP course, was not familiar with FTW, and had never done any nutrition education in the clinic.

Post-intervention: Intervention leaders’ experience participating in FTW:

Intervention agency leaders reported very positive experiences participating in FTW. No negative comments and few challenges were reported. Most often, the leaders reported enjoying the agency-wide on-site trainings with state staff, and getting other staff’s buy-in to start implementing the learner-centered approach. After participating in FTW, all the staffs’ attitudes were very good: leaders reported employees were excited after participating in FTW. See box below for a complete list of the benefits and challenges associated with participating in FTW. The list is ordered by the frequency with which it was reported by the intervention agency leaders.

Post-intervention: Benefits and challenges associated with FTW participation

Benefits:

- Trainings conducted at local clinics with support and assistance from state staff.
- On-going support from state staff.
- Trainings provided opportunities to engage staff and get them excited about the project.
- Creative process.
- Input from other agencies.
- Time devoted to designing the classes (usually in Sacramento).
- Increased participant involvement.
- Realized importance of getting staff buy-in to a concept or idea – placed value on staff involvement.
- Mastered LCE principles and practices (for example, open-ended questions).
- Implemented LCE principles and practices throughout clinic more consistently.
- Happier staff and participants – providing greater satisfaction among the teachers.
- Participants received information that is helpful on a daily basis.
- Created a system and structure for the way classes are designed and taught.
- Staff more willing to try new techniques and teach classes the way they are designed.

Post-intervention: Benefits and challenges (cont'd)**Challenges:**

- Staff who have been working at the agency a long time who felt they did not need the principles and practices reinforced.
- Travel to/from Sacramento.
- Clinic staff had an increased workload when lead staff were given office time to design FTW trainings and classes.

Post-intervention: Resources allocated by intervention leaders to participate in FTW:

At baseline, some of the agency leaders noted travel time, money, and adequate staffing as resources they had allocated for participating in FTW. The time and cost of attending the GLP courses were also noted. Several agencies reconfigured their classrooms to make them more accessible and to create space for displays. One agency planned to get a storage shed to create more useable space for example, to obtain and store props and materials for their classes. Another leader considered renting tables and chairs for the on-site training. Two agency leaders reported no additional resources had been allocated for their participation in FTW.

At post-intervention, leaders reported the following resources to be helpful for their participation in FTW:

- Adequate budget for participant incentives, awards for staff, travel costs, and on-site, all-day staff training. More than one agency leader noted that they had adequate funding, and they had not gone over-budget.
- Establishing a core FTW team responsible for the on-site training & LCE class designs.
- Personnel adjustments to give staff time to work on LCE class designs and on-site training.
- Extra staff; for example, leaders used dietetic interns.
- Color printer and other office supplies to create materials for the classes.
- Adequate classroom space: Two agency leaders created space for a separate classroom and another organized the classroom.
- Extra funding for on-site trainings (for example, one agency rented a space to conduct the training sessions).

Resources intervention leaders reported *would* have been useful for participating in FTW: The following are in order of frequency reported, the first reported most often:

- More staff, particularly when staff was pulled from the clinic to design training and/or classes.
- More classroom space/maximize existing classroom space.
- More storage space for class props and materials.

Control agency leader and staff attendance at LCE-related classes and training:

To establish their exposure to LCE, control agencies were asked about the amount of LCE-related training they received prior to and during this study:

At baseline, three of six control agencies' staff had attended the first GLP course. A few had also attended the second GLP course. Three of six agencies' staff had attended an Art of Learning course conducted by Jo Newell. One agency had been trained by the California WIC state staff on Facilitated Group Discussion. Other training sessions attended included Family-Centered Education, a training conducted by California State WIC staff, and Motivational Interviewing, a workshop conducted by Steven Berg-Smith.

At post-intervention, all agency leaders from the four represented control agencies reported that they and/or their staff had attended at least one GLP course during the evaluation study period. The three agencies preparing to participate in the 2006 FTW reported their staff had attended both GLP courses. Two control agencies had staff attend Motivational Interviewing. One of the two agencies said that only staff from the clinics *not* participating in the evaluation study had attended the Motivational Interviewing workshop, and that the techniques were primarily applicable only to individual counseling. The other agency reported they had not yet implemented the techniques learned at the workshop, and viewed the workshop more as an introduction. One agency had some of their staff attend a California WIC Association Annual (CWA) meeting, at which the keynote speaker spoke about dialogue-based counseling skills.

Intervention Agencies' Experience Implementing LCE**Baseline: Factors that would facilitate implementing LCE:**

At baseline, the most frequently mentioned factor intervention leaders thought would be helpful was to have motivated staff. Intervention leaders felt that positive attitudes, willingness to learn, and overall buy-in on the importance of LCE principles and practices and participation in FTW would be helpful, particularly from staff who have been working at WIC clinics for a long time.

Two agency leaders discussed the importance of upper management support and involvement; for example, to schedule and create more time for the responsibilities associated with participation in FTW. Other agency leaders mentioned that having the state staff's assistance with agency training and learning from other agency's FTW experiences (in particular how they made time for the on-site training and class design process), would be helpful.

Post-intervention: Factors that facilitated LCE implementation:

The first four factors noted below (in italics) were mentioned most often as the factors most helpful with the implementation of LCE:

- *State staff's support and suggestions.*
- *Administration support (for example, support from the directors and above management).*
- *Motivated staff.*
- *Previous LCE training.*
- Additional staff support/time to cover the clinic when the nutrition education team worked on class design.
- Limited staff turnover.

Baseline and post-intervention: Staff attitude and willingness to use LCE:

At baseline, the majority of agency leaders felt their staff would be initially resistant to the change, perceiving it to be much more work. Over time, however, after understanding the principles and practices, leaders thought staff would become more involved and would enjoy the process. Leaders felt this might be more an issue among staff who had worked at WIC a long time.

At the completion of FTW, three agency leaders reported that they observed some initial resistance from staff, but they were now excited about the approach. *“At first, they were a little apprehensive. Once they got involved in it they loved it.”* *“They have gotten participants to set goals that they never thought they would be able to do.”* Two leaders reported their staff was continuously excited about the approach. One leader reported her staffs' initial concern was that of decreasing the amount of information presented in classes in order to apply the learner-centered approach. Other comments included: staff liked it better than previous techniques, it was a good change, and participants love it. One leader noted there was a lot of willingness from her staff, but it is still challenging to introduce unfamiliar concepts.

Post-intervention: Staff willingness to continue implementing LCE:

Four out of six intervention agency leaders said their staff was willing to continue using LCE principles and practices. Another leader said her staff was getting more comfortable with the new approach, including the time it takes to implement. One leader described her staff as very willing to implement these practices, and further stated that *“they are asking about other classes, they are sharing ideas about what they think will work and what they think will not work.”*

Baseline and post-intervention: Challenges in implementing LCE:

At baseline, intervention leaders were concerned that the following factors might affect their agency's ability to implement LCE. Challenges are ordered by the frequency with which they were mentioned; the first challenge reported most often.

- Not having enough physical space: no separate classroom (classes are held in the waiting area) or a very small classroom & no storage space.
- Potential budget cuts.
- Hiring freeze (with increasing caseload).
- Staff shortages.
- How to handle new hires during the training period.
- Having to close clinics for the trainings.
- Cost of traveling back and forth to Sacramento.
- Not enough participants in the class to pair up for activities (depending on the clinic).

At the completion of FTW, the most commonly reported challenges affecting implementation of LCE were a lack of classroom and storage space and participant tardiness. Problems implementing LCE activities can arise when there is not an adequate and safe learning environment. Planning issues such as scheduling classes or trainings were also mentioned several times, as creating extra time could be a challenge. One leader noted that some staff members do not like teaching classes, so that responsibility fell exclusively on other staff members.

Control Agencies' Experience Implementing Their Usual Method of Participant Education

Challenges affecting control agencies' ability to implement their usual method of participant education:

At post-intervention, three control agency leaders reported that staff turnover was a challenge in implementing participant education, and two others commented that retaining participants was difficult. Other general challenges included: the lack of overhead, PowerPoint software and physical space. One agency leader said that it was difficult to ask her staff not to use the learner-centered approach. Two leaders expressed other concerns about their nutrition education: One said that when staff are sick, they just play a video instead of teaching a class, and sometimes this occurs even when staff are *not sick* and the teacher simply doesn't want to teach the class. The other concern was that teachers who had been at the agency a long time and were teaching obesity classes had negative attitudes and do not believe in or practice what they are teaching to prevent obesity.

Resources needed to support participant education in control agencies:

At baseline, three control leaders reported they would like to get their staff more training. Three leaders reported their budget was not adequate for participant education. Two leaders reported needing more staff. One leader said her staff was not interested. She

also said she would like to reorganize the way things are done in her agency, including coordinating class times with the bus schedule, school times, etc. Two leaders wanted funding for participant incentives. Two leaders reported they had adequate space, and one said their clinic environment was not conducive for group education. Another said they had assigned three staff members to be responsible for participant education. One leader reported that no resources have been allocated to support participant education.

At post-intervention, control agency leaders reported the following resources helped support their participant education during the evaluation period:

- Additional funds to purchase participant incentives
- Materials for the classes (for example: food models, baskets, posters and color copies)
- WIC pamphlets
- State staff support
- Scheduling time for dietitian to design lesson plans
- Curriculum for Fruit and Vegetable class from state staff
- Donated recipe books
- Visuals that were borrowed from the Nutrition Consortium
- Posters for a class
- Nutrition education coordinator position filled
- Low staff turnover

Changes in control agency’s participant education program during the evaluation:

Two leaders said they stopped using the learner-centered techniques they had just implemented for the purpose of the evaluation study. One agency tried to get staff who design the classes to observe classes being taught. One agency had their nutrition education coordinator observe classes during the study period (this agency was preparing for participation in FTW post-evaluation study); and teachers did not like being observed. One leader was trying to get their native Spanish-speaking staff to teach the classes. These leaders felt the participants respond better to Spanish-speaking staff and are more willing to participate when native Spanish speakers teach the classes.

**Summary of Agencies' Experience Participating in FTW
and Implementing LCE
Compared to Implementing their Usual Method of Education:**

It is evident from these data that staff involvement is critical for any agency-wide change at WIC to be successful. Intervention leaders reported that staff involvement and buy-in were important benefits resulting from participation in FTW, and these staff members served as a resource for the successful implementation of LCE. Control agency leaders reported a lack of staff buy-in as a barrier to participating in FTW. There was a significant trend noted among these data that, generally speaking, the longer staff worked at a WIC agency, the less motivated they were to make or participate in an agency-wide change. In conclusion, staff involvement is critical for increasing staff and participant satisfaction.

Community programs designed to promote fruit and vegetable consumption

Data about community programs and local efforts to promote fruit and vegetable consumption were collected from intervention and controls agencies at pre- and post-intervention. There appeared to be no significant differences between the intervention and control agencies regarding community-wide efforts to promote fruit and vegetable consumption. See **Table 2** (page 86).

SUMMARY: No longitudinal change in community efforts to promote fruit and vegetable consumption were found among either group.

Agency Leader Perceptions about Participation in the Evaluation Study

Control leader and staff perceptions about participation in the study:

At baseline, all control agency leaders reported they looked forward to seeing the results of the study. Most of them reported that they believe the learner-centered process is better, and the results could help motivate their staff to participate in FTW the following year. They looked forward to involvement in something new and interesting. However, they reported concern about staff's lack of enthusiasm for participating in the study: most staff did not perceive benefit in participation; they saw it only as extra work. One agency struggled with being short-staffed: this had not been the case when they agreed to participate in the study. There was also concern raised about all the details around scheduling the participants so that they were not lost to follow-up. One leader reported concern about having their classes being observed.

Challenges related to participation in the study:

Intervention agencies: At post-intervention, all intervention agency leaders except for one reported having problems tracking and scheduling participants to attend all three classes in the evaluation study process: the pre-intervention WIC Participant Survey class, the Fruit and Vegetable class, and the post-intervention WIC Participant Survey class.

Related challenges included:

- WIC participant folder system changed to a new system during FTW and the evaluation study.
- WIC participants were busy and did not always make it to one of the scheduled Fruit and Vegetable classes (this agency offered the class for two months).
- In order to track participants enrolled in the study, a “hold” had to be placed on these participants in the ISIS* computer system. However, this tracking mechanism proved not to be consistently reliable.
- Staff was trained to track participants throughout the study period; however, leaders discovered that some staff were not following the tracking system.
- One support staff member was out on an emergency medical leave.
- WIC participants can be very transient; and some moved out of the area during the study period.

Offering the Fruit and Vegetable class more frequently and for longer than two months was noted as helpful, as was physically labeling participants’ folders with a hole or sticker (rather than using the computer system) for tracking participants through each stage of the study. Offering participants incentives was also useful to motivate participants to return for each class.

Control agencies reported the following challenges:

- Getting participants back to clinic for each step of the process; especially for the Fruit and Vegetable class.
- Staff turnover, causing responsibility to fall on only a few staff.
- Participants not showing up for appointments.
- WIC participant’s lives very hectic.
- Staff taken away from the normal job responsibilities: “I find it troubling that we are evaluating something WIC has already implemented.”
- Some staff were frustrated when asked not to use LCE principles they had previously learned and implemented.
- Surveys were very time-consuming to complete: “The whole process was very time-consuming.”
- Difficulty with staff remembering the tracking/scheduling process even when consistent email reminders were sent out.
- Incentives might not actually help retain participants.

One leader reported that if a participant missed a class where a study survey was conducted, staff then did the survey with the participant one-on-one. Another said they tried to contact participants at home to keep them in the study. Some agencies continued teaching the Fruit and Vegetable class even while the post-intervention survey class was conducted so they could get as many people as possible through each step of the process. One agency put stickers on the folders of participants enrolled in the study to help track them. One agency leader commented that it would have been helpful for state staff to design a system to track the participants enrolled in the study.

* Information from California WIC's *Integrated Statewide Information System (ISIS)* automated data system served as an auxiliary source of data for this evaluation project.

Teacher Survey Report

WIC Teacher Survey Goals

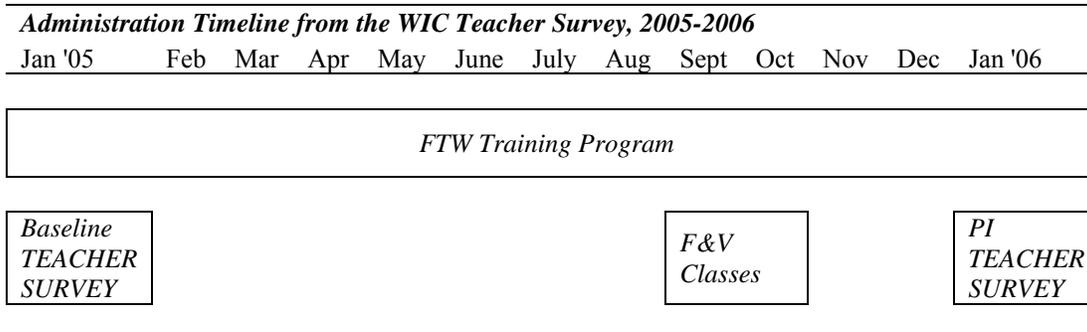
The goal of the Teacher Survey was to compare and contrast quantitative data describing intervention and control agency teachers' satisfaction with the education process at WIC, and perception of their role and learner's role in the classroom.

Survey Administration and Design

Survey Administration:

All intervention and control teachers were mailed the Teacher Survey along with an informed consent form to review and sign. Teachers were instructed to complete the survey anonymously at baseline and post-intervention.

The baseline Teacher Survey was completed in January 2005. The Finding the Teacher Within training program (FTW) began in January 2005 and continued through January 2006. The Fruit and Vegetable classes were offered in both the intervention and control agencies primarily during September and October of 2005. The post-intervention Teacher Survey was administered in January 2006. Below is the survey administration timeline.



Note: FTW is Finding the Teacher Within. F&V is fruit and vegetable. PI is post-intervention.

Survey Design:

All WIC teachers at intervention agencies participated in FTW regardless of whether they taught a Fruit and Vegetable class during the study period. Since the classes offered in WIC agencies alternate, and teachers rotate which classes they lead, not all teachers enrolled were expected to teach a Fruit and Vegetable class. These teaching logistics were anticipated especially in the larger WIC agencies with more teachers. It was important, therefore, to design a large portion of the survey such that shifts in teacher satisfaction and perception of the education process would be reflected regardless of the class they were teaching.

The baseline Teacher Survey contained six main sections. The first section focused on demographic information, WIC employment and teaching history, and education classes and trainings. The next four sections used Likert scales to assess: how much teachers liked certain aspects of teaching, how much they agreed with specific statements concerning their teaching habits, how important they found different aspects of teaching in the success of a WIC class, and how satisfied they were with the WIC class on fruits and vegetables. Teachers taking the survey were instructed to fill out this last section only if they taught a WIC Fruit and Vegetable class.

The sixth section on the Teacher Survey was free-response and asked teachers to comment on what they liked best and least about teaching, and to add any other remarks they had. The post-intervention Teacher Survey was identical to the baseline Teacher Survey except that it did not contain the Likert scale section on how much teachers liked certain aspects of teaching. See Appendix (pages 113-119) for a complete copy of the baseline Teacher Survey.

Variables

Indicator variables take on values of 0 and 1 and are often created independently or from other types of variables depending on the analyses being conducted. For example, intervention agency teachers were coded with 1 and control teachers were coded as 0, creating an *indicator variable* for type of agency (intervention or control). Age (in years) was assigned as a categorical variable as follows: under 20, 20 to 29, 30 to 39, 40 to 49, and 50 or older. For race, teachers could select from Latino, African American, White, Asian or Pacific Islander, Native American, or other, and mark as many categories as they felt correctly identified their race. Teachers completing the survey could select from WIC nutrition assistant (WNA), degreed nutritionist (DN), registered dietitian (RD), or other degree to define any degrees or certifications they had completed.

Length of time working at WIC was presented as a free response question on the survey. Teachers answered in number of years, which were rounded to one decimal point. The same was true for length of time teaching WIC classes. Length of time working at WIC was also categorized for analyses requiring stratification. Continuous variables cannot be effectively stratified. One new variable was coded as 1 if the teacher had worked at WIC ≥ 6.5 years and 0 otherwise. This cutoff was chosen because it was the median length of time working at WIC when looking at intervention and control agencies combined. Length of time working at WIC was also categorized into three groups: teachers having worked less than 4 years, more than 4 years but less than 10 years, and 10 years or more. This second categorization was based on trends observed by state WIC staff.

For previous education classes and training, teachers were asked to indicate which classes and training they had attended from a list of eight, and were also supplied with the option to mark none of the above. An indicator variable for having attended the GLP “Learning to Listen, Learning to Teach” or “Advanced Learning Design” was also created. Frequency of teaching was assessed by asking teachers to select one answer from a set of

five choices: more than once a day, once a day, once or twice a week, 2-3 times a month, or less than twice a month. For language used during teaching, teachers were asked to mark all applicable languages and they could select from English, Spanish, and other language.

Likert scale questions that showed significantly different mean change between intervention and control agencies had separate variables created to be used in relative risk calculations. Relative risk calculations require the use of a binary outcome variable, like an indicator variable. The new variables were indicator variables, and those teachers who had positive longitudinal change for the question were assigned a value of 1. Teachers with no change or negative change for the question were assigned a value of 0. This will be discussed further in the Methods section.

Methods

Statistical analyses of the Teacher Survey data were performed in SAS 9.1 and STATA 9.2. Surveys were matched based on the presence of both a baseline and post-intervention survey for each teacher using an assigned study ID number. Analyses were limited to matched pairs, and those teachers with only a baseline survey were dropped. No teacher had only a post-intervention survey.

The individual change for each question was evaluated as the difference between the post-intervention and baseline value for each teacher. A mean of these paired differences was calculated for each question within both the intervention and control agencies and was considered the mean change. If a teacher did not answer the question at both baseline and post-intervention, a paired difference was not calculated. Two sample t-tests measured differences in mean change between the intervention and control agencies.

Relative risks were calculated for questions that demonstrated a significantly different longitudinal change between groups. In order to evaluate the impact of participating in FTW, Mantel-Haenszel homogeneity tests were also performed by stratifying on selected variables that differed at baseline. P-values were based on a chi-square distribution. These variables included: categorizations of length of time having worked at WIC, age, teaching frequency, having attended “Facilitated Group Discussion,” and having attended the GLP “Learning to Listen, Learning to Teach” or “Advanced Learning Design.” The inclusion of these particular variables will be explained further in later sections.

Findings

Retention and Number of Teachers at Each Agency:

In total, 161 teachers completed the baseline Teacher Survey, with 74 in the intervention agencies and 87 in the control agencies. Of this 161, 116 teachers completed the post-intervention Teacher Survey, with 56 in the intervention agencies and 60 in the control agencies. This yielded retention rates of 76% and 69% in the intervention and control agencies, respectively. This difference was not statistically significant ($p = 0.324$). The overall retention rate was 72%. See box below for sample size and retention rate summaries.

	<i>Intervention Agencies</i>	<i>Control Agencies</i>	<i>All Agencies</i>
<i>Baseline</i>	74	87	161
<i>Post-Intervention</i>	56	60	116
<i>Attrition</i>	18	17	35
<i>Retention Rate</i>	76%	69%	72%

Only those teachers who completed both a baseline and post-intervention survey were included in the study analyses. The number of teachers per agency varied between 2 and 25. While the distributions were skewed, the intervention and control agencies are not systematically different, as shown by the Wilcoxon rank-sum test ($p = 0.917$). See box below for number of teachers within study agencies.

<i>Intervention Agencies</i>	<i># of Teachers</i>	<i>Control Agencies</i>	<i># of Teachers</i>
Planned Parenthood	21	Orange County	25
Santa Clara County	14	Stanislaus County	12
Kings County	11	Madera County	13
Community Bridges	8	Tulare County	7
Human Resource Council	2	West Oakland	3
Total	56	Total	60

Summary of Baseline Statistics:

Summary statistics for the demographic information and WIC employment and teaching history section can be seen in **Table 3** (page 87). The intervention and control agency teachers did not differ in gender ($p = 0.770$) or percent Latino ($p = 0.400$), African American ($p = 0.600$), White ($p = 0.846$), or Asian/Pacific Islander ($p = 0.183$). None of the teachers classified themselves as Native American, and only one teacher was classified as “other race.” Since race was a question that allowed teachers to check all answers they felt accurately described their race, an overall test was not performed.

The two groups differed in age and time working at WIC. **Intervention agencies had more teachers that were aged 20 to 29 ($p = 0.003$) and the control agencies had more teachers that were aged 50 or older ($p = 0.019$).** Neither the intervention nor control agencies had any teachers that were under 20. There was no difference between the intervention and control agencies for teachers that were aged 30 to 39 ($p = 0.298$) or aged 40 to 49 ($p = 0.352$). An overall Fisher's exact test for age was also significant ($p = 0.004$). Teachers in the control agencies had also worked at WIC longer than those teachers in the intervention agency ($p = 0.003$). The two groups did not differ in the length of time they had been teaching WIC classes ($p = 0.193$). Intervention and control agencies also had differences in teaching frequency. Control agencies had more teachers with a teaching frequency of more than once a day when compared to intervention agencies ($p = 0.015$). Intervention and control agencies did not differ in teaching frequency of once a day ($p = 1.000$), teaching frequency of once or twice a week ($p = 0.131$), teaching frequency of two to three times a week ($p = 0.803$), or teaching frequency of less than twice a month ($p = 0.306$). An overall Fisher's exact test for teaching frequency was not significant ($p = 0.157$).

More control agency teachers also reported teaching in English when compared to intervention agency teachers ($p = 0.016$). Although the difference was nearly significant, there was no significant difference between the intervention and control agencies in percent teaching using Spanish language ($p = 0.059$). The intervention and control agencies did not differ in the remaining categories: percent teaching using other language ($p = 0.567$), percent WNA ($p = 0.833$), percent DN ($p = 0.305$), percent RD ($p = 0.301$), and percent other degree or certification ($p = 0.770$). Since languages used when teaching and types of degrees and certifications were questions that allowed teachers to check all choices that applied, overall tests for these questions were not performed.

The California WIC Program and the UC Berkeley CWH were particularly interested in the education classes and training the study teachers had attended prior to participating in the evaluation study. This was assessed in the first section of the Teacher Survey and is summarized in **Table 4** (page 88). It was important to evaluate the background educational trainings of the teachers in both the intervention and control agencies to see what the relative training level was in these two groups. Most WIC teachers have participated in some education classes and/or training as there has been an overall emphasis in WIC to revitalize the nutrition education services. Therefore, it would be virtually impossible to compare the implementation of FTW in intervention agencies to the implementation of no program in the control agencies, as they have already taken part in education classes and training. We are, therefore, comparing the implementation of FTW to other training *or* no training (some control agency teachers reported having taken part in no education classes or training).

The evaluation team was particularly interested in two educational workshops: the GLP *Learning to Listen, Learning to Teach* and *Advanced Learning Design*. These workshops focus on implementing learner-centered principles and practices, and the evaluation team wanted to control for the potential effect these two workshops had on the teachers' shift in perceptions about the learning process and their satisfaction with the education process. Additionally, to participate in FTW, intervention agency leaders had to attend both GLP workshops. Many of the intervention teachers also attended these workshops, or at least one of them. This occurred before the baseline survey was conducted, in preparation for FTW. This explains why intervention and control agencies differed in the percentage of teachers who had attended *Learning to Listen, Learning to Teach* ($p = 0.004$) and *Advanced Learning Design* ($p = 0.029$) at baseline. The *Facilitated Group Discussion* ($p = 0.010$) workshop also differed at baseline, with more control agency teachers having attended that training. Since this question allowed teachers to check all education classes and training they had attended, an overall test was not performed.

It was also important to assess whether teachers differed in number of classes and training taken at baseline. Teachers in the intervention agencies had a median of two classes, and control agency teachers had a median of one class. The distributions were skewed, but they were not systematically different and they were skewed in the same direction, as shown by the Wilcoxon rank-sum test ($p = 0.177$). Therefore the two groups did not differ significantly in number of classes and training taken at baseline.

For each question in the Likert scale sections, a mean was calculated for the baseline responses in both the intervention and control agencies. See **Table 5** (page 89). For Parts A through C, a total of 116 teachers could have answered the questions in these sections. Part D was restricted to only those teachers teaching the Fruit and Vegetable class. Question 39 assessed whether the teacher fell into that category, with 74 teachers saying they taught a Fruit and Vegetable class. Therefore, a total of 74 teachers could have answered questions in Part D, with 36 in the intervention agencies and 38 in the control agencies. At baseline, there were no differences among means between the intervention and control agencies in Parts A through C. **This means that at baseline both groups had similar perceptions of the learner and teacher's roles as well as their level of satisfaction.**

There was one question in Part D where the intervention and control agencies differed significantly:

Question 44: For the WIC class on fruits and vegetables, how satisfied are you in your interest and enjoyment of the class?

The intervention agency teachers had a mean of 4.94, which was significantly lower than the control agency teachers' mean of 5.55 ($p = 0.003$). These two numbers approximately correspond with the intervention agency teachers being "moderately satisfied" with their interest and enjoyment of the class on average, and the control

agency teachers being half-way between “moderately satisfied” and “very satisfied.” Since this difference between intervention and control agencies was less than one step on the Likert scale, it was not of tremendous concern. Similarly, baseline differences noted using a higher p-value cut-off ($\alpha=0.10$) may not indicate a “real-world” difference.

Summary of Longitudinal Change Statistics:

To assess teachers’ shifts in perception about the learning process and satisfaction with the education process, longitudinal change was measured in the Likert scale sections of the survey. For parts A through C, a total of 116 teachers could have answered both the baseline and post-intervention questions in those sections. However, the largest sample size for any one question in these sections was 114 teachers. For Part D, a total of 74 teachers could have answered questions in this section. However, the largest sample size for any one question in this section was 64 teachers. See **Table 6** (page 90).

There were two questions where the intervention and control agencies had statistically different mean change after conducting a two sample t-test:

Question 29: For the WIC class to be successful, how important is it that participants discuss the class topic with each other and learn from each other?

Question 37: For the WIC class to be successful, how important is it that teachers feel comfortable asking participants questions that may not have any right or wrong answers?

For question 29, intervention agency teachers had a mean change of 0.26, which was significantly different than the control agency teachers’ mean change of -0.22 ($p = 0.014$). For question 37, intervention agency teachers had a mean change of 0.26 and control agency teachers had a mean change of -0.28. This was also statistically significant ($p = 0.003$).

One question had a p-value < 0.10 , which was analyzed further for completeness:

Question 44: For the WIC class on fruits and vegetables, how satisfied are you with your interest in and enjoyment of the class?

For question 44, intervention agency teachers had a mean change of 0.36 and control agency teachers had a mean change of -0.10. ($p = 0.093$).

FTW Impact:

When examining the baseline differences among the demographic information (WIC employment and teaching history and educational classes and training attended), it was important to assess the correlation structure before proceeding with any analyses. Each variable that differed at baseline was significantly correlated with the type of agency (in other words, intervention or control). Each of these variables was also significantly correlated with at least one other variable that differed at baseline that was not the indicator variable for type of agency.

Relative risks were calculated for these analyses. **Teachers in the intervention agencies were 1.7 times more likely than control agency teacher (RR: 1.70, p=0.081) to have increased their opinions of *how important it was for participants to discuss class topics with each other and learn from each other.*** This result was not significant at $\alpha=0.05$, a standard cut-off value for assessing significance. However, given that it is significant at $\alpha=0.10$, a potentially more appropriate cut-off for social science assessments, this result may represent a true difference. The appropriate statistical tests were conducted to evaluate if baseline variables that differed between groups could explain the difference in question 29. The results of these analyses found that none of these variables explained the difference; these results are highly suggestive that the difference is the impact of FTW.

For question 37, **intervention agency teachers were 1.7 times more likely to have increased their opinions of *how important it was that teachers feel comfortable asking participants questions that may not have any right or wrong answers*** (RR: 1.70, p=0.087). This result was also not significant at $\alpha=0.05$, but significant at $\alpha=0.10$. Similarly, baseline variables that differed between groups could not explain the difference in question 37. These results are again suggestive that the difference is the impact of FTW.

For question 44, results were not significant (RR: 1.88, p=0.130). This is likely due to the reduced sample size for this question (n=64).

Teacher Comments Section at Endpoint:

Several significant results emerged from the analyses of the sixth section of the Teacher Survey, which contained teacher comments. More teachers in the intervention agencies volunteered that class participation, asking questions, and group discussion were things they liked best about teaching when compared to the control agency teachers (p=0.028). Similarly, more teachers in the control group volunteered that they liked encouraging participants to have a balanced diet, the benefits of fruits and vegetables, and how to add fruits and vegetables to their diet compared to the intervention group (p=0.007). See **Table 7** (page 91).

Thirteen of the 14 teachers in the intervention group that volunteered comments about what they liked least about teaching said that it was lack of participant participation. Comparatively, 9 of the 16 teachers in the control group who answered the question volunteered this response. This difference was significant ($p=0.024$). See **Table 7**.

Control Group Subset: Findings from FTW Intervention:

Three of the five control agencies participated in FTW the year following the original evaluation study. The Teacher Survey was administered to teachers in these agencies a third time, after they completed the 2006 FTW program. The total sample size was 18. In the following analyses, the data that was collected during the evaluation study was compared to the data collected after their participation in the 2006 FTW. See **Table 8** (page 92). Four questions yielded significant results:

Question 18: How much do you agree or disagree that WIC participants want to make changes to improve their health?

Question 22: How much do you agree or disagree that you get enough time to practice WIC classes before you teach them?

Question 37: For the WIC class to be successful, how important is it that teachers feel comfortable asking participants questions that may not have any right or wrong answers?

Question 38: For the WIC class to be successful, how important is it that participants practice what they have learned during class?

For question 18, teachers from the control agency subset had a mean change of 1.61 prior to completing the 2006 FTW program, which was significantly different from their mean change of -1.83 after completing the 2006 FTW program ($p < 0.001$). For question 22, control agency teachers had a mean change of -0.94 prior to completing the 2006 FTW program, which was significantly different from their mean change of 1.55 after completing the 2006 FTW program ($p = 0.002$). For question 37, control agency teachers had a mean change of -0.55 prior to completing the 2006 FTW program, which was significantly different from their mean change of 0.50 after completing the 2006 FTW program ($p = 0.005$). Lastly, for question 38, control agency teachers had a mean change of -0.39 prior to completing the 2006 FTW program, which was significantly different from their mean change of 0.55 after completing the 2006 FTW program ($p = 0.022$). See **Table 8**.

Discussion

FTW Impact:

There is evidence from this data that the FTW program increases teacher's perceptions of *how important it was for participants to discuss class topics with each other and learn from each other* (learner-centered principle: Learners are involved and participate in the learning process, they do at least 50% of the talking and doing) and *that teachers should feel comfortable asking participants questions that may not have any right or wrong answers* (learner-centered principle: Open questions – use of questions without set “correct” answers). The intervention agency teachers had positive longitudinal change for these two questions while the control agency teachers had negative longitudinal change. The relative risks associated with being an intervention agency teacher were significant for these questions ($p = 0.081$ and $p=0.087$) when using a cut-off value of $\alpha=0.10$. This cut-off value is potentially more appropriate for measuring perception. Other variables that may have explained this difference were tested, but found not to explain the difference in the teacher's changed perceptions of the learning process. This suggests that the FTW training program is effective in changing perceptions among WIC teachers.

There is also evidence from this data that the FTW training program increases teacher satisfaction. More teachers in the intervention agencies identified specific teaching practices that they enjoyed in the comments section of the Teacher Survey. Again, this suggests that the FTW program is effective in improving teacher's satisfaction with the education process.

Study Limitations:

There were a number of baseline characteristics that differed between intervention and control agency teachers that may be of interest. More control agency teachers were aged 50 years or older, while intervention agency teachers tended to be younger in age. Of greater interest, almost half of all surveyed control agency teachers reported teaching frequency of more than once per day, with approximately one-quarter of intervention agency teachers reporting the same frequency. This difference was significant. The impact of this increased teaching frequency could include teacher fatigue resulting in less interest in improving classes. It might be important in future studies to ascertain the number of classes taught per day in order to further investigate the role of teaching frequency in teacher's perception of the education process and their satisfaction.

Control agency teachers also reported teaching in English more often than intervention teachers. Since many WIC teachers have a non-English language as their first language, these teachers might experience discomfort teaching in English and be less satisfied with the teaching experience. Lastly, more control agency teachers reported having attended *Facilitated Group Discussion* when compared to intervention agency teachers. This program was a one-day training. For control agencies, who were not participating in FTW, *Facilitated Group Discussion* may have been a better fit for their level of resources and needs. Intervention agencies, who were planning to participate in FTW, may have

felt *Facilitated Group Discussion* was an additional training that would not be useful or necessary.

Because the control agency subset was a small sample size, broad conclusions about FTW intervention in this group would not be valid.

Class Design Review Report

Class Design Review Checklist Goals and Objectives

The Class Design Review Checklist was developed and administered to evaluate project goal two and its respective and applicable objective:

Goal Two: To assess the feasibility of implementing and sustaining learner-centered education in California WIC sites.

Objective:

- To evaluate the extent to which learner-centered principles and practices were incorporated into the group nutrition education classes before and after participating in the learner-centered education training program, *Finding the Teacher Within* (FTW).

Checklist description:

The Class Design Checklist was developed by the California WIC Program staff to analyze WIC class lesson plans for evidence of learner-centered principles and practices: specifically: Were LCE principles and/or practices incorporated in the class design? If so, how consistently were they incorporated? How effective were their incorporation?

Checklist administration and completion:

The Class Design Review Checklists were completed by the California WIC Program staff at both baseline and endpoint (prior to intervention agencies' participation in FTW, and then during FTW when the LCE Fruit and Vegetable class had been implemented). Lesson plans were obtained from the agency leaders, and a team of state staff completed the checklist. At baseline, lesson plans evaluated with the checklist tool included any type of lesson with the exception of a Fruit and Vegetable class. The lesson plans used were: Feeding Our Children with Love, What's in Your Cup, Welcome to WIC, Physical Activity, Let's Get Moving, Eating with the Family, Healthy Snacks, Older Infant Feeding, Low-fat Milk, Healthy Teeth for Healthy Smile, and What's New in WIC.

Fruit and Vegetable class lesson plans were evaluated at end-point with the same Class Design Review Checklist used at baseline. Intervention agencies used an LCE lesson plan designed by the state WIC staff for this evaluation study and adapted by local agencies for their own use. Control agency lesson plans used their standard traditional Fruit and Vegetable class designs. See box below for Class Design Review Checklist sample sizes.

Class Design Review Checklist study sample:

<u>Intervention</u>	
Baseline: n = 6;	Post-Intervention: n = 4
<u>Control</u>	
Baseline: n = 5;	Post-Intervention: n = 4

Dates of Checklist administration and completion:

All pre-intervention checklists were completed between February and August, 2005. All end-point checklists were completed between September and December, 2005.

Challenges in Checklist administration and completion:

Great care was taken to develop and administer standardized, unbiased class design checklists. Nonetheless, inherent challenges were encountered, including the following:

- State WIC staff involved in implementing FTW also developed the checklist and completed many of the design reviews; therefore could have carried expectations about what they would find during these reviews.
- It was not possible to obtain class designs from one of the control agencies; therefore we were not able to include this data.
- It was not possible to obtain some of the information on the checklist from a few agencies describing the design process (for example, whether the process included an initial needs assessment, specific planning steps, or whether it was piloted with participants and teachers); therefore we were not able to include this data.

Findings**Class design planning process:**

At baseline, responses to checklist questions addressing class design planning were similar across the intervention and control agencies. At end-point, there was an apparent difference in the responses across the groups: intervention agencies' class designs more consistently incorporated LCE principles and practices; specifically: agencies conducted a learning needs and resources assessment, used specific steps of planning, and considered affective as well as psychomotor and cognitive elements in the class design than did the control agencies.

Sequence of steps incorporated in design:

At baseline, responses to checklist questions addressing the class design sequence elements were similar across the intervention and control agencies. At end-point, there was an apparent difference in the responses between the groups: intervention agencies' class designs more consistently incorporated the LCE principles and practices, including: warm welcome, important content that was limited, ways for learners to apply their new knowledge, and opportunities for learners to transfer their new knowledge.

Type of information provided:

At baseline, responses regarding the kind of information given during WIC classes were similar across the intervention and control agencies. The most apparent positive change was in the intervention agencies' class designs to minimize any reading participants must do or rely on other ways to give the information, such as inviting volunteers to read.

How information is provided:

The most apparent positive change in agencies' class designs was intervention agencies' use of large attractive visuals and their practice of making new information understandable to everyone.

How questions are asked:

At baseline, both intervention and control agencies' class designs were similar in asking questions that avoid right and wrong answers, and asking questions for which the teachers already had the answers. The intervention agencies' class designs improved at endpoint in that they more consistently and effectively incorporated this LCE practice.

Process for piloting the design and preparing staff to teach the lesson:

There was an apparent positive change between baseline and endpoint among intervention agencies' use of piloting the class design and preparing staff to teach the lesson. The intervention agency designers more consistently piloted the design and related materials with groups of participants, used comments from teachers and participants to improve the design, and prepared teachers to feel more comfortable and confident with the class design as compared to the control agencies. However, intervention designers were not as consistently preparing teachers to feel more comfortable and confident with the class activities and materials.

Structure of the class:

There was an apparent change between baseline and endpoint among the intervention agencies' class designs with regards to the structure of the class. The class designs included: use of at least one open question after introducing each new piece of content; allowing every voice to be heard by allowing participants to do at least 50% of the talking and doing, starting early in the session; and by using partnering or small groups when appropriate. These changes were not noted among the control class designs.

Written format of the class:

There appears to have been a positive change among the intervention agencies' class designs; the format of these designs were easy for teachers to understand and use. This change was not noted among the control agencies.

Discussion

It is evident from these results that, after participating in the FTW training program, intervention agencies incorporated more LCE principles and practices into their class designs than the control agencies. However, it is important to note that this finding is not an indication of the agencies' successful abilities to design a LCE class; rather an indication that they were using the class design given to them by the state staff. For the purposes of the evaluation study, one class design was developed for all the intervention agencies' Fruit and Vegetable class, and agencies then had the option of adapting designs to fit their needs.

The more meaningful finding was that the control agencies' class designs did not consistently or effectively include LCE principles and practices at baseline or endpoint. Therefore, we can safely conclude that the control Fruit and Vegetable class designs were true control class designs.

There are a number of trends consistently noted across the findings from this and other survey tools. Dialogue was promoted in several ways between the class designer, teachers, and participants among the intervention agencies as seen in the Leader Interest Survey. This was **not** noted in the control agencies. The findings from this survey in particular suggest that dialogue was promoted in the intervention agencies by the class designers consistently pilot-testing the design and materials with groups of participants, and using comments from teachers and participants to improve the design. In the Leader Interest Survey, there was more evidence of the increased dialogue occurring between the class designers and the teachers than between the class designers and the participants.

It appears there could have been an even greater focus on improving the dialogue between the class designers and the teachers once the class design was implemented to help teachers feel more comfortable and confident with the class content. Agency leaders reported in the Leader Interest Survey that they did not have adequate time to observe their teachers and to provide feedback once the class design was implemented. Such class observations would likely have promoted this dialogue.

Among the findings from the Participant Focus Group Discussions, participants from the intervention agencies reported having more opportunities to talk and share with other participants during the class. This is consistent with the findings reported here. The structure of the class in the intervention agencies used at least one open question, allowed opportunities for every voice to be heard and had participants do at least 50% of the talking and doing. The implementation of these LCE practices appears imperative to make the class successful for both the participants and the teachers.

Future use of tool:

The Class Design Review Checklist should continue to be used by agency leaders and/or class designers to improve the quality of the class lesson plans. The tool can help identify specific LCE principles and practices that are missing from a design as well as areas of the design that need improvement.

Class Observation Tool Report

Class Observation Tool Goals and Objectives

The Class Observation Tool was developed and administered to evaluate project goal two and its respective and applicable objective.

Goal Two: To assess the feasibility of implementing and sustaining learner-centered education in California WIC sites.

Objective:

- To evaluate the extent to which learner-centered principles and practices were incorporated into the group nutrition education classes before and after participating in the learner-centered education training program, *Finding the Teacher Within* (FTW).

Tool description:

The Class Observation Tool was developed by the California WIC Program staff to evaluate control and intervention classes for evidence of applied learner-centered principles and practices; specifically: Were LCE principles and practices observed in the class? If yes, how consistently were they observed, and how skilled were the applications?

Tool administration and completion:

The Class Observation Tool was completed by the California WIC Program staff at baseline and endpoint (when the Fruit and Vegetable class was rolled out in the clinics). These staff traveled to the intervention and control agencies to complete these tools. At baseline, a variety of classes were observed; **at end-point only the Fruit and Vegetable classes were observed in both the intervention and control agencies.**

Class Observation Tool study sample:

<u>Intervention</u>	
Baseline: n = 12;	LCE Fruit and Vegetable class: n = 7
<u>Control</u>	
Baseline: n = 9;	Fruit and Vegetable class: n = 5

Dates of Tool administration and completion:

All pre-intervention surveys were completed between February and August, 2005. All end-point surveys were completed between September and December, 2005.

Challenges in Tool administration and completion:

Great care was taken to develop and administer standardized, unbiased class observation checklists. Nonetheless, inherent challenges were encountered, including the following:

- LCE principles and practices are complex and intrinsically difficult to measure objectively.
- At some agencies, state staff were able to observe only one class (and therefore only one teacher), and did not always feel assured they had obtained a broad picture of teacher skills at those agencies.
- State WIC staff's presence in the classroom could have affected teachers' and WIC participants' comfort levels, and therefore influenced the flow of the class.
- Observations took place at different time intervals for each agency after their FTW training. Therefore, the amount of time teachers had to practice LCE techniques differed between agencies.
- State WIC staff observers were involved in implementing FTW; therefore could have carried expectations about what they would find during these observations.
- Several observers administered the checklist; making standardization of observations more challenging.
- It was not possible to schedule observations for one of the control agencies; therefore this data was not included.

Findings**Environment is warm, inviting, and education-oriented:**

A positive shift in the learning environment was observed among the intervention agencies. No change was observed among the control agencies with regard to this particular LCE practice.

Learning sequence starts with participants' anchoring the topic to their lives:

Intervention agencies' ability to consistently apply this LCE practice in their classes appeared to improve. This change was not reported among control agency classes. Baseline data suggested that efforts were already underway to incorporate this LCE practice in the intervention agencies prior to implementing FTW.

Information offered is brief, interesting, powerful and relevant:

At baseline, intervention and control group observations appeared similar. The intervention agencies appeared to significantly improve the application of this LCE practice at end-point, as more observations described consistent application of this practice. This change was not noted among the control agencies at end-point.

New information is understandable to everyone, regardless of background (for example: big visuals, simple props, hands-on work):

Baseline observations indicated intervention and control agencies classes differed slightly in this LCE practice, with no application in one intervention agency and several intervention agencies with very consistent and skilled applications of this practice. A significant improvement was noted among the intervention agencies. At endpoint, state WIC staff observed more skilled application of this practice in the intervention agencies' classes. This change was not observed among the control agencies at end-point.

Class considers emotional factors that influence learner's behaviors (for example: participants' self-image, concerns, desires):

At baseline, this LCE practice was observed in some intervention agencies' classes; it was not observed or was observed inconsistently in the control agencies' classes. At endpoint, most intervention agencies had incorporated this practice. No change was observed among the control agencies.

Class content is followed by application:

At baseline, this LCE practice was observed in some intervention agencies' classes; it was not observed or was observed inconsistently in the control agencies' classes. At endpoint, all intervention agencies were using this practice, most with moderately or very skilled application. No change was noted among the control agencies' classes.

Content application is followed with transfer:

At baseline, some intervention agencies were already using this practice in their classes. This practice was either not observed or was observed inconsistently in the control agencies at baseline. At endpoint with the exception of one class observation, all intervention agencies used this practice consistently with moderately or very skilled application. No change was observed among the control agencies.

Open-ended questions with no right or wrong answers are asked:

At baseline, a few intervention classes were observed using this practice consistently with moderately or very skilled application. In a majority of the intervention and control agencies at baseline, this practice was not observed or was observed inconsistently and not in a highly-skilled application. At endpoint, all intervention agencies used this practice, mostly consistent with moderately or very skilled application. This practice was not observed in any control agency class at endpoint.

Teachers' facilitation skills helped participants feel safe and to become engaged:

At baseline, the observations of the intervention and control agencies' classes appeared to be different. More than half of the intervention agencies were using this practice consistently with moderately or very skilled application, while none of the control agencies were observed using this practice consistently. At endpoint, no improvement was observed among the control agencies. There was a slight shift among the intervention agencies, as this practice was observed in every class; however the

application of this practice in the intervention agencies at endpoint was not as strong as the application of other LCE practices.

Class focuses on actively engaging all willing participants in the topic area (participants do at least 50% of the talking and doing, partnering or small group activities):

At baseline, there was a difference noted between intervention and control agencies' classes in their use of this LCE practice. There was also a range in the application of this practice among the intervention agencies, with one agency not using it at all, and two others applying this practice very consistently and skillfully. All control agency observations at baseline indicated this practice was either not used or was used inconsistently. At endpoint, there was only a slight change among the intervention agencies' use of this practice: *none* of the observations indicated this practice was *not* being used. However, *all* of the observations of the control agencies' classes indicated that this LCE practice was *not* being used.

Spirit of the room is fun (participants and teachers appear energized and excited):

At baseline, there was a slight difference noted between intervention and control agencies' classes with regards to this LCE principle. A few observations of intervention classes reported this principle was not being used, and few indicated that classes showed strength in this area. In the remaining intervention and all the control agency classes, this principle was observed; though not consistently, or consistently with moderately skilled application. At endpoint, no significant improvement in either the intervention or control agency classes was observed. However, a difference remained between the intervention and control agencies. Among the intervention agencies at endpoint, every class used this practice with varying levels of consistency. Among control agencies, this principle was either not observed, or was observed inconsistently and/or without a highly-skilled application.

Discussion

Impact of FTW participation:

It is evident from these findings that the intervention agencies (those agencies that participated in the 2005 FTW training program) successfully implemented many LCE principles and practices into their classes. Among the control agencies' Fruit and Vegetable classes (the class observed at endpoint), no learner-centered principle or practice was observed very consistently or with very skilled application. In contrast, observations of the intervention agencies' Fruit and Vegetables classes indicated a shift in the learning environment as well as improvements in the information being offered, making it brief, snappy, powerful and relevant information and understandable to everyone regardless of their background.

Intervention agencies' Fruit and Vegetable class incorporated several other key elements of LCE: a focus on emotional factors that influence the learner's behaviors, a learning sequence that follows content with application and application with transfer, and use of open questions instead of questions with right or wrong answers. These findings are consistent with the results from the Class Design Review Tool.

Not all LCE principles and practices were successfully implemented in the intervention Fruit and Vegetable class. It is likely that classes were not always taught as they were designed; the LCE principles and practices were present in the class design, but not always observed in the class. Leader Interest Survey findings identified that agency leaders were often unable to observe teachers teaching the classes and provide them with feedback. Class observations and the ongoing promotion of dialogue between the class designers and teachers are likely important factors for successful implementation and sustainability of these principles and practices.

Baseline differences between intervention and control agencies:

There were differences noted between the observations of intervention and control agencies at baseline; LCE principles and practices were often observed among intervention agency classes at baseline as compared to control agency classes. No control agency classes were described as having a very skilled application of a LCE principle or practice at baseline. Such description was reported among the intervention agency class observations. This baseline difference may be explained by intervention agencies' preparation for participation in FTW: intervention agency leaders, as well as other staff from the agencies, had attended the GLP LCE courses in preparation for FTW. Intervention teachers and class designers likely began incorporating these LCE principles and practices after attending these training workshops.

Limitations:

Because a small sample of classes was observed to generate this data, it is not possible to describe the generalizability of this sample. State staff chose classes to observe based on agencies' schedule of when classes were offered and performed observations when it was possible for them to be at the agency.

Future use of tool:

This tool should continue to be used to help sustain implementation of LCE principles and practices in group education; specifically, to help class designers provide feedback to teachers about their implementation of LCE principles and practices into their classes.

Cost Survey Report

Cost Survey Goals and Objectives

The Cost Survey was developed and administered to evaluate project goal two and its respective and applicable objective:

Goal 2: To assess the feasibility of implementing and sustaining learner-centered education in California WIC nutrition education classes.

Objective:

- To identify the costs associated with implementing and sustaining LCE classes in WIC nutrition education services.

Survey administration and completion:

Cost Surveys were completed by agency leaders from the participating WIC agencies every six months during a 2.5 year period. Five surveys were sent to all 10 agencies. The three surveys covering the time period between July 2004 and December 2005 were included in the *implementation period*. The two surveys covering the time period between January 2006 and December 2006 were included in the *sustainability period*. Among the intervention agencies, the first six month period covered costs associated with preparation for FTW, the next year covered participating in FTW, and the last year covered costs of sustaining LCE. All staff who completed the surveys were provided detailed written instructions to achieve standardization in the way agencies documented information.

Challenges in survey administration and completion:

Some WIC agencies did not complete the Cost Surveys; one control agency did not return any of the five surveys. Additionally, three control agencies were participating in FTW during January 2006 to December 2006. Therefore, data from these three agencies' fifth Cost Survey (covering the sustainability time period) was not included. The intentional and unintentional missing data introduces bias into the results, as the sample size was significantly decreased.

Methods

Means, medians, and ranges were calculated and reported within the implementation and sustainability time periods for both intervention and control agencies. Therefore, each estimate reported represents an average or range for a period of six months. Salary calculations were performed using reported approximate pay per team leader or educator and hours reported.

Findings

Period Estimates:

See **Tables 9** and **10** (pages 93-94) for statistics related to hours, salary, and expenses during the implementation period. See **Tables 11** and **12** (pages 95-96) for statistics related to number of staff participating in teaching and approximate pay during the implementation period. See **Tables 13** and **14** (pages 97-98) for statistics related to hours, salary, and expenses during the sustainability period. See **Tables 15** and **16** (pages 99-100) for statistics related to number of staff participating in teaching and approximate pay during the sustainability period.

Other Costs:

Responses for the “Other Costs” categories most commonly included purchasing incentives for participants, with four intervention agency surveys noting this expense during the implementation period. Intervention agencies received \$25,000 over the course of the study to spend on resources necessary to participate in FTW and the evaluation study. Control agencies received between \$15,000 and \$21,000 over the course of the study for resources needed to participate in the evaluation (agencies that went on to participate in the 2006 FTW program received the higher amount of \$21,000 to cover FTW costs).

Additional “Other Costs” for the implementation period among intervention agencies included travel, a display board, conference calls, and piloting classes. Intervention agency surveys noted staff incentives and updating rooms, chairs and rugs as “Other Costs” during the sustainability period. Only one control agency survey noted any “Other Costs,” and these costs were listed during the implementation period. The agency purchased paper and boxes of pencils.

Discussion

Survey limitations:

As previously mentioned, response rates for some agencies were low. Given the small sample size, the omission of this data adds significant bias to the summary estimates. Additionally, some agencies reported hours for individual educators or for all their educators combined, which creates serious limitations in comparability. Means *and* medians were included in an attempt to illustrate these outliers and provide a more complete view of the data for each cell. Since hours reported may represent individual educators or multiple educators, the salary calculation may be flawed. Furthermore, some agencies included salary in their expense totals, although the survey was designed to have this information excluded. Since three control agencies were preparing for their participation in FTW starting in January 2006, the information gathered for the sustainability period for the control agencies is likely to be biased. Lastly, the Cost Surveys, while completed by the same individual at each agency, relies on their ability to report accurate cost estimates. Some agencies may have used receipts and time cards to

complete their surveys while others may have used gross estimates based on their own individual knowledge.

Implementation and sustainability of LCE classes:

During the intervention group's implementation period, almost all categories saw higher spending and hours as expected. Agency leaders participating in training as a *learner* required substantially more time and money to complete; particularly when examining medians. However, during the sustainability period, the control agencies had higher means, medians, and ranges for this category. As previously mentioned, some control agencies were preparing for participation in FTW, which may explain this difference.

Developing lesson plans and designing and leading staff training also required additional time and money to complete during implementation and sustainability. In the Leader Interest Survey, agency leaders called attention to the time necessary to develop lesson plans. There were marginal differences in observing staff, with more time and money spent in the intervention agencies overall, but all values were much lower than would be expected after participating in FTW. Intervention agency leaders commented in the Leader Interest Survey that observing staff either rarely occurred at their sites or did not occur, so this result may confirm those reports.

The category of *Participating in Training as a Learner* for educators (teachers) was higher in the intervention group in all categories during the implementation period, but hours and salary for controls was higher in the sustainability period. Control educators *Teaching Classes* category had a higher mean and median number of hours and salary reported during both time periods. This could be due to inconsistent reporting (some agencies reported hours for all of their educators and some reported averages for one educator; control agencies may have been more likely to include class development time in the *Teaching Classes* category) or demonstrate a difference in the number of classes taught at control versus intervention agencies.

In the Teacher Survey, more teachers in the control agencies (46% versus 24% in the intervention agencies) reported teaching classes more than once per day ($p=0.015$), with no other differences in teaching frequency categories. We cannot directly answer whether control agency teachers are teaching more classes, but these two findings suggest this possibility. This area may be important to explore, as higher teaching frequency may be associated with some of the other baseline differences in teacher and participant satisfaction reported in other evaluation tools.

The number of educators participating in teaching was lower for the control group (median of four educators versus eleven in the intervention agencies during the implementation period), but the response rate for that question was 53% for controls and 93% for intervention. Therefore, the lack of data may be the true reason for this difference. However, the mean, median, and range for approximate pay per team leader for controls appear significantly higher than for intervention leaders. The range for control leaders was reported as \$25 to \$40 per hour, and \$14 to \$25 per hour for intervention leaders. This may be a true difference as the Leader Interest Survey found that control agency leaders had been working for WIC for a longer period of time, which may explain this increased hourly pay.

These findings may reinforce or clarify results from other LCE evaluation tools; however, given the limitations of this survey tool, these data must be interpreted both carefully and broadly. These results demonstrate the need for a more thorough evaluation of the costs associated with implementing and sustaining the LCE approach.

Participant Survey Report

Participant Survey Goals

The goal of the Participant Survey was to compare and contrast quantitative data describing intervention and control participants’:

- Fruit and vegetable consumption behaviors, which included movement on the stage of change spectrum with regards to offering their family more fruits and vegetables, perceived barriers to offering more fruits and vegetables, number of servings of fruits and vegetables consumed in the last month, and ways in which fruits and vegetables are prepared.
- Satisfaction with the education process at WIC.

Survey administration:

All intervention and control agency staff were trained to administer the Participant Surveys. Participant Surveys and consent forms were mailed to agencies. In order to enroll in the study, participants needed to review and sign informed consent forms. Participants completed the survey during a pre-intervention class, and again during a post-intervention class (once they had attended a WIC Fruit and Vegetable class). The survey was administered in English, Spanish, and Vietnamese.

Dates of administration:

The pre-intervention Participant Survey was completed during July and August 2005. The Fruit and Vegetable classes were offered in both the intervention and control agencies primarily during September and October of 2005. The post-intervention Participant Survey was administered December 2005 through February 2006.

Survey design:

The Participant Survey contained seven sections. The first section focused on demographic data. The next five sections used Likert scales to assess: participants’ satisfaction with their most recent WIC class, position on the stage of change spectrum regarding offering their family more fruits and vegetables, feelings about fruits and vegetables, and frequency of fruit and vegetable consumption. The last section assessed the ways participants incorporated fruits and vegetables in their day. The surveys used for pre- and post-intervention were identical. See Appendix (pages 131-140) for a complete copy of the survey.

Variables

Indicator variables take on values of 0 and 1 and are often created independently or from other types of variables depending on the types of analyses being conducted. For this survey, participants attending an intervention agency were coded with 1 and the control agency participants were coded as 0, creating an indicator variable for type of agency (intervention or control). This variable distinguished intervention agency participants from control agency participants. Each family was assigned a Family ID, which was a unique code with eleven characters. The first two were letters and the last nine a series of numbers. Gender was ascertained as male or female and participants were asked to write out their full birth date, including month, day, and year. For race/ethnicity, participants could select from Asian/Pacific Islander, Black/African American, Hispanic, White (non-Hispanic), or other, and mark only one category they felt most correctly identified their race/ethnicity. Participants were also asked to select the language spoken at home, and could select from English, Spanish, Vietnamese, and other. Place of birth was ascertained: choices were Mexico, Vietnam, United States, or other country. Additionally, participants were asked how long they have been living in the United States, with the choice to select “All My Life” or to specify the number of years they have lived in the United States.

Participants were asked about their marriage, pregnancy, and breastfeeding status as yes or no. Work and school status were ascertained as no, yes (full-time), or yes (part-time). Participants were also asked to specify the highest year of school completed, and had the choices of eighth grade or less, some high school, high school graduate or GED completed, some college, college graduate, or other.

Length of time participating in WIC was presented as a free response question, and participants were instructed to answer in number of months or years. Similarly, number of children having participated in WIC was a free response question, and participants were instructed to fill in the number of children. For “number of people in household” and “number of people eat from the same food supply,” participants were asked to check a box corresponding to the number 1, 2, 3, 4, 5, 6, 7, or 8 or more. The same answer choices were available for the question asking the number of children that live with the participant. To determine who does most of the food preparation in the household, participants could choose from “I do” or “Someone else does.”

Likert scale questions that showed significantly different mean change between intervention and control agencies had separate variables created to be used in relative risk calculations. Relative risk calculations require the use of a binary outcome variable, like an indicator variable. The new variables were indicator variables, and those participants who had positive longitudinal change for the question were assigned a value of 1. Participants with no change or negative change for the question were assigned a value of 0. This will be discussed further in the Methods section.

Methods

Statistical analyses of the data collected using the Participant Survey were performed in SAS 9.1 and STATA 9.2. Surveys were matched based on the presence of both a pre-intervention and post-intervention survey for each participant using the assigned Family ID number and, additionally, a matching birth date. This second step was taken to try to include only families where the same family member took both surveys. Participants in intervention agencies were also removed if they had attended a learner-centered class before the pre-intervention survey was administered. Analyses were limited to matched pairs, and those participants with only a pre- *or* a post-intervention survey were dropped. Additionally, participants who could not be confirmed by their unique WIC Family ID as attending the Fruit and Vegetable class prior to the date of their post-intervention survey were eliminated from the data set (this included eliminating participants who took the post-intervention survey on the same day as the Fruit and Vegetable class). This step was performed using the ISIS* system, which records participant attendance at a class. One agency had particular difficulty maintaining these records in the ISIS system, and individuals that could not be confirmed as having attended the Fruit and Vegetable class in this agency were researched manually using other records.

T-tests and overall Fisher's tests were used to assess differences in baseline characteristics between intervention and control groups. The individual change for each question was evaluated as the difference between the post-intervention and pre-intervention value for each participant. If a participant did not answer the question at both pre-intervention and post-intervention, a difference was not calculated. Non-parametric Wilcoxon two-sample tests measured differences in change between the intervention and control agencies. Relative risks were calculated for questions that demonstrated a significantly different longitudinal change between groups.

* Information from California WIC's *Integrated Statewide Information System (ISIS)* automated data system served as an auxiliary source of data for this evaluation project.

Findings

Retention:

In total, 3,646 participants completed the pre-intervention Participant Survey, with 1,854 in the intervention agencies and 1,792 in the control agencies. For post-intervention, 2,087 participants completed the survey, with 1,124 in the intervention agencies and 963 in the control agencies. When the pre-intervention and post-intervention surveys were matched based on the presence of both surveys and a matching birth date, 1,607 total participants remained in the sample, with 836 in the intervention agencies and 771 in the control agencies. The sample was then cleaned to remove participants that could not be verified as having attended a Fruit and Vegetable class before the post-intervention survey or had attended another learner-centered class before the pre-intervention survey. Therefore, the final sample size was 1,367, with 673 in the intervention agencies and 694 in the control agencies. The matched data set retained 44% of those that took the pre-

intervention survey. The final cleaned data set retained 37% of those that took the pre-intervention survey. Pregnant and breastfeeding mothers were not excluded from the sample for two main reasons: First, only 4% (n=48) of the cleaned sample reported being pregnant, and only 9% (n=119) reported that they were currently breastfeeding. Additionally, the percentages of pregnant and breastfeeding mothers did not differ between intervention and control groups. See box for sample size summary.

Sample Sizes for Participant Survey.

	Pre- Intervention	Post- Intervention	Matched ^a	Cleaned ^b
Intervention	1854	1124	836	673
Control	1792	963	771	694
Total	3646	2087	1607 ^c	1367 ^d

^a Matching was defined as having both a pre- and post-survey, and also having the same birth date denoted on each survey.

^b Cleaning included verifying attendance at a Fruit and Vegetable class prior to the post-survey and removing participants who attended any pre-LCE class.

^c Retained 44% of original sample.

^d Retained 37% of original sample.

Summary of Baseline Statistics:

Summary statistics for the demographic information and WIC participation can be seen in **Table 17** (page 101). The intervention and control agency participants did not differ in gender ($p = 0.78$), main food preparer ($p = 0.83$), currently pregnant ($p = 0.20$), currently breastfeeding ($p = 0.07$), married ($p = 0.07$), work status outside of home (chi-square $p = 0.11$), school status (chi-square $p = 0.50$), and completed level of school (chi-square $p = 0.94$).

The two groups differed in birth year. Intervention agencies had more participants that were born before 1960 ($p = 0.03$) and between 1980 and 1989 ($p = 0.03$). The intervention and control agencies each had one participant that was born after 1989. There was no difference between the intervention and control agencies for participants born between 1960 and 1969 ($p = 0.18$) and 1970 and 1979 ($p = 0.18$). An overall Fisher's exact test for birth year was also significant ($p = 0.02$). Individuals in the control agencies had participated in WIC longer than those individuals in the intervention agencies ($p < 0.01$).

Intervention and control agencies also had differences in race/ethnicity. Intervention agencies had more participants self-identifying as Asian/Pacific Islander ($p = 0.03$) and White, non-Hispanic ($p = 0.01$) when compared to control agencies. Control agencies had more participants self-identifying as Hispanic ($p < 0.01$). Intervention and control agencies did not differ in participants self-identifying as Black/African American ($p = 0.60$) or other ($p = 0.77$). An overall Fisher's exact test for race/ethnicity was also significant ($p = 0.01$).

Intervention and control agencies had differences in birth country. Intervention agencies had more participants born in the United States ($p = 0.01$) or other country ($p < 0.01$). Control agencies had more participants born in Mexico ($p < 0.01$). Intervention and control agencies did not differ in participants born in Vietnam ($p = 0.96$). An overall Fisher's exact test for birth country was also significant ($p < 0.01$). Additionally, the intervention agencies had more participants who had lived in the United States their entire life ($p = 0.01$) when compared to control agency participants.

Lastly, intervention and control agencies had differences in language spoken at home. Intervention agencies had more participants speaking English ($p < 0.01$) or other language ($p = 0.01$) at home when compared to the control group. Control agencies had more participants speaking Spanish ($p < 0.01$) at home when compared to the intervention group. Intervention and control agencies did not differ in participants speaking Vietnamese ($p = 0.66$) at home. An overall chi-square test for language spoken at home was also significant ($p < 0.01$).

Control agencies also had more participants with higher numbers of children in WIC ($p < 0.01$), people in household ($p < 0.01$), and children in household ($p < 0.01$) when examining the distributions using one-sided Wilcoxon rank-sum tests. However, the median numbers of children in WIC, people in household, and children in household for both the intervention and control agencies were 2, 4, and 2, respectively.

For each question in the Likert scale sections, Wilcoxon-Mann-Whitney tests were performed to compare the distribution of the values at baseline between the intervention and control groups. It is challenging to assess true differences in social science data, particularly when measuring attitudes. Therefore, it has become standard, when presented with this type of data, to use a p-value less stringent than 0.05 to evaluate significance. Given the nature of this data, p-values less than 0.10 were considered significant. At baseline, there were significant differences between groups in thirteen questions:

Questions 21, 22, 23, 24, 25, and 26:

Intervention agency participants had higher satisfaction values for their most recent WIC class when compared to the control agency participants.

Question 33:

Intervention agency participants more strongly agreed that fruits and vegetables cost too much when compared to the control agency participants' responses.

Questions 36, 37, and 38:

Control agency participants agreed more strongly that they do not have time to fix vegetables, that fruits and vegetables are not really all that important to their family, and that none of their family's favorite foods include fruits or vegetables, when compared to the intervention agency participants' responses.

Question 40:

Intervention agency participants drank less (non-100% fruit) fruit drinks when compared to control agency participants.

Questions 43 and 44:

Intervention agency participants ate and drank more French fries, tater tots, or other fried potatoes and other (non-fried potato) vegetables when compared to the control agency participants.

Question 21: For the last WIC class you attended, how much did you like the way the class was taught? (p < 0.01)

Question 22: For the last WIC class you attended, how much did you like how inviting the room was? (p < 0.01)

Question 23: For the last WIC class you attended, how much did you like how you got to practice what you learned during the class by doing an activity? (p = 0.05)

Question 24: For the last WIC class you attended, how much did you like how you learned from the other people in the class? (p < 0.01)

Question 25: For the last WIC class you attended, how much did you like how you had a chance to ask questions? (p < 0.01)

Question 26: For the last WIC class you attended, how much did you like how you had a chance to share your ideas? (p < 0.01)

Question 33: How strongly do you agree that fruits and vegetables cost too much? (p < 0.01)

Question 36: How strongly do you agree that you do not have time to fix vegetable dishes? (p = 0.07)

Question 37: How strongly do you agree that fruits and vegetables are not really all that important for your family? (p = 0.03)

Question 38: How strongly do you agree that none of your family's favorite foods include fruits or vegetables? (p = 0.01)

Question 40: How often, in the last month, on average, did you drink (non-100% fruit) fruit drinks? (p = 0.03)

Question 43: How often, in the last month, on average, did you eat French fries, tater tots, or other fried potatoes? (p = 0.09)

Question 44: How often, in the last month, on average, did you eat or drink other vegetables (not French fries, tater tots, or other fried potatoes)? (p = 0.02)

Summary of Longitudinal Change Statistics:

To assess participant shift in satisfaction with the education process as well as fruit and vegetable consumption behaviors, longitudinal change was measured in the Likert scale sections of the survey. There were three questions where intervention and control agencies had statistically different longitudinal change after conducting Wilcoxon two-sample tests:

Question 24:

Intervention agency participants increased how much they liked learning from other people in the class when compared to the control group (p = 0.03).

Question 30:

Control agency participants increased how confident they were that they could serve meals or snacks with 1 or 2 more vegetables when compared to the intervention group (p = 0.02).

Question 44:

Intervention agency participants increased how frequently they ate or drank other (non-fried potato) vegetables when compared to the control group (p = 0.03).

Question 24: For the last WIC class you attended, how much did you like how you learned from the other people in the class?

Question 30: How sure are you that you can serve meals or snacks with 1 or 2 more vegetables?

Question 44: How often, in the last month, on average, did you eat or drink other vegetables (not French fries, tater tots, or other fried potatoes)?

LCE Impact:

Relative risks were calculated for the three questions that demonstrated a significant longitudinal change. For question 44, participants in the intervention agencies were 1.23 times more likely than control agency participants (RR: 1.23, $p = 0.03$) to increase their behavior of *how often they ate or drank other (non-fried potato) vegetables*. These results suggest that the difference between groups in behavior change is due to the impact of LCE.

For questions 24 and 30, results were not significant (RR: 1.22, $p = 0.17$; RR: 0.83, $p = 0.12$).

Discussion**LCE Impact:**

There is evidence from this data that the learner-centered approach helps facilitate participants' behavior change, specifically in *how often they ate or drank other (non-fried potato) vegetables*. The intervention agency participants had longitudinal change for this question that indicated more participants eating other (non-fried potato) vegetables more frequently than control agency participants. The relative risk (RR: 1.23) associated with being an intervention agency participant for this question was also significant ($p = 0.03$). This suggests that the LCE approach is effective in changing behavior among WIC participants.

There is also evidence from this data that LCE increases participant satisfaction with WIC classes. More participants in the intervention agencies demonstrated increasing their opinions of how much they liked learning from the other people in the class ($p = 0.03$).

Survey Limitations:

There were a number of baseline characteristics that differed between intervention and control agency participants that may be of interest. Intervention agencies had more participants born before 1960 and between 1980 and 1989. Control agency participants had participated in WIC longer than intervention agency participants, and also had more children in WIC, people in household, and children in household. Intervention agencies had more Asian/Pacific Islander and White, non-Hispanic participants while control agencies had more Hispanic participants. Similarly, intervention agencies had more participants born in the United States or other country, while control agencies had more participants born in Mexico. Also, intervention agencies had more participants having lived in the United States their entire life. It is therefore not surprising that the intervention agencies also had more participants speaking English or other language at home and control agencies had more participants speaking Spanish at home. Additionally, satisfaction with WIC classes, feelings about fruits and vegetables, and fruit and vegetable behavior also differed between intervention and control agencies at baseline.

It was difficult for WIC agencies to retain all participants throughout the three phases of the study: the pre-intervention survey, the Fruit and Vegetable class, and the post-intervention survey. This was primarily due to the nature of the WIC population. However, tracking participants was also a commonly reported challenge. Since participants had to be tracked based on a family ID number rather than an individual ID number, it is possible that in some cases it was not the same participant who took the pre-intervention survey, attended the Fruit and Vegetable class, and completed the post-intervention survey. Pre-intervention and post-intervention surveys with non-matching birth dates were excluded from the data set in an attempt to control for this issue. However, it was not possible to identify birth date of the participant that attended the Fruit and Vegetable class and match it to the birth date on the surveys. Therefore, our analyses may include participants who took the pre-intervention and post-intervention survey, while another family member actually attended the Fruit and Vegetable class.

Participant Focus Group Discussions Report

Focus Group Discussion Goals

The goal of these focus group discussions was two-fold: to assess changes in the way participants offer fruits and vegetables to their families as a result of attending a WIC Fruit and Vegetable class in the previous 6 months, and to assess WIC participants' satisfaction with the class. Qualitative data collected from the intervention and control sites were compared and contrasted.

Methods

Study staff selected three intervention and three control agencies at random from the total pool of ten agencies to participate in these focus group discussions. Agencies that participated in these focus group discussions are noted in **Table 18** (page 102), which summarizes the key characteristics of all agencies that participated in the study. Focus group discussions were conducted in both English and Spanish. Spanish focus groups were held at two intervention and two control agencies; English focus groups were held at one intervention and one control agency. Each agency selected to participate in the focus groups was assigned a language in which to conduct their discussion based on the number of completed Spanish and English WIC Participant Surveys they had returned to the research group.

Managers from the participating agencies asked mothers enrolled in the study to volunteer for these focus groups. These women were recruited during the Fruit and Vegetable classes. No other exclusion criteria were applied. Having the groups consist only of women allowed the information abstracted from the discussions to be more easily compared and contrasted. It also increased participants' comfort level, allowing them to more freely share their opinions and practices. Mothers were compensated with 25 dollars to cover the cost of childcare so that they could attend the discussion without their children on the scheduled date and time for the entire one-hour duration.

Procedures:

Prior to the first scheduled focus group discussion session, the focus group discussion questions were pilot tested for validation. The questions were designed using the Fruit and Vegetable class objectives. To maintain the objectivity, a bilingual focus group specialist was hired to facilitate all six focus group discussions. A bilingual assistant accompanied the facilitator to administer forms, record the sessions and take notes, distribute compensation, and provide light snacks for the participants.

In both the intervention and control agencies, the focus group discussions began by asking participants to complete an informed consent form approved by the University of California, Berkeley's Committee for the Protection of Human Subjects. Participants also

completed a brief survey, which provided additional verification of their attendance in the WIC Fruit and Vegetable class in the past six months. All focus group discussions started close to the designated start time. The facilitator gave a brief overview of the discussion topic and reviewed the general ground rules for the discussion. The facilitator used pauses and probes to encourage all participants to get involved in the discussion. Two pictures of a traditional classroom environment with a teacher and learners were passed around during the discussions to provide a frame of reference for a question about the Fruit and Vegetable classroom environment.

At the conclusion of the discussions, the assistant summarized the main points that were discussed, and the facilitator asked for corrections, clarifications and/or additional comments. All sessions were audio-taped. After each discussion, the facilitator and assistant had a short debriefing session to capture any non-verbal communications and address gaps in the assistant's notes. These debriefings were also recorded. All tapes were sent to an outside resource to be transcribed. Spanish sessions were translated into English as they were transcribed.

Data synthesis:

A team of five analysts (two U.C. Berkeley social scientists, two U.C. Berkeley nutritionists, and one state WIC nutritionist) conducted the analysis of the data collected from these focus group discussions. None of the analysts were present during the discussions. All analysts independently read each transcript, made notes, coded sections, and developed categories for responses to each question. The team met four times after completing their independent work to discuss emerging themes and abstract meaningful data.

Analysis:

The study team used the long-table approach to categorize the results and identify themes. Every line of each transcript was numbered, and the transcripts were printed on different color pages to allow themes to be identified once the transcripts were taken apart. Flip charts labeled with categories identified by the analysts were posted throughout the room. Transcripts were re-read out loud and analysts' notes and codes were shared and discussed until consensus was reached. Emerging themes such as concepts that were discussed across multiple focus group discussions and at greatest length were identified from the text on each flip chart. Results were then compared and contrasted across the intervention and control groups and rank ordered to create a textual summary of findings. Key quotes from participants and unanticipated categories were also identified.

Focus Group participants:

Sixty predominantly Latina mothers with young children participated in these discussions; thirty were from the three participating intervention agencies and 30 were from the three control agencies. Twenty-seven of the thirty intervention participants (90%) and twenty-four of the thirty control participants (80%) confirmed by questionnaire that they remembered attending a Fruit and Vegetable class at WIC during the past year. The participants' ages ranged from 19-55 years old, with an average age of 31. Almost all had between one and four children at home; two women had five children at home. More than three-quarters of the participants reported not working outside the home. There was no difference in any of these factors between the intervention and control groups. See **Table 19** (page 103) for demographic characteristics of focus group participants.

Findings

Several themes emerged from the discussions. The following five themes depict the most significant differences between the intervention and control groups' experiences in the WIC Fruit and Vegetable class they attended. These themes did not differ between the Spanish and English-speaking groups. Key quotes from intervention and control participants are shown below with their respective themes. Themes one and two were identified from the data collected relating to the first objective of the focus group discussions: To compare and contrast changes in the way participants offer their family fruits and vegetables as a result of attending the WIC Fruit and Vegetable class. Themes three through five were identified from the data collected relating to the second objective of the focus group discussions: To compare and contrast participants' satisfaction with the WIC Fruit and Vegetable class they attended.

Changes in the way participants offer their families more fruits and vegetables:

Theme 1: Mothers from the intervention groups identified specific reasons why the knowledge from the Fruit and Vegetable class was important to their lives, whereas mothers from the control groups tended to reiterate general knowledge about fruits and vegetables. When asked about the importance of eating fruits and vegetables, mothers from the intervention groups shared examples of specific health benefits they felt their children experienced from eating fruits and vegetables: *"She's hardly ever constipated because of the vegetables"* and *"...they end up more satisfied and don't go around taking whatever else there is. They don't eat so much candy."* Mothers in each of the control groups reiterated more general health benefits: *"It helps them with everything because each vegetable and fruit has a different vitamin. Some are good for the sight, some for the blood, and that is good for their health."* The same was true when the groups identified barriers that prevented them from serving fruits and vegetables to their families. The mothers from the intervention groups had many more specific barriers to report that prevent them from offering their families more fruits and vegetables. For example, their child is under someone else's care during the day, peer-pressure from

other kids, challenges eating at school, lack of cooking skills, and lack of support from other family members. The control mothers reported more general barriers: parents' dislike of fruits and vegetables, unfamiliarity with fruits and vegetables, and expense of fruits and vegetables.

Theme 2: Mothers who attended a learner-centered class appeared to adopt more new ways of offering their families fruits and vegetables as a result of attending the class than did mothers from the control groups. Comments from the intervention mothers suggested that they made behavior changes as a result of the knowledge they learned from attending the class. Mothers from the intervention groups reported a number of new ways they were offering and encouraging their families to eat more fruits and vegetables, including: starting a garden, expanding the variety of fruits and vegetables they offered to their families, making freshly squeezed juices at home, freezing seasonal fruits, grocery shopping with their children, and replacing snacks purchased from fast food outlets with offerings of fresh fruits and vegetables. *“Before the class, I used to just eat apples, oranges, and bananas; we didn’t expand to the other fruits like kiwi. I never had kiwi until after this class. Certain vegetable, you know, I didn’t know how to prepare ‘em, so now I’m this amazing mom.” “...I am not going to give my little girl French fries; I am going to give her fruit... And I learned a lot because I said you know what, for my little girl’s health, I am going to do it. It will be more work to do it, but it is for my girl.”* The mothers from the control groups reported that they learned to cut up fruits and vegetables into small pieces so children would eat more, and that it was better to steam the vegetables rather than cook them or serve them in a broth. These and other comments suggested that control mothers understood the importance of offering and encouraging their children to eat more fruits and vegetables; however, they did not appear to make many changes as a result of attending the class.

Participant satisfaction with the WIC Fruit and Vegetable class:

Theme 3: Mothers who attended a learner-centered Fruit and Vegetable class remembered more aspects of the class and found it more enjoyable compared to mothers who attended a Fruit and Vegetable class at one of the control agencies. Mothers from the intervention groups remembered many details about the WIC Fruit and Vegetable class they attended and reported, *“The ideas stayed with them.”* The mothers in each control group tended to reiterate more general information they obtained from attending the WIC class and reported, *“You leave there (the class) and you already forgot it.”* Mothers from control groups also had more complaints about the class. One mother from a control group said the class was too basic and repetitious. Conversely, several mothers from the intervention groups reported wanting to recommend the class to their friends and family. *“I recommended it (the Fruit and Vegetable class) to my sister, she goes to WIC.”*

There was also an element of social networking identified in some of the learner-centered classes. A mother from an intervention group commented *“I remember meeting different people from the classroom and carrying it on out the door and out into the parking lot.”*

There was one lady that I stayed with and talked with. We talked about the babies and vegetables. I remember that... so not only did I learn, I made some friends.” Another mother commented that she could see potential friendships developing with the other participants in the class, and another suggested that they meet more frequently like they did in the class to share information.

Theme 4: Mothers from the intervention groups felt more comfortable and confident sharing personal experiences in the learner-centered Fruit and Vegetable classes than did mothers who attended a Fruit and Vegetable class taught at a control agency. Mothers from the intervention groups reported sharing with the teacher and other participants their own personal experiences with cancer as well as their financial barriers preventing them from buying fruits and vegetables. A mother from an intervention group reported, *“it (the Fruit and Vegetable class) was a free open talk type thing”*, and another reported, *“In that class everybody shared how they serve fruits and vegetables, so everybody had a chance.”* These mothers felt the teachers encouraged them to share. *“She asked us for our opinions, and that was fine because we learn more when we are talking. I think that is why I felt comfortable, because she gave us the confidence that we could say to her what we were thinking.”* *“The persons who give the classes are pleasant, which also motivates you to be there.”* Comments from control group mothers indicated that they wished they could have shared more of themselves because *“...it gives you more confidence.”*

When the groups were presented with reference pictures of the classroom environment, intervention groups reported that they sat in a circle during the Fruit and Vegetable class just as they were seated during the focus group discussions. This allowed them to easily share their experiences with one another. The control groups reported that they would like to have been seated in a circle, as they felt it would have made it easier for them to share. *“I find it better having a group like this (referring to the way they were seated in focus group discussion) where we’re all discussing it, and we’re getting points of view how other people do things. To me, I find that very helpful.”*

Theme 5: Intervention mothers reported that they not only shared their own experiences in the class, but they learned from other participants’ experiences and knowledge. Intervention mothers felt each participant in their class had an equal amount of time to share their knowledge as well as their personal experiences. The dominant message conveyed by the mothers from the intervention groups was that they got to talk, hear others, and learn. They reported the class was useful because they learned from each other and got new ideas. *“We had the same opportunity to talk, the same opportunity to share equally, and learn equally”*. Conversely, mothers in the control groups said that they were sometimes just listening to the teacher and were not asked questions or asked to share their comments and opinions in the class. *“(The teacher) was telling us the things we had to give our children and (she) didn’t even ask any questions.”* Some of the control participants left the class with specific questions unanswered and with topics they wished had been discussed. Control mothers noted they would have appreciated the opportunity to share their experiences with the other participants.

**Summary of key quotes from intervention and control participants
that highlight themes:**

Theme 1: Mothers from the intervention groups identified specific reasons why the knowledge from the Fruit and Vegetable class was important to their lives, whereas mothers from the control groups tended to reiterate general knowledge about fruits and vegetables.

Intervention: *I think it helps the kids stay regular. She's hardly ever constipated because of the vegetables.*

Intervention: *And also they end up more satisfied and don't go around taking whatever else there is. They don't eat so much candy.*

Control: *It helps them with everything because each vegetable and fruit has a different vitamin. Some are good for the sight, some for the blood and that is good for their health. It is good that they eat vegetables.*

Theme 2: Mothers who attended a learner-centered class appeared to adopt more new ways of offering their families fruits and vegetables as a result of attending the class than mothers from the control groups.

Intervention: *It really encouraged me to get out there and do a garden.*

Intervention: *Before the class, I used to just eat apples, oranges, and bananas; we didn't expand to the other fruits like kiwi. I never had kiwi until after this class. Certain vegetable, you know, I didn't know how to prepare 'em, so now I'm this amazing mom.*

Intervention: *In the sense that I am not going to give my little girl French fries, I am going to give her fruit... And I learned a lot because I said you know what, for my little girl's health, I am going to do it. It will be more work to do it, but it is for my girl.*

Intervention: *They (her children) were paying attention to the class and from then on the eldest eats more vegetables. She was a bit more fat, and since then she lost weight. She did like the class. When we shop, (she asks me to) buy more vegetables and that is what she takes to school, the small carrots.*

Theme 3: Mothers who attended a learner-centered Fruit and Vegetable class had more memories of the class and found it more enjoyable compared to mothers who attended a Fruit and Vegetable class at one of the control agencies.

Intervention: *I remember meeting different people from the classroom and carrying it on out the door and out into the parking lot. There was one lady that I stayed with and talked with. We talked about the babies and vegetables. I remember that... so not only did I learn I made some friends.*

Intervention: *I think that it would be really cool if we have a class of the same people and we actually start to maintain, actually start to create a friendship, and every time the group meets, they can share. It doesn't have to be just fruits and vegetables.*

Theme 4: Mothers from the intervention groups felt more comfortable and confident sharing personal experiences in the learner-centered Fruit and Vegetable classes than did mothers who attended a Fruit and Vegetable class taught at a control agency.

Intervention: *I shared that I had cancer.*

Intervention: *Well, like my situation, there isn't enough to buy fruits and vegetables and meat. They like meat, chicken, fish, and things like that. Sometimes it's difficult to buy everything.*

Intervention: *In that class everybody shared how they serve fruits and vegetables, so everybody had a chance.*

Intervention: *She asked us for our opinions, and that was fine because we learn more when we are talking... I think that is why I felt comfortable, because she gave us the confidence that we could say to her what we were thinking.*

Control: *...we like this (referring to the circle they were seated in during the focus group discussions), it's better to be sharing with one and other, having the chairs like this so that you do not turn your back on somebody.*

Control: *I find it better having a group like this (again referring to focus group discussion seating arrangement) where we're all discussing it, and we're getting points of view how other people do things. To me, I find that very helpful.*

Theme 5: Intervention mothers reported that they not only shared their own experiences in the class, but they learned from other participants' experiences and knowledge.

Control: *(The teacher) was telling us the things we had to give our children and (she) didn't even ask any questions.*

Intervention: *We had the same opportunity to talk, the same opportunity to share equally, and learn equally.*

Intervention: *You learn more. Because the others are saying something, they can remind you of something, you can ask, and more of your doubts are cleared up.*

* Note that after careful review of the transcripts, there were not many relevant comments from control participants about changes in the way they offer their families fruits and vegetables or their satisfaction with the Fruit and Vegetable class.

Discussion

These focus group discussions were conducted as part of a larger study designed to assess the effectiveness of LCE principles and practices in California WIC agencies. The findings from these focus group discussions thoroughly answered the following study questions: does attending a LCE Fruit and Vegetable class more effectively improve participants' fruit and vegetable attitudes and consumption behaviors than attending a conventional Fruit and Vegetable class; and does participants' satisfaction with WIC nutrition education classes improve in agencies that participate in *Finding the Teacher Within*, a training program designed specifically to help WIC agencies implement LCE principles and practices into their nutrition education classes?

In order to assess the effectiveness of LCE to facilitate behavior change, participants were asked about their feelings toward fruits and vegetables, as well as changes in their families' fruit and vegetable consumption behaviors since attending the class. These questions correspond with the Fruit and Vegetable class objectives: to review benefits of fruits and vegetables, examine ways to offer more fruits and vegetables to the participants' families, and select at least one way to offer more fruits and vegetables. The most significant difference found between the intervention and control groups' responses to these questions was that **intervention participants noted the value and importance of the fruit and vegetable information in their own lives, and had adopted new fruit and vegetable practices after attending the class.** Among the new practices were: starting a garden at home, replacing visits to fast food outlets with offerings of fresh fruits and vegetables, and increasing the variety of fruits and vegetables offered. Conversely, the control participants reported general information about fruit and vegetable consumption and ways to offer fruits and vegetables to their families.

We can conclude that the intervention agencies (those that participated in FTW) successfully implemented the learner-centered principle of “immediately meaningful” into their class design. In other words, including something that learners feel is helpful in their own lives at the moment that they can take back and use right away. This finding not only emphasizes the effectiveness of LCE to change fruit and vegetable consumption behavior, but further reveals that the LCE class was more memorable and ultimately more satisfying for the participants.

Participant satisfaction was assessed by asking participants what they remembered from attending a single Fruit and Vegetable class. Our findings indicate intervention participants remembered considerably more details about the class. This finding is quite remarkable, given the classes' short duration (15-20 minutes) and the number of months since participants had attended the class (within past six months). The most significant differences noted between the comments from the intervention and control groups about their memories of the class were: 1) intervention participants were more engaged in the class, and had more opportunities to interact with other class participants, 2) intervention participants experienced emotional safety that was not experienced by the control groups, such that they felt comfortable and confident to share their own knowledge and

experiences in the class, and 3) intervention participants felt more valued for what they had to offer.

It is evident from these findings that the intervention agencies successfully implemented a number of LCE principles and practices into their Fruit and Vegetable class design. Engagement, safety and respect, all principles noted above, are hallmarks of a well-designed LCE class. Further, it appears that the successful implementation of these LCE principles and practices in the intervention agencies contributed to making the class more memorable, and ultimately more satisfying for the participant. It is important to note that after careful review of the transcripts, there were not many relevant comments from the control participants regarding improvements in the way they offer their families fruits and vegetables or their satisfaction with the class. This was in sharp contrast to the numerous and detailed comments contributed by the intervention participants.

Limitations of Tool:

Like all methods of data collection, focus group discussions have limitations. Subjects who agree to participate in focus group discussions are likely to differ from subjects who choose not to participate in a number of important ways, including basic levels of motivation and attitudes towards health. Thus, the WIC participants who agreed to take part in the larger study, and these discussions in particular, may not have been completely generalizable to all California WIC participants.

By nature, qualitative data analysis has a greater potential for introducing bias than do quantitatively-derived analysis. We took a number of measures in our analysis process to minimize the risk of introducing bias. These included: hiring an outside focus group discussion facilitator, bringing in two social scientists not involved in the study, and having analysts identify emerging themes independently before working on the group analyses.

This evaluation study was conducted during a time when many California WIC agency leaders and teachers had already attended workshops designed to teach LCE principles and practices, thus, there may have been some unintended exposure at baseline and throughout the study from these state-wide efforts. The intervention treatment, FTW, however, was designed as an intensive training program spanning several months. It was developed specifically to assist WIC agencies in implementing LCE principles and practices into their nutrition education classes. This intensive, long-term program made it more feasible for WIC agencies in the intervention group to fully implement this participatory approach to education.

Lessons Learned

We consider this evaluation study to be very successful in meeting its goals and objectives. At the same time, there were lessons learned that would be useful to apply to future related work.

Study Logistics

Implement frequent check-ins:

Check-ins with local agency leaders were vital. It may have been beneficial to have these check-ins occur more frequently with both the intervention and control agencies. At the beginning of the study, staff from CWH and state WIC visited all ten of the participating agencies to review the Participant Survey and its administration process with agency staff. Control and intervention agencies may have benefited from additional site visits to help with this and other evaluation tool implementation. More contact may have increased the study sample size and retention rate, as more staff would have “bought-in” to the process and felt confident about their role in the study. More frequent check-ins could have been particularly beneficial for the control agencies, as intervention agency leaders and study staff had more opportunities to interact at various FTW training sessions.

Solicit input from agency leaders on data collection methods:

Because of the very short time frame between the beginning of the grant period and the pre-scheduled timing of the intervention, local agency staff had minimal involvement in the design and implementation of the evaluation tools. Involving the local agency staff in these processes may have been beneficial for two reasons:

Frontline staff have key insight on various processes at the local level that may have improved the data collection process, particularly with the Participant Survey; and 2) These staff may have been less resistant to the demands of the study if they were more involved in designing the process.

Conduct evaluation after implementation:

While it was not possible to change the grant period, it would have been logistically less complicated to evaluate LCE effectiveness the year *following* agencies’ participation in FTW as opposed to during the training period. There were a number of challenges in collecting data from agencies during the same time period that they were also participating in the intensive training program. However, collecting all data *after* agencies’ participation in FTW would bring its own complications, such as difficulty establishing a baseline.

Program Implementation:

Implementing LCE is resource-intensive:

LCE represents a major departure from the traditional principles and practices that many of us experienced while in school and on-the-job training. LCE implementation in WIC requires a significant long-term commitment from the State WIC program, local WIC agency administration, and local agency staff. General exposure to LCE principles and practices such as one to two training sessions – is not adequate to sustain the implementation. Programs must be willing and able to invest the resources needed into initial and ongoing training to see these positive outcomes. Even our most dedicated intervention agency staff found it challenging at times to make the time needed to support the process. For example, it was difficult to commit time for observing educators lead LCE classes and provide them with needed feedback.

Sustaining LCE is resource-intensive:

This phase ideally involves a significant administrative commitment as well. Ideally, LCE philosophy becomes integrated into staff meetings, trainings, conferences, and general communication within programs and agencies. “Institutionalizing” LCE not only improves the process and outcomes of these events; but also reinforces LCE principles and practices for staff, through leader modeling and from their own continued experience with the techniques.

Study Limitations

During the LCE study period, the California WIC Program initiated a state-wide campaign to increase participant caseload. Because agencies required additional resources to recruit and serve extra participants, it was even more challenging for study agencies to implement LCE and collect data for our evaluation. Our participant sample size and retention rate may have been higher if agencies had had more administrative resources available to them during this period.

It was difficult for agencies to track participants through each of the three steps of the evaluation process: attending the pre-intervention survey class, the Fruit and Vegetable class, and the post-intervention survey class. The low retention rates reflect the difficulties of following the participants throughout this process. In particular, it was difficult to identify when a participant attended a Fruit and Vegetable class. In some cases, it was reported that the participant attended a Fruit and Vegetable class on the same day they completed the post-intervention survey. We eliminated these participants from the final analysis as any change in their fruit and vegetable consumption behaviors would be unrelated to information they learned in the class.

Because we needed to use the WIC family ID to track participants through each stage of the evaluation process, it was unclear whether the same individual attended all three steps of the process. The survey collected the individual’s birth date; therefore the pre- and

post-intervention survey could be matched on WIC family ID and birth date. However, it is possible that another individual associated with that family ID attended the Fruit and Vegetable class.

There were many limitations associated with the data collected from the Cost Survey. The primary limitation was the way in which leaders completed the survey. Resource guides were provided to each leader to aid their completion of this survey; however it was clear these were not always used. Some reported figures for all their staff and others reported on single staff. This made it difficult to analyze the data.

California WIC serves a highly mobile population, particularly in urban populations, which makes retention of participants especially challenging.

Sustainability and Transferability

Sustainability

As described above, initial implementation of LCE in local WIC agencies requires an intense effort. The participating agencies need motivated staff willing to invest the time and energy to be trained in and to practice this new approach to teaching. Agency management must be committed as well; willing to provide the resources needed to initiate and maintain LCE in their agency. At the state level, leadership is essential to provide the training and support for local agencies.

Sustaining LCE does not require the same level of resources once the initial training and implementation costs are borne. It does require an ongoing commitment from the State WIC program and local WIC agencies; however, the rewards of using this approach can justify the efforts with regard to participant satisfaction and potential for behavior change. Additionally, anecdotal evidence from a previous California WIC LCE process evaluation showed that educators conducting the new LCE classes felt revitalized by this approach, which can translate to improved morale and better staff retention rates.

It may be several years before LCE is institutionalized in WIC agencies to the point where targeted administrative support becomes less critical. In the interim, continued reinforcement will be needed to sustain the implementation of LCE principles, to continue building on staff skills, and to create new LCE lesson plans in emerging areas of public health nutrition appropriate to the needs of the WIC population.

Transferability

The LCE approach can be applied to additional WIC education topics and to other WIC agencies, both within California and across the nation. Many of the training resources developed in agencies implementing LCE can be adapted for LCE orientation, training, and reinforcement activities. Access to LCE lesson plans significantly decreases the amount of staff time required to develop new classes. California WIC has already begun posting LCE resources, including LCE lesson plans, on the California WIC web site.

Letters will be sent to all California agency leaders and State WIC directors describing project findings and related web page links. The California WIC Program has already begun sharing highlights of our results at various WIC-related local, state, and national venues, including annual conferences of the California WIC Association, the National WIC Association, and the American Dietetic Association.

A web-based LCE resource kit will be available on both the California WIC and national WIC Works Resource web sites (see box below, page 77 for a description). Other state WIC programs can adapt California's implementation strategies and training materials to match their programs' needs. Programs and agencies serving similar populations (such as Head Start, Food Stamps Nutrition Education Program, Cooperative Extension, and

school-based nutrition programs) can find application for WIC's LCE approach in their own health education activities. Feedback from our Advisory Board indicates that such broad application is indicated and feasible.

LCE Resource Kit Description

- LCE overview: Principles, practices, theory, and application in WIC
- Executive summary of the evaluation results
- Training materials, lesson plans, in-services
- Implementation suggestions
- Sample LCE lesson plans and design guidelines
- Evaluation and observation forms and tools

The transferability of the evaluation design is of special interest. We believe California WIC's experience conducting an outcome/impact evaluation will be a helpful resource to other state programs wishing to evaluate aspects of their education programs; specifically: information on the evaluation design, parameters measured, tools developed, and the process of recruiting, selecting, and retaining control and intervention sites and participants. In addition, the process evaluation tools can be adapted for use in program evaluation activities both at the state and national level.

Application

Implications for Nutrition Education Practice

Programs need to be designed to educate and motivate Americans to increase their fruit and vegetable consumption, particularly families with young children. There is a significant opportunity to accomplish this in WIC agencies across the country, given the large proportion of families reached by this program. WIC's nutrition education services are vital and warrant attention, as previous research has suggested.

Our findings support the use of LCE as a viable approach for promoting fruit and vegetable intake in the public health setting. We have demonstrated that powerful messages delivered through this process can be retained and integrated into family life practices. Nutrition education classes need to be redesigned to emphasize participants' learning needs and to solicit their direct involvement in the class. Class designers and teachers need training and ongoing support to implement learner-centered principles and practices, and the classroom environment needs to foster collaborative learning between the teachers and participants.

The California WIC Program has found the LCE approach to be very broad in its application. It is effective for many types of subject matter and class topics, such as breastfeeding and infant feeding, and need not be limited to fruit and vegetable classes. There is a great deal of overlap between LCE principles and practices that support successful group education and those that support successful individual education, making LCE easily adaptable for one-to-one counseling. Most nutrition education programs that target behavior change can adapt this educational approach effectively and creatively.

LCE philosophy can and should be integrated in staff meetings, staff training, conferences, community workshops, and general communication within programs and agencies. "Institutionalizing" LCE enhances the process and outcomes of such events, and reinforces LCE principles and practices for WIC agency staff through both leader modeling and their own continued experience with the techniques.

Intensive staff training and reinforcement, as provided by the *Finding the Teacher Within* program, are necessary to observe the degree of effectiveness seen in this study. General exposure, such as occasional trainings and in-services, may not be adequate to sustain implementation and subsequent positive effects. Programs need to be willing to invest appropriate resources into initial and ongoing training in order to attain desired outcomes.

Assuming further research continues to support the findings observed in this study, dietetics and health education programs need to assure that incoming professionals are skilled in implementing this approach to learning. Having access to health professionals already trained in LCE would greatly decrease the resources needed to implement and sustain this approach in health education programs.

APPENDIX

Figures and Tables

Figure 1. Illustration of ten key principles of Learner-Centered Education (LCE)

1. RESPECT

Learners feel important and valued. Adults need to feel respected for who they are, where they have been, and what they know how to do. Respect is the bedrock of the teacher-learner relationship.

2. IMMEDIATE USEFULNESS

The class provides something the learners feel is helpful in their own lives right now, that they can take back and use right away. The learner is the one who decides if the content is immediately useful.

3. SAFETY

Learners feel comfortable and confident and willing to participate. The setting, topic, teacher, and structure of the class all contribute to safety.

4. ENGAGEMENT

Learners are involved and participate in their learning process. Educators look for smiles, conversation, laughter, questions, and movement that let them know the learners are engaged. People cannot learn if they are not engaged.

5. OPEN QUESTIONS

Use questions without set “correct” answers. Often have the words "what" or "how" and "you." Educators should not feel like they are “fishing” for an answer.

6. PAUSE FOR ANSWERS

Waiting at least five seconds for a group to answer an open question. Learners may feel shy, or may need time to think about the question before they respond.

7. AFFIRM

Praising someone who volunteers an answer. Even if you do not agree with what they say, they will feel respected and you will encourage others to contribute.

8. WORK IN PAIRS

Most people often feel more comfortable talking to just one other person than in front of an entire group. This is safer and gets more people involved in the class at the same time.

9. LEARNING STYLE – HEAR, SEE, DO

"Tell me and I will forget; show me and I may not remember; involve me and I will understand."

10. PROVIDES INFORMATION

The class gives participants important new content.

(Adapted from Global Learning Partners Inc. Learning to Listen, Learning to Teach Workshop)

Figure 2. Narrative Description of Finding the Teacher Within (FTW) activities

- ◆ Before FTW training events began, participating local agencies were asked to:
 - Designate a two-three person team responsible for adapting and implementing the agency’s own FTW program;
 - Enroll all team members in two GLP LCE courses*; and
 - Conduct an orientation meeting for all agency staff who would support, influence, or actively participate in the program.

- ◆ All agency leaders attended **four** Train-the-Trainer sessions in Sacramento over the course of the program.

- ◆ WIC class teachers were trained during two on-site FTW Workshops:
 - In preparation for the workshops, agencies were asked to:
 - Conduct a learning needs and resource assessment of their own agency staff,
 - Create or revise at least two lesson plans incorporating LCE principles and practices; and
 - Use input from teaching staff, participant field tests, and GLP mentors to finalize plans.
 - During these workshops, teachers were trained to *lead* the new LCE classes, while agency leaders observed and provided them with feedback.

- ◆ Agencies also:
 - Conducted a series of follow up staff in-services, and
 - Participated in the evaluation of the program.

One-to-one partnerships were established between agencies and the state: Each agency was assigned their own state partner(s) to help support and mentor agencies throughout the FTW process. Agency leaders and state partners spent a great deal of time communicating during the year to develop classes and to troubleshoot problems.

* *Global Learning Partners (GLP) is an organization that provides training and consultant services for adult learning events. California WIC contracted with GLP to provide two four-day courses (one introductory and one advanced) in learner-centered education for WIC staff.*

Figure 3. Flowchart of the Finding the Teacher Within (FTW) activities.

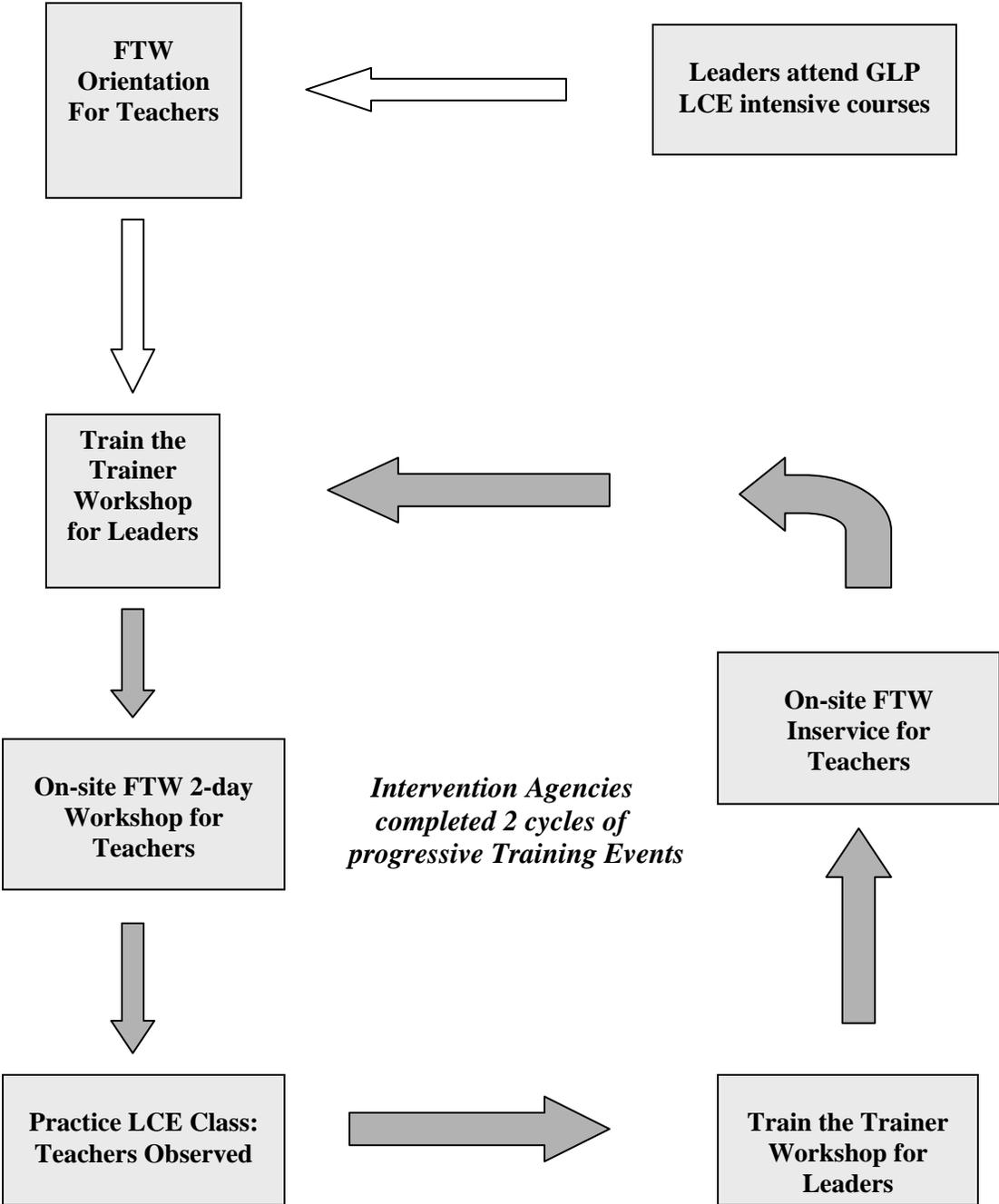


Figure 4. Learner-Centered Education evaluation Advisory Board.

Advisory Board Meetings:

- June 27, 2005
- July 20, 2007

Advisory Board Members:

<p>Linnea Sallack, Chief WIC Program California Department of Public Health Sacramento, CA</p>	<p>Patricia Crawford, Co-Director University of California, Berkeley Center for Weight and Health Berkeley, CA</p>	<p>Amy Block Joy, PhD CE Specialist FSNEP University of California, Davis</p>
<p>Michele van Eyken, Deputy WIC Program California Department of Public Health Sacramento, CA</p>	<p>Phyllis Bramson-Paul, Director Food and Nutrition Services California Department of Education Sacramento, CA</p>	<p>Sue Foerster, Chief Cancer Prevention and Nutrition Section California Department of Public Health Sacramento, CA</p>
<p>Richton Yee, Chief Food Stamp Branch California Department of Social Services Sacramento, CA</p>	<p>Michael Zito, Coordinator Head Start State Collaboration Office California Department of Education Sacramento, CA</p>	<p>Dan Best, Director Sacramento Certified Farmers' Markets Sacramento, CA</p>
<p>Rebecca Votaw, MA Disabilities/Health Content Specialist National Head Start Training and Technical Assistance Resource Center ACF Region IX Regional Office San Francisco, CA</p>	<p>Kristen E. Smith Local Technical Assistancance Specialist National Head Start Training and Technical Assistance Resource Center ACF Region IX Regional Office San Francisco, CA</p>	<p>Judy Culbertson, Executive Director California Foundation for Agriculture in the Classroom Sacramento, CA</p>
<p>Gloria Pecina, WIC Director United Health Centers of San Joaquin Valley Reedley, CA</p>	<p>Teri Duarte, Director Sacramento County WIC Program Sacramento, CA</p>	<p>Lissa Ong, MPH, RD WRO WIC Regional Nutritionist Western Region Office FNS-USDA San Francisco, CA</p>
<p>Laurie True, Executive Director California WIC Association Sacramento, CA</p>	<p>Tamara Gardner, MPH, RD WRO WIC Regional Nutritionist Western Region Office FNS-USDA San Francisco, CA</p>	

Table 1. Ten California WIC agencies that participated in the Learner-Centered Education evaluation study.

Intervention Agencies (participated in 2005 FTW)			Control Agencies		
Agency Name	Size*	Location	Agency Name	Size	Location
Planned Parenthood	Medium	Urban, Southern CA	Orange County Health Care	Large	Urban, Southern CA
Santa Clara County	Medium	Urban, Northern CA	Stanislaus County	Medium	Rural, Central Valley
Kings County	Medium	Rural, Central Valley	Madera County	Medium	Rural, Central Valley
Community Bridges	Medium	Rural, Northern CA	Tulare County	Large	Rural, Central Valley
Human Resource Council	Small	Rural, Northern CA	West Oakland	Small	Urban, Northern CA

*Agency size is based on participant caseload:
Small = <2,000 participants; Medium = 2,000-20,000 participants; Large = > 20,000 participants.

Table 2. Community programs designed to promote fruit and vegetable consumption.
Data collected at baseline and follow-up.

Agency	Agency Caseload	Local Farmer's Market?	Comments/Other Programs
<u>INTERVENTION AGENCIES</u>			
Community Bridges	7,000	Yes	<ul style="list-style-type: none"> WIC agency has a booth set-up at farmer's market (hereafter FM); participants receive vouchers at the FM. Agency has the 3rd highest redemption rate. 5-A-Day program has offices in the same building as WIC; many events throughout the year and always providing WIC with 5-A-Day incentives.
Human Resource Council	1,200	No	<ul style="list-style-type: none"> Grant through First 5 which provides ½ of WIC population with \$5 for fruits & vegetables per participant/month - MICH Program, Calaveras Food Bank. Master Gardeners. Food tasting offered in clinics, (for example, pumpkin soup).
Kings County	7,000	Yes	<ul style="list-style-type: none"> Participants work in the fields during summer months & have ↑ access during those months. Limited # of vouchers for the FM & redemption rate is fairly low.
Planned Parenthood	16,000	Yes	<ul style="list-style-type: none"> FM not in close proximity to clinics. Poor voucher redemption rates. Lots of 5-A-Day marketing campaign tools around the clinics.
Santa Clara County	15,000	Yes	<ul style="list-style-type: none"> Clinics provide list of FM in area that accept WIC vouchers.
<u>CONTROL AGENCIES</u>			
Madera County	7,290	No	<ul style="list-style-type: none"> Not familiar with any such programs in this community.
Orange County Health Care	45,000	Yes	<ul style="list-style-type: none"> Nutrition Network Grant. New FM opened during study period (close to study clinic). Several new community grants implemented to promote increased fruit & vegetable consumption during study period (for example, Cal Endowment, YMCA).
Stanislaus County	17,750	No	<ul style="list-style-type: none"> No FM located close to clinics participating in study. Nutrition Network Grant. Farming community with increased access to fruit and vegetables. Flea market.
Tulare County	21,225	Yes	<ul style="list-style-type: none"> Nutrition Network Grant to support <i>Nutrition on the Go</i>: WIC works with food bank to distribute fresh fruits & vegetables via truck around community. Calendar posted in clinics with distribution schedule – well-utilized program. Fliers posted in clinics advertising <i>Family Challenge</i>, 10-week course taught to promote healthful nutrition & physical activity.
West Oakland	1,500	Yes	<ul style="list-style-type: none"> Agency works closely with FM. Referrals for a program called <i>Grow Your Own Herbs</i> which sends people out to participants' homes to help them set-up & manage their own garden.

Table 3. Baseline summary statistics for WIC teachers who completed Teacher Survey.

n=116

	<i>Intervention</i>		<i>Control</i>		<i>p-value</i>
	<i>Mean^a</i>	<i>(SE)</i>	<i>Mean^a</i>	<i>(SE)</i>	
Female ^{b,c}	0.95	(0.03)	0.93	(0.03)	0.77
Time Working at WIC (years) ^c	6.20	(0.80)	9.66	(0.81)	0.00
Time Teaching WIC Classes (years) ^d	5.08	(0.72)	6.41	(0.72)	0.19
<i>Age (years)^{b,c}</i>					
20-29	0.21	(0.06)	0.03	(0.02)	0.00
30-39	0.39	(0.07)	0.30	(0.06)	0.30
40-49	0.18	(0.05)	0.25	(0.06)	0.35
>50	0.21	(0.06)	0.42	(0.06)	0.02
<i>Race^{b,c}</i>					
<i>Latino</i>	0.64	(0.06)	0.72	(0.06)	0.40
<i>African American</i>	0.02	(0.02)	0.03	(0.02)	0.60
<i>White</i>	0.09	(0.04)	0.10	(0.04)	0.85
<i>Asian/Pacific Islander</i>	0.25	(0.06)	0.15	(0.05)	0.18
<i>Other</i>	0.02	(0.02)	0.00	.	.
<i>Teaching Frequency^{b,d}</i>					
<i>more than once a day</i>	0.24	(0.06)	0.46	(0.07)	0.02
<i>once a day</i>	0.04	(0.03)	0.04	(0.03)	1.00
<i>once or twice a week</i>	0.33	(0.06)	0.20	(0.06)	0.13
<i>2-3 times a week</i>	0.18	(0.05)	0.17	(0.05)	0.80
<i>less than twice a month</i>	0.20	(0.06)	0.13	(0.05)	0.31
<i>Degrees and Certifications^{b,c}</i>					
<i>WNA</i>	0.70	(0.06)	0.68	(0.06)	0.83
<i>DN</i>	0.13	(0.04)	0.07	(0.03)	0.31
<i>RD</i>	0.09	(0.04)	0.15	(0.05)	0.30
<i>Other</i>	0.21	(0.06)	0.24	(0.06)	0.77
<i>Languages Used When Teaching^{b,d}</i>					
<i>English</i>	0.82	(0.05)	0.96	(0.03)	0.02
<i>Spanish</i>	0.65	(0.06)	0.81	(0.05)	0.06
<i>Other</i>	0.13	(0.05)	0.09	(0.04)	0.57

^a means for categorical and indicator variables are denoted as percents.^b categorical or indicator variable. Indicator variables were created for all categorical variables^c 0-1% missing values.^d 6-7% missing values.**Note:** Percentages may not add to 100 percent due to rounding and multiple response questions. SE is standard error. WNA is WIC nutrition assistant. DN is degreed nutritionist. RD is registered dietitian.

Table 4. Previous education classes and/or trainings attended by teachers who completed Teacher Survey, 2005-2006.

n=106

	<i>Intervention</i>		<i>Control</i>		<i>p-value</i>
	<i>%</i>	<i>(SE)</i>	<i>%</i>	<i>(SE)</i>	
Education Classes and Trainings					
• <i>GLP's Learning to Listen, Learning to Teach</i>	0.49	(0.07)	0.23	(0.06)	0.00
• <i>GLP's Advanced Learning Design</i>	0.13	(0.05)	0.02	(0.02)	0.03
• <i>Finding the Teacher Within Workshop at another agency</i>	0.08	(0.05)	0.06	(0.03)	0.70
• <i>Individual Education the Learner-Centered Way</i>	0.19	(0.05)	0.34	(0.07)	0.08
• <i>Art of Learning</i>	0.09	(0.04)	0.13	(0.05)	0.54
• <i>Motivational Interviewing</i>	0.38	(0.07)	0.23	(0.06)	0.09
• <i>Facilitated Group Discussion</i>	0.30	(0.06)	0.55	(0.07)	0.01
• <i>Family-Centered Education</i>	0.13	(0.05)	0.09	(0.04)	0.54
<i>None of the Above</i>	0.09	(0.04)	0.17	(0.05)	0.26

Note: All percents provided are for indicator variables. Percentages may not add to 100 percent due to rounding and the multiple response nature of the question. This question had 9% non-response. SE is standard error.

Table 5. Baseline Likert scale means among WIC teachers from Teacher Survey, 2005-2006.

	<i>N</i>	<i>Intervention</i> <i>Mean</i>	<i>(SE)</i>	<i>Control</i> <i>Mean</i>	<i>(SE)</i>	<i>p-value</i>
<i>Part A^a</i>						
<i>Q10</i>	106	4.72	(0.14)	4.54	(0.16)	0.38
<i>Q11</i>	108	4.96	(0.12)	4.60	(0.14)	0.06
<i>Q12</i>	109	5.21	(0.10)	5.02	(0.12)	0.21
<i>Q13</i>	107	5.37	(0.10)	5.40	(0.11)	0.86
<i>Part B^a</i>						
<i>Q14</i>	110	5.22	(0.12)	5.18	(0.14)	0.84
<i>Q15</i>	109	5.31	(0.14)	5.31	(0.13)	0.98
<i>Q16</i>	108	4.87	(0.14)	4.65	(0.15)	0.28
<i>Q17</i>	110	4.95	(0.08)	4.89	(0.14)	0.73
<i>Q18</i>	108	3.50	(0.20)	3.54	(0.22)	0.90
<i>Q19</i>	112	4.61	(0.11)	4.34	(0.14)	0.12
<i>Q20</i>	112	4.43	(0.14)	4.23	(0.14)	0.33
<i>Q21</i>	112	4.70	(0.13)	4.59	(0.15)	0.59
<i>Q22</i>	112	5.13	(0.11)	4.91	(0.14)	0.23
<i>Part C^a</i>						
<i>Q23</i>	113	5.38	(0.13)	5.29	(0.15)	0.66
<i>Q24</i>	110	4.57	(0.19)	4.57	(0.21)	0.99
<i>Q25</i>	113	5.39	(0.12)	5.47	(0.14)	0.64
<i>Q26</i>	113	5.66	(0.09)	5.79	(0.06)	0.22
<i>Q27</i>	112	5.50	(0.10)	5.41	(0.13)	0.60
<i>Q28</i>	112	5.30	(0.10)	5.36	(0.10)	0.65
<i>Q29</i>	111	5.25	(0.12)	5.23	(0.12)	0.90
<i>Q30</i>	113	5.59	(0.08)	5.67	(0.07)	0.47
<i>Q31</i>	115	5.41	(0.12)	5.29	(0.15)	0.53
<i>Q32</i>	112	5.35	(0.12)	5.10	(0.15)	0.20
<i>Q33</i>	115	5.48	(0.11)	5.51	(0.10)	0.86
<i>Q34</i>	112	4.96	(0.17)	5.22	(0.15)	0.25
<i>Q35</i>	113	5.53	(0.10)	5.66	(0.09)	0.35
<i>Q36</i>	111	5.09	(0.13)	5.04	(0.12)	0.76
<i>Q37</i>	115	5.24	(0.12)	5.48	(0.12)	0.14
<i>Q38</i>	113	5.46	(0.10)	5.28	(0.12)	0.26
<i>Part D^b</i>						
<i>Q40</i>	73	5.06	(0.18)	5.38	(0.14)	0.16
<i>Q41</i>	71	4.80	(0.16)	5.19	(0.15)	0.08
<i>Q42</i>	73	4.61	(0.16)	4.86	(0.16)	0.26
<i>Q43</i>	69	4.77	(0.15)	4.97	(0.19)	0.41
<i>Q44</i>	74	4.94	(0.16)	5.55	(0.11)	0.00

^a questions in this section could have a maximum of n=116.

^b questions in this section could have a maximum of n=74.

Note: Question numbers are denoted with the capital letter Q followed by the number of the question. SE is standard error. n is sample size number.

Table 6. Mean change for Likert scale questions among WIC teachers from Teacher Survey, 2005-2006.

	<i>n</i>	<i>Intervention</i> <i>Mean</i> <i>Change</i>	<i>(SE)</i>	<i>Control</i> <i>Mean</i> <i>Change</i>	<i>(SE)</i>	<i>p-value</i>
<i>Part B^a</i>						
<i>Q14</i>	109	0.13	(0.12)	0.26	(0.19)	0.55
<i>Q15</i>	108	0.13	(0.13)	0.11	(0.16)	0.93
<i>Q16</i>	106	0.06	(0.12)	0.25	(0.16)	0.34
<i>Q17</i>	108	0.02	(0.12)	0.21	(0.17)	0.36
<i>Q18</i>	107	1.30	(0.24)	1.25	(0.24)	0.88
<i>Q19</i>	108	0.08	(0.14)	0.24	(0.17)	0.46
<i>Q20</i>	110	0.49	(0.14)	0.62	(0.15)	0.54
<i>Q21</i>	110	0.33	(0.14)	0.33	(0.14)	1.00
<i>Q22</i>	108	-1.31	(0.21)	-1.04	(0.21)	0.37
<i>Part C^a</i>						
<i>Q23</i>	112	0.18	(0.15)	0.05	(0.17)	0.57
<i>Q24</i>	103	0.18	(0.23)	-0.06	(0.24)	0.49
<i>Q25</i>	111	0.15	(0.14)	-0.19	(0.18)	0.13
<i>Q26</i>	111	0.14	(0.08)	0.04	(0.05)	0.28
<i>Q27</i>	112	0.11	(0.12)	0.18	(0.14)	0.69
<i>Q28</i>	111	0.04	(0.12)	0.00	(0.13)	0.83
<i>Q29</i>	109	0.26	(0.12)	-0.22	(0.15)	0.01
<i>Q30</i>	112	0.13	(0.08)	0.09	(0.09)	0.77
<i>Q31</i>	114	0.02	(0.14)	0.05	(0.16)	0.87
<i>Q32</i>	108	0.00	(0.15)	0.00	(0.18)	1.00
<i>Q33</i>	114	0.09	(0.12)	0.00	(0.10)	0.57
<i>Q34</i>	109	0.25	(0.17)	0.05	(0.16)	0.41
<i>Q35</i>	110	0.04	(0.09)	-0.14	(0.09)	0.16
<i>Q36</i>	107	0.20	(0.13)	0.25	(0.15)	0.83
<i>Q37</i>	112	0.26	(0.10)	-0.28	(0.14)	0.00
<i>Q38</i>	111	0.02	(0.11)	-0.07	(0.12)	0.58
<i>Part D^b</i>						
<i>Q40</i>	64	0.06	(0.24)	0.09	(0.15)	0.91
<i>Q41</i>	62	0.38	(0.19)	0.07	(0.20)	0.28
<i>Q42</i>	63	0.36	(0.21)	0.23	(0.23)	0.68
<i>Q43</i>	60	0.50	(0.21)	0.18	(0.25)	0.33
<i>Q44</i>	64	0.36	(0.21)	-0.10	(0.17)	0.09

^a questions in this section could have a maximum of n=116.

^b questions in this section could have a maximum of n=74.

Note: Question numbers are denoted with the capital letter Q followed by the number of the question. SE is standard error. n is sample size number.

Table 7. Summary of comments from Teacher Survey, 2005-2006.

	<i>Intervention Agencies</i>		<i>Control Agencies</i>		<i>p-value</i>
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>	
Factors Teachers Liked Best	n=16		n=19		
<i>Class Participation, Asking Questions, Group Discussion</i>	11	0.69	6	0.32	0.03
<i>Encouraging the Importance of Balancing Diet, Benefits of Fruits and Vegetables, How to Add Fruits and Vegetables</i>	0	0.00	7	0.37	0.01
Factors Teachers Liked Least	n=14		n=16		
<i>Participants Lack of Participation, Participants Won't Talk</i>	13	0.93	9	0.56	0.02

Table 8. Mean change for significant Likert scale questions for control group subset teachers from Teacher Survey.

n=18

	<i>n</i>	<i>Before 2006 FTW</i> <i>Mean</i> <i>Change</i>	<i>(SE)</i>	<i>After 2006 FTW</i> <i>Mean</i> <i>Change</i>	<i>(SE)</i>	<i>p-value</i>
<i>Part B</i>						
<i>Q18</i>	18	1.61	(0.33)	-1.83	(0.40)	0.00
<i>Q22</i>	18	-0.94	(0.34)	1.55	(0.36)	0.00
<i>Part C</i>						
<i>Q37</i>	18	-0.55	(0.12)	0.50	(0.27)	0.01
<i>Q38</i>	18	-0.39	(0.22)	0.55	(0.22)	0.02

Note: Question numbers are denoted with the capital letter Q followed by the number of the question. Maximum number of respondents to each question was 18. SE is standard error. *n* is sample size number.

Table 9. Statistics related to intervention agencies' hours, salary, and expenses during the implementation period from Cost Survey.

IMPLEMENTATION: PERIODS 1-3: July 2004-December 2005

INTERVENTION

		N	HOURS ^a	N	SALARY ^b	N	EXPENSES ^c
		MEAN MEDIAN (min, max)					
LEADERS	Participating in Training as a Learner		72.50		\$1639		\$1836
	<i>Hours: consider time travel, attendance time. Expenses: consider transportation, room and board and per diem.</i>	15	64.00 (12, 183)	15	\$1360 (\$168, \$4315)	15	\$1327 (\$154, \$7221)
	Developing Lesson Plans		83.20		\$1892		\$1988
	<i>Hours: consider developing, revising and testing design and any developing or procuring any handouts or other props of the class. Expenses: consider props and fees for additional storage of props.</i>	15	60.00 (2, 340)	15	\$1085 (\$28, \$8500)	14	\$550 (\$0, \$10260)
	Designing and Leading Staff Training		82.64		\$1841		\$1444
	<i>Hours: consider developing, revising the design and any handouts or additional props; prep time for training; time actually leading sessions; time evaluating, cleaning and debriefing after training. Expenses: consider training materials, costs of room and food, and transportation.</i>	14	34.50 (2, 323)	14	\$858 (\$28, \$6460)	12	\$549 (\$87, \$6980)
	Observing Staff		12.90		\$295		\$387
<i>Hours: consider time to observe, debrief and travel. Expenses: consider travel or any other expenses.</i>	10	12.50 (0, 30)	10	\$273 (\$0, \$707)	6	\$270 (\$0, \$1259)	
Other		11.89		\$254		\$1338	
<i>Hours: please specify activities. Expenses: please specify costs.</i>	9	6.00 (0, 64)	9	\$150 (\$0, \$1280)	9	\$398 (\$0, \$4996)	
EDUCATORS	Participating in Training as a Learner		200.86		\$3087		\$2945
	<i>Hours: consider time in workshops or related in-services and additional travel. Expenses: consider travel or any other expenses.</i>	14	136.00 (10, 660)	14	\$1664 (\$188, \$11235)	11	\$334 (\$0, \$12555)
	Teaching LCE Classes		279.73		\$4167		\$4348
	<i>Hours: consider time to develop, prepare, lead, clean up after classes and evaluating classes.</i>	13	107.00 (19, 774)	13	\$1498 (\$266, \$19497)	5	\$880 (\$0, \$18874)
	Other		3.17		\$63		\$373
<i>Hours: please specify activities. Expenses: please specify costs.</i>	3	3.50 (0, 6)	3	\$70 (\$0, \$120)	3	\$340 (\$0, \$780)	

^a Hours reported may be for individual educators or all educators combined.

^b Salary calculated using approximate pay per team leader or team educator and hours reported. Since hours reported may be for individual educators or multiple educators, this calculation may be flawed. Amounts rounded to the nearest dollar.

^c Some agencies included salary in their expenses calculations. Amounts rounded to the nearest dollar.

Note: Largest possible sample size for any individual question was N=15.

Table 10. Statistics related to control agencies' hours, salary, and expenses during the implementation period from Cost Survey.

IMPLEMENTATION: PERIODS 1-3: July 2004-December 2005

CONTROL

		N	HOURS ^a	N	SALARY ^b	N	EXPENSES ^c
		MEAN MEDIAN (min, max)					
LEADERS	Participating in Training as a Learner		32.78		\$1056		\$705
	<i>Hours:</i> consider time travel, attendance time. <i>Expenses:</i> consider transportation, room and board and per diem.	9	0 (0, 240)	8	\$0 (\$0, \$7126)	7	\$0 (\$0, \$2935)
	Developing Lesson Plans		17.60		\$642		\$1641
	<i>Hours:</i> consider developing, revising and testing design and any developing or procuring any handouts or other props of the class. <i>Expenses:</i> consider props and fees for additional storage of props.	10	14.00 (0, 50)	8	\$630 (\$0, \$1485)	8	\$350 (0, \$10000)
	Designing and Leading Staff Training		12.17		\$381		\$89
	<i>Hours:</i> consider developing, revising the design and any handouts or additional props; prep time for training; time actually leading sessions; time evaluating, cleaning and debriefing after training. <i>Expenses:</i> consider training materials, costs of room and food, and transportation.	9	10.00 (0, 38)	8	\$309 (\$0, \$1089)	9	\$25 (\$0, \$476)
	Observing Staff		6.06		\$223		\$42
<i>Hours:</i> consider time to observe, debrief and travel. <i>Expenses:</i> consider travel or any other expenses.	9	5.00 (0, 20)	8	\$138 (\$0, \$760)	8	\$4 (\$0, \$155)	
Other		11.43		\$333		\$197	
<i>Hours:</i> please specify activities. <i>Expenses:</i> please specify costs.	7	0 (0, 80)	6	\$0 (\$0, 2000)	5	\$0 (\$0, \$986)	
EDUCATORS	Participating in Training as a Learner		44.05		\$898		\$411
	<i>Hours:</i> consider time in workshops or related in-services and additional travel. <i>Expenses:</i> consider travel or any other expenses.	10	31.00 (0, 120)	8	\$606 (\$67, \$2160)	9	\$205 (\$0, \$1400)
	Teaching Classes		687.56		\$12569		0
	<i>Hours:</i> consider time to develop, prepare, lead, clean up after classes and evaluating classes.	9	685.00 (0, 2000)	8	\$10664 (\$0, \$34000)	3	0
Other						\$716	
<i>Hours:</i> please specify activities. <i>Expenses:</i> please specify costs.	6	0	5	0	7	\$0 (\$0, \$5000)	

^a Hours reported may be for individual educators or all educators combined.

^b Salary calculated using approximate pay per team leader or team educator and hours reported. Since hours reported may be for individual educators or multiple educators, this calculation may be flawed. Amounts rounded to the nearest dollar.

^c Some agencies included salary in their expenses calculations. Amounts rounded to the nearest dollar.

Note: Largest possible sample size for any individual question was N=15.

Table 11. Statistics related to the number of intervention staff participating in teaching and approximate pay during the implementation period.

IMPLEMENTATION: PERIODS 1-3: July 2004-December 2005
INTERVENTION

	N	MEAN MEDIAN (min, max)
Number of team leaders participating	15	2.33 2.00 (1, 5)
Number of educators participating	14	13.29 11.00 (1,30)
Approximate pay per team leader (hourly - not including benefits)	15	\$21.20 \$23.00 (\$14, \$25)
Approximate pay per educator (hourly - not including benefits)	15	\$16.46 \$14.00 (\$11, \$25)

Note: Largest possible sample size for any individual question was N=15.

Table 12. Statistics related to the number of control staff participating in teaching and approximate pay during the implementation period.

IMPLEMENTATION: PERIODS 1-3: July 2004-December 2005

CONTROL

	N	MEAN MEDIAN (min, max)
Number of team leaders participating	9	2.11 2.00 (1,4)
Number of educators participating	8	5.25 4.00 (2, 11)
Approximate pay per team leader (hourly - not including benefits)	8	\$30.58 \$29.18 (\$25, \$40)
Approximate pay per educator (hourly - not including benefits)	8	\$16.12 \$15.80 (\$12, \$20)

Note: Largest possible sample size for any individual question was N=15.

Table 13. Statistics related to the intervention agencies' hours, salary, and expenses reported spent during the sustainability period.

SUSTAINABILITY: PERIODS 4-5: January-December 2006

INTERVENTION

		N	HOURS ^a	N	SALARY ^b	N	EXPENSES ^c
		MEAN MEDIAN (min, max)					
LEADERS	Participating in Training as a Learner		19.67		\$472		\$506
	<i>Hours: consider time travel, attendance time. Expenses: consider transportation, room and board and per diem.</i>	9	20.00 (0, 48)	9	\$470 (\$0, \$1226)	9	\$225 (\$0, \$1909)
	Developing Lesson Plans		129.89		\$3108		\$1875
	<i>Hours: consider developing, revising and testing design and any developing or procuring any handouts or other props of the class. Expenses: consider props and fees for additional storage of props.</i>	9	120.00 (12, 360)	9	\$3000 (\$216, \$8640)	9	\$1152 (\$75, \$6500)
	Designing and Leading Staff Training		38.86		\$880		\$284
	<i>Hours: consider developing, revising the design and any handouts or additional props; prep time for training; time actually leading sessions; time evaluating, cleaning and debriefing after training. Expenses: consider training materials, costs of room and food, and transportation.</i>	7	32.00 (4, 120)	7	\$448 (\$104, \$3000)	6	\$83 (\$0, \$1250)
	Observing Staff		15.57		\$349		\$120
	<i>Hours: consider time to observe, debrief and travel. Expenses: consider travel or any other expenses.</i>	7	16.00 (3, 30)	7	\$320 (\$42, \$750)	7	\$18 (\$0, \$600)
EDUCATORS	Other		11.94		\$268		\$390
	<i>Hours: please specify activities. Expenses: please specify costs.</i>	8	3.75 (0, 64)	8	\$94 (\$0, \$1280)	8	\$125 (\$0, \$1500)
	Participating in Training as a Learner		54.56		\$777		\$890
	<i>Hours: consider time in workshops or related in-services and additional travel. Expenses: consider travel or any other expenses.</i>	9	48.00 (10, 140)	9	\$718 (\$180, \$1400)	7	\$721 (\$0, \$2210)
	Teaching LCE Classes		241.50		\$3321		\$1312
<i>Hours: consider time to develop, prepare, lead, clean up after classes and evaluating classes.</i>	10	186.50 (26, 720)	10	\$2472 (\$364, \$7200)	7	\$300 (\$0, \$5463)	
EDUCATORS	Other		14.25		\$203		\$68
	<i>Hours: please specify activities. Expenses: please specify costs.</i>	6	0 (0, 82)	6	\$0 (\$0, \$1148)	5	\$0 (\$0, \$340)

^a Hours reported may be for individual educators or all educators combined.

^b Salary calculated using approximate pay per team leader or team educator and hours reported. Since hours reported may be for individual educators or multiple educators, this calculation may be flawed. Amounts rounded to the nearest dollar.

^c Some agencies included salary in their expenses calculations. Amounts rounded to the nearest dollar.

Note: Largest possible sample size for any individual question was N=10.

Table 14. Statistics related to the control agencies' hours, salary, and expenses reported spent during the sustainability period.

SUSTAINABILITY: PERIODS 4-5: January-December 2006

CONTROL

		N	HOURS ^a	N	SALARY ^b	N	EXPENSES ^c
		MEAN MEDIAN (min, max)					
LEADERS	Participating in Training as a Learner		65.50		\$1885		\$1755
	<i>Hours:</i> consider time travel, attendance time. <i>Expenses:</i> consider transportation, room and board and per diem.	4	55.00 (10, 142)	4	\$1484 (\$270, \$4300)	4	\$1460 (\$800, \$3300)
	Developing Lesson Plans		28.00		\$805		\$464
	<i>Hours:</i> consider developing, revising and testing design and any developing or procuring any handouts or other props of the class. <i>Expenses:</i> consider props and fees for additional storage of props.	4	21.00 (20, 50)	4	\$582 (\$540, \$1514)	4	\$470 (\$200, \$714)
	Designing and Leading Staff Training		27.75		\$830		\$151
	<i>Hours:</i> consider developing, revising the design and any handouts or additional props; prep time for training; time actually leading sessions; time evaluating, cleaning and debriefing after training. <i>Expenses:</i> consider training materials, costs of room and food, and transportation.	4	8.50 (4, 90)	4	\$245 (\$104, \$2725)	4	\$125 (\$0, \$355)
	Observing Staff		11.25		\$334		\$61
	<i>Hours:</i> consider time to observe, debrief and travel. <i>Expenses:</i> consider travel or any other expenses.	4	4.00 (2, 35)	4	\$112 (\$52, \$1060)	4	\$77 (\$0, \$92)
Other		0		0		0	
<i>Hours:</i> please specify activities. <i>Expenses:</i> please specify costs.	2		2		1		
EDUCATORS	Participating in Training as a Learner		74.50		\$1300		\$513
	<i>Hours:</i> consider time in workshops or related in-services and additional travel. <i>Expenses:</i> consider travel or any other expenses.	4	66.00 (6, 160)	4	\$1189 (\$102, \$2720)	4	\$475 (\$102, \$1000)
	Teaching Classes		711.75		\$12079		\$1157
	<i>Hours:</i> consider time to develop, prepare, lead, clean up after classes and evaluating classes.	4	422.00 (3, 2000)	4	\$7133 (\$51, \$34000)	3	\$500 (\$51, \$2920)
	Other		0		0		0
<i>Hours:</i> please specify activities. <i>Expenses:</i> please specify costs.	2		2		1		

^a Hours reported may be for individual educators or all educators combined.

^b Salary calculated using approximate pay per team leader or team educator and hours reported. Since hours reported may be for individual educators or multiple educators, this calculation may be flawed. Amounts rounded to the nearest dollar.

^c Some agencies included salary in their expenses calculations. Amounts rounded to the nearest dollar.

Note: Largest possible sample size for any individual question was N=7.

Table 15. Statistics related to number of intervention staff participating in teaching and approximate pay during the sustainability period.

SUSTAINABILITY: PERIODS 4-5: January-December 2006

INTERVENTION

	N	MEAN MEDIAN (min, max)
Number of team leaders participating	10	1.80 2.00 (1, 3)
Number of educators participating	10	13.40 10.50 (6, 28)
Approximate pay per team leader (hourly - not including benefits)	10	\$23 \$25 (\$14, \$31)
Approximate pay per educator (hourly - not including benefits)	10	\$16 \$14 (\$10, \$22)

Note: Largest possible sample size for any individual question was N=10.

Table 16. Statistics related to number of control staff participating in teaching and approximate pay during the sustainability period.

SUSTAINABILITY: PERIODS 4-5: January-December 2006

CONTROL

	N	MEAN MEDIAN (min, max)
Number of team leaders participating	4	2.00 1.50 (1, 4)
Number of educators participating	4	5.50 4.00 (2, 12)
Approximate pay per team leader (hourly - not including benefits)	4	\$28 \$28 (\$26, \$30)
Approximate pay per educator (hourly - not including benefits)	4	\$19 \$17 (\$15, \$26)

Note: Largest possible sample size for any individual question was N=7.

Table 17. Baseline summary statistics for the WIC Participant Survey, 2005-2006.

Overall N=1367; Intervention N=673; Control N=694; Note: SE is Standard Error

	Intervention			Control			p-value
	N	Mean ^a	(SE)	N	Mean ^a	(SE)	
Female ^b	665	0.97	(0.01)	688	0.98	(0.01)	0.78
Time Participating in WIC (months)	644	45.02	(1.46)	659	51.97	(1.61)	<0.01
Main Food Preparer ^b	670	0.95	(0.01)	685	0.95	(0.01)	0.83
Birth Year ^b	671			694			
<1960		0.03	(0.01)		0.01	(<0.01)	0.03
1960-1969		0.21	(0.02)		0.24	(0.02)	0.18
1970-1979		0.48	(0.02)		0.52	(0.02)	0.18
1980-1989		0.28	(0.02)		0.23	(0.02)	0.03
>1989		<0.01	.		<0.01	.	.
Currently Pregnant ^b	669	0.04	(0.01)	692	0.03	(0.01)	0.20
Currently Breastfeeding ^b	665	0.10	(0.01)	686	0.07	(0.01)	0.07
Married ^b	667	0.64	(0.02)	692	0.69	(0.02)	0.07
Race/Ethnicity ^b	663			685			
Asian/Pacific Islander		0.11	(0.01)		0.08	(0.01)	0.03
Black/African American		0.01	(<0.01)		0.01	(<0.01)	0.60
Hispanic		0.75	(0.02)		0.82	(0.01)	<0.01
White, non-Hispanic		0.11	(0.01)		0.07	(0.01)	0.01
Other		0.02	(0.01)		0.02	(<0.01)	0.77
Birth Country ^b	671			693			
Mexico		0.57	(0.02)		0.67	(0.02)	<0.01
Vietnam		0.07	(0.01)		0.06	(0.01)	0.96
United States		0.29	(0.02)		0.23	(0.02)	0.01
Other		0.07	(0.01)		0.03	(0.01)	<0.01
Lived in US Entire Life ^b	665	0.29	(0.02)	685	0.23	(0.02)	0.01
Language Spoken at Home ^b	665			686			
English		0.24	(0.02)		0.18	(0.01)	<0.01
Spanish		0.59	(0.02)		0.69	(0.02)	<0.01
Vietnamese		0.06	(0.01)		0.07	(0.01)	0.60
Other		0.11	(0.01)		0.07	(0.01)	0.01
Work Status Outside of Home ^b	660			680			
No		0.65	(0.02)		0.70	(0.02)	0.06
Yes, full-time		0.16	(0.01)		0.12	(0.01)	0.06
Yes, part-time		0.19	(0.02)		0.18	(0.01)	0.54
School Status ^b	653			682			
No		0.85	(0.01)		0.87	(0.01)	0.30
Yes, full-time		0.04	(0.01)		0.04	(0.01)	0.97
Yes, part-time		0.11	(0.01)		0.09	(0.01)	0.24
Completed Level of School ^b	662			683			
Grade 8 or less		0.27	(0.02)		0.29	(0.02)	0.58
Some high school		0.21	(0.02)		0.21	(0.02)	0.82
High school graduate or GED		0.30	(0.02)		0.30	(0.02)	0.75
Some college		0.14	(0.01)		0.12	(0.01)	0.53
College graduate		0.05	(0.01)		0.06	(0.01)	0.44
Other		0.02	(0.01)		0.02	(0.01)	0.92

^ameans for categorical and indicator variables are denoted as percents. ^bcategorical or indicator variable. Note: Percentages may not add to 100 % due to rounding.

Table 18. Study agencies randomly selected to participate in focus group discussions.

Intervention Agencies: Agencies that participated in 2005 FTW				Control Agencies			
	Size ¹	Location	FGD ²		Size	Location	FGD
Planned Parenthood	Medium	Urban, Southern Cal	•	Orange County Health Care	Large	Urban, Southern Cal	•
Santa Clara County	Medium	Urban, Northern Cal	•	Stanislaus County	Medium	Rural, Central Valley	•
Kings County	Medium	Rural, Central Valley	•	Madera County	Medium	Rural, Central Valley	•
Community Bridges	Medium	Rural, Northern Cal		Tulare County	Large	Rural, Central Valley	
Human Resource Council	Small	Rural, Northern Cal		West Oakland	Small	Urban, Northern Cal	

¹Agency size is based on participant caseload.
Small = <2,000 participants; Medium = 2,000-20,000 participants; Large = > 20,000 participants.
²FGD denotes whether an agency participated in the focus group discussions.

Table 19. Demographic characteristics of WIC mothers who volunteered to participate in the focus group discussions.

Characteristic	Intervention Participants	Control Participants
Sample size	30	30
Age (years) ^a		
Mean	31.6	30.8
Range	19-55	19-44
Place of Birth (n)		
Mexico	24	19
USA	4	8
Other	2	3
Children living with you (n) ^a		
1	7	7
2	11	9
3	8	5
4	4	6
5	0	2
Working outside the home (n)		
No	22	25
Yes	8	5
Remembered attending Fruit and Vegetable class at WIC in the past year ^a		
Yes	27	23
No	1	1
Don't remember	1	5
^a Missing responses on some questionnaires.		

Samples of Survey Tools

Leader Interest Survey – *Intervention Agencies* Baseline

1. How long have you been working at WIC?
2. What are some of the things you enjoy most about working at WIC?
3. What are some of the things you enjoy least about working at WIC?
4. Please tell me about the reasons you and your co-workers decided to participate in the FTW Program.
5. What do you feel was the most important reason that made you and your co-workers decide to participate in the FTW Training Program?
6. What do you feel was the most significant reason your agency did not participate in the FTW Training Program before now?
7. Have you talked to other agency leaders about their experiences with the FTW Training?
 - a. If so, what did they say?
 - b. How do you feel about what they had to say?
 - c. Does it affect your level of enthusiasm in any way?
[Probe with: Does it motivate you? Concern you?]
8. Describe any factors that you think will help you implement the LCE approach in your sites.
[Wait before probing with: Administrative support, motivated staff, previous LCE staff training]
9. Please tell me about the resources you have allocated for implementing FTW.
[Wait before probing with: Is your budget adequate? Is your classroom space adequate?]
10. Please describe the current process your agency uses for developing WIC classes.
[Wait before probing with: Who designs the classes, how are staff trained to implement class, how do designers and educators get feedback about classes, how are classes scheduled?]
11. How do you feel about the different aspects of this process for developing classes? For example,
 - a. How the classes are designed?
 - i. The amount of time it takes to design and develop classes?
 - ii. The process for generating ideas for developing classes?
 - b. How staff is trained to implement classes?

- c. The process for getting feedback?
 - d. The class scheduling process?
12. Now that your agency has decided to participate in FTW, how do you feel about your participation?
[Wait ~ 15 seconds, if you do not get a response, then add: Do you feel enthusiastic? Apprehensive? Concerned?
- a. What are you most looking forward to?
 - b. What are you most concerned about?
13. Among you and your co-workers, how would you describe the general attitude toward participating in the FTW Training Program?
14. How do you feel about implementing the LCE approach in your classes?
15. What kind of reactions do you think your staff might have to using this approach to learning?
[Wait before using the following probes as they are leading.]
- a. Do you think they will be excited?
 - b. Apprehensive or concerned?
 - c. Resistant?
16. Describe your educators' level of *willingness* toward implementing this new approach?
[Wait before probing with: What might you have to say or do to get them excited about implementing this new approach in their clinics?]
17. Describe any challenges you are concerned about that might affect your site's ability to implement the LCE approach into your clinics, if any?
[Probe with: Level of administrative support, budget cuts, hiring freezes, short staffing, resistant staff, inadequate classroom space...]
18. Can you tell me one thing you want to get out of the FTW Training?
19. Can you tell me about any community programs or events that might affect participants' fruit and vegetable intake? For example: participation the WIC Farmer's Market Program or other nearby farmers' markets.

Leader Interest Survey – *Control Agencies* Baseline

1. How long have you been working at WIC?
2. What are some of the things you enjoy most about working at WIC?
3. What are some of the things you enjoy least about working at WIC?
4. Please tell me what you know about the Finding the Teacher Within Program:
5. Have you and/or other decision-makers in your agency ever considered participating in the Finding the Teacher Within Program?
6. If you answered “no” to Question #5, please tell me about the reasons you and your co-workers decided not to participate in the FTW Program.
7. What do you feel has been the most important reason that you and your co-workers have decided not to participate in the FTW Training Program?
8. Within the last 2 years or so, what significant classes or trainings -- pertaining to participant education – have you or your co-workers attended?
9. Please describe the current process your agency uses for developing WIC classes.

[Wait before probing with: Who designs the classes, how are staff trained to implement class, how do designers and educators get feedback about classes, how are classes scheduled]
10. How do you feel about the different aspects of this process for developing classes? For example,
 - a. How the classes are designed?
 - i. The amount of time it takes to design/develop classes?
 - ii. The process for generating ideas for developing classes?
 - b. How staff is trained to implement classes?
 - c. The process for getting feedback?
 - d. The class scheduling process?
11. Are there aspects of the education process in your agency (described in the question above) that you would like to change?
12. Describe any factors that you think will help you continue implementing your current participant education:

13. Can you tell me about the resources you have allocated for implementing your participant education?
14. Now that your agency has decided to participate in this study, how do you feel about your participation?
 - a. What are you most looking forward to?
 - b. What are you most concerned about?
15. Among you and your co-workers, how would you describe the general attitude toward participating in this study?
16. Describe any challenges you are concerned about that might affect your site's ability to implement participant education in your clinics, if any?
17. Can you tell me about any community programs or events that might affect participants' fruit and vegetable intake? For instance: participation the WIC Farmer's Market Program or other nearby farmers' markets.

Leader Interest Survey – *Intervention Agencies* Post-Intervention

1. Please tell me about the resources you needed to allocate for participating in FTW.
[Wait before probing with: Was your budget adequate? Was your classroom space adequate?]
2. Please describe the process your agency now uses for developing WIC classes. How is it the same or different from how you designed classes before FTW?
[Wait before probing with: Who designs the classes, how are staff trained to implement class, how do designers and educators get feedback about classes, how are classes scheduled?]
3. How do you feel about the different aspects of this process for developing classes? For example,
 - a. How the classes are designed?
 - i. The amount of time it takes to design and develop classes?
 - ii. The process for generating ideas for developing classes?
 - b. How staff is trained to implement classes?
 - c. The process for getting feedback?
 - d. The class scheduling process?
4. Now that your agency participated in FTW, how did you feel about your participation?
 - a. What did you most enjoy?
 - b. What was most troubling or difficult?
5. Can you tell me one thing you got out of the FTW Training?
[Probe with: Level of administrative support, budget cuts, hiring freezes, short staffing, resistant staff, inadequate classroom space...]
6. Among you and your co-workers, how would you describe the general attitude toward participating in the FTW Training Program?
7. Describe any factors that you think helped you implement the LCE approach in your sites.
[Wait before probing with: Administrative support, motivated staff, previous LCE staff training]
8. How did you feel about implementing the LCE approach in your classes?

9. Describe any challenges that affected your site's ability to implement the LCE approach into your clinics, if any?
10. What kind of reactions do you think your staff had toward using this approach to learning?
[Wait before using the following probes as they are leading.]
 - a. Do you think they were excited?
 - b. Apprehensive or concerned?
 - c. Resistant?
11. Describe your educators' level of *willingness* toward continuing to implement this new approach?
[Wait before probing with: What might you have to say or do to get them excited about implementing this new approach in their clinics?]
12. With regards to the evaluation component of FTW, what obstacles did you face in trying to maintain your study population (meaning did you have any problems getting your participants who took the pre-intervention survey to come back for the Fruit and Vegetable class and the post-intervention survey?) If so, were you able to do anything to remedy the situation?
13. Can you tell me about any community programs or events that affected participants' fruit and vegetable intake? For example: participation the WIC Farmer's Market Program or other nearby farmers' markets.

Leader Interest Survey – *Control Agencies*
Post-Intervention

1. Within the period of the evaluation study, have you or your co-workers attended any significant classes or trainings -- pertaining to participant education? If so, which ones?
2. Please describe the current process your agency uses for developing WIC classes. [Wait before probing with: Who designs the classes, how are staff trained to implement class, how do designers and educators get feedback about classes, how are classes scheduled]
3. How do you feel about the different aspects of this process for developing classes? For example,
 - a. How the classes are designed?
 - i. The amount of time it takes to design/develop classes?
 - ii. The process for generating ideas for developing classes?
 - b. How staff is trained to implement classes?
 - c. The process for getting feedback?
 - d. The class scheduling process?
4. How has this changed or remained the same since you began the study?
5. During the study, were there aspects of the education process in your agency (described in the questions above) that you wanted to change?
6. Can you tell me about the resources you allocated for implementing your participant education during the study?
7. Describe any factors that you think helped you implement participant education during the study.
8. Describe any challenges that affected your site's ability to implement participant education in your clinics, if any?
9. Now that your agency participated in this study, how did you feel about your participation?
 - a. What was something you most enjoyed?

- b. What concerned or troubled you most?
10. Among you and your co-workers, how would you describe the general attitude toward participating in this study?
 11. With regards to the evaluation component of FTW, what obstacles did you face in trying to maintain your study population (meaning did you have any problems getting your participants who took the pre-intervention survey to come back for the Fruit and Vegetable class and the post-intervention survey?) If so, were you able to do anything to remedy the situation?
 12. Have you and/or other decision-makers in your agency decided to participate in the Finding the Teacher Within Program? Why or Why not?
 13. Can you tell me about any community programs or events that affected participants' fruit and vegetable intake? For instance: participation the WIC Farmer's Market Program or other nearby farmers' markets.

Name _____

WIC Site _____

Date _____ - _____ - _____
Month Day Year

WIC Teacher Survey Pre- and Post-Survey

Instructions

Please **answer** the following questions about your feelings on teaching classes for WIC participants.

Please note that:

- There are no right or wrong answers,
- **Your answers will be kept private** and will not be shared with your supervisors and co-workers,
- Your answers will be used to improve training for WIC teachers.

Please use a pencil or pen to mark answers by placing a check in the appropriate box.

- Mark the answer that best describes how you feel.
- **Check only 1 box for each question, unless directed otherwise.**
- If you do not have an opinion on a question, leave the question blank and move on to the next question.

The survey should take about 30 minutes to finish.

- **Place your completed survey in the enclosed stamped envelope.**
- Please seal the envelope and return the survey to us by mail to:

XXXX

- Please do not fax any completed surveys.

If you have comments or questions about any part of this survey, please contact:

Patricia Crawford or Dana Gerstein
Study Leaders
University of California, Berkeley
(510) 642-5572

Thank you very much for sharing this information with us!

Section 1. Please check the box that best describes you.

1. **Gender:** ₁ Female ₂ Male
2. **Age in years:** ₁ Under 20 ₂ 20 - 29 ₃ 30 - 39 ₄ 40 - 49 ₅ 50 or more
3. **Ethnic group:** (*check all that apply*)
- ₁ Hispanic/Latino ₂ African-American ₃ White ₄ Asian or Pacific Islander ₅ Native American ₆ Other
4. **Degree or Certification:** (*check all that apply*)
- ₁ WIC Nutrition Assistant (WNA) ₂ Degreed Nutritionist ₃ Registered Dietitian ₄ Other. Please specify _____
5. **Length of time you have worked at WIC:** _____
6. **Length of time you have been teaching classes at WIC:** : _____
7. **Education classes/trainings that you have participated in:** (*check all that apply*)
- | | |
|---|---|
| <input type="checkbox"/> ₁ Learning to Listen, Learning to Teach | <input type="checkbox"/> ₂ Art of Learning (Jo Newell) |
| <input type="checkbox"/> ₃ Advanced Learning Design | <input type="checkbox"/> ₄ Motivational Interviewing |
| <input type="checkbox"/> ₅ Finding the Teacher Within Workshop at another agency | <input type="checkbox"/> ₆ Individual Education the Learner-Centered Way |
| <input type="checkbox"/> ₇ Facilitated Group Discussion | <input type="checkbox"/> ₈ Family-Centered Education |
| | <input type="checkbox"/> ₉ None of the above |
8. **How often do you usually teach WIC classes (group education sessions):**
- ₁ More than once a day ₂ More than once a week ₃ Once a week ₄ 2-3 times a month
- ₅ Less than twice a month
9. **The language you usually use to teach WIC classes (Please mark all that apply):**
- ₁ English ₂ Spanish ₃ Other. Please specify _____

Section 2. Please check the box that best describes how you feel about WIC group education classes. (Check one box per question)

A. <u>How much do you agree or disagree with each statement?</u>	Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
14. I am comfortable speaking to participants in WIC classes.	<input type="checkbox"/>					
15. I am comfortable having participants discuss the class topic with each other in WIC classes.	<input type="checkbox"/>					
16. I feel comfortable responding to participants who do not agree with WIC class information.	<input type="checkbox"/>					
17. I know how to keep classes focused on a topic.	<input type="checkbox"/>					
18. WIC participants want to make changes to improve their health.	<input type="checkbox"/>					
19. Participants find WIC classes interesting.	<input type="checkbox"/>					
20. WIC classes help motivate participants to change their health behaviors.	<input type="checkbox"/>					
21. WIC classes give participants information they find useful.	<input type="checkbox"/>					
22. I get enough time to practice WIC classes before I teach them.	<input type="checkbox"/>					

B. For a WIC class to be successful, how important are the following?

	Very Un-important	Moderately Un-important	Mildly Un-important	Mildly Important	Moderately Important	Very important
23. WIC teachers give input to our WIC agency on lesson plans before they are used for classes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
24. WIC teachers try out classes with some participants and then change the classes before they are given to everyone.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
25. WIC teachers give feedback to our WIC agency about how to improve our classes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
26. The WIC class uses props, pamphlets, and audiovisual material.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
27. WIC teachers find out about participants' needs and concerns related to the class topic.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
28. Participants listen carefully to what I am teaching.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
29. Participants discuss the class topic with each other and learn from each other.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
30. Participants are encouraged to ask questions during class.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
31. Participants are encouraged to suggest topics for future classes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
32. Participants suggest ways to improve future WIC classes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
33. Classes end on time.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

B (continued). For a WIC class to be successful, how important are the following factors?

	Very Un-important	Moderately Un-important	Mildly Un-important	Mildly Important	Moderately Important	Very important
34. Participants should be the ones who decide what they learn.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
35. WIC teachers know ways to help participants change health behaviors.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
36. Participants spend at least half of the scheduled class time talking or participating in activities.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
37. Teachers feel comfortable asking participants questions that may not have any right or wrong answers.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
38. Participants practice what they have learned during the class.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

39. Do you teach a WIC Fruit and Vegetable class? ₁ Yes ₂ No

=> If you answered “Yes”, please also answer questions #47 – 51.

=> If you answered “No”, please skip to question #52.

C. For the WIC class on fruits and vegetables, how satisfied are you with the following?

Very Dissatisfied Moderately Dissatisfied Mildly Dissatisfied Mildly Satisfied Moderately Satisfied Very Satisfied

40. Topics covered in the lesson plan. ₁ ₂ ₃ ₄ ₅ ₆

41. Problem-solving with participants about how to eat more fruits and vegetables. ₁ ₂ ₃ ₄ ₅ ₆

42. How much change participants will actually make (eating fruits and vegetables) as a result of the class. ₁ ₂ ₃ ₄ ₅ ₆

43. Participants' interest in and enjoyment of the class. ₁ ₂ ₃ ₄ ₅ ₆

44. Your interest in and enjoyment of the class. ₁ ₂ ₃ ₄ ₅ ₆

45. List 3 things that you like **best** about teaching WIC classes:

- a) _____
- b) _____
- c) _____

46. List 3 things that you like **least** about teaching WIC classes:

- a) _____
- b) _____
- c) _____

47. Please share any other comments you may have:

THE END

You have now completed the survey.
Please mail the survey back in the enclosed envelope.
Thank you very much for sharing your thoughts with us.

Class Design Review:

“How Will We Know the Design is Learner-Centered?”

AGENCY _____

CLASS TITLE _____

Name of Reviewer _____ Date Reviewed _____

For each of the following principles and practices:

Please use the following scale to describe the extent to which the design appears to adhere to learner-centered principles and practices

Definition of scale:

- 1 = Missing or needs considerable further development*
- 2 = Included though not consistently and/or not likely to be highly effective*
- 3 = Included fairly consistently and appears likely to be fairly effective*
- 4 = Included consistently and likely to be very effective*
- NA = Not applicable or appropriate (try to explain why)*

Comments: Please include brief and specific notes that would help us understand how you evaluated this design

General area	Specific principles or practices	Scale
A. In planning the design, the designer...	a) Conducted a Learning Needs and Resources Assessment, including the interests, concerns and strengths of participants, educators and experts.	<i>1 2 3 4 NA</i>
	b) Used the 7 Steps of Planning, including a clear explanation of the WHO and the WHY.	<i>1 2 3 4 NA</i>
	c) Considers affective as well as psychomotor and cognitive elements (learning with emotions, as well as muscles and mind).	<i>1 2 3 4 NA</i>
	Comments	
B. The sequence of the design includes...	a) A warm welcome, so participants know they, the teacher and agency, are glad to have them participate in the class.	<i>1 2 3 4 NA</i>
	b) An anchoring activity, to help the learner connect the topic to their own lives.	<i>1 2 3 4 NA</i>
	c) Important content that is limited (1 or 2 main points for each 20 minutes of class) to take up no more that 1/3 of the class time.	<i>1 2 3 4 NA</i>
	d) A way for learners to apply their new knowledge or skills in the class.	<i>1 2 3 4 NA</i>
	e) An opportunity for learners to transfer their new learning into their future.	<i>1 2 3 4 NA</i>
	Comments	

<p>C. The kind of information given is...</p>	<p>a) Brief and snappy and powerful and relevant.</p> <p>b) The essence of the topic, the fundamentals that will eventually help participants make good decisions.</p> <p>c) Culturally appropriate.</p> <p>d) Minimizes any reading participants must do or relies on other ways to give the information (such as inviting volunteers to read).</p> <p>Comments</p>	<p><i>1 2 3 4 NA</i></p>
<p>D. The way information is given includes...</p>	<p>a) Big attractive visuals.</p> <p>b) Simple to use props.</p> <p>c) Hands-on when possible (in other words, making the new information understandable to everyone, regardless of background).</p> <p>Comments</p>	<p><i>1 2 3 4 NA</i></p> <p><i>1 2 3 4 NA</i></p> <p><i>1 2 3 4 NA</i></p>
<p>E. The way questions are asked avoids...</p>	<p>a) Right and wrong answers.</p> <p>b) Asking what we already know - instead, teachers give good information and then ask open questions so learners can make something of it for themselves.</p> <p>Comments</p>	<p><i>1 2 3 4 NA</i></p> <p><i>1 2 3 4 NA</i></p>

F. In testing and preparing staff to teach the lesson plan, the designer has...	a) Piloted the design and materials with groups of participants .	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	b) Used comments from educators and participants to improve the design.	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	c) Prepared educators to feel comfortable and confident with the class content .	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	d) Prepared educators to feel comfortable and confident with the class activities and materials .	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	Comments					
G. The structure of the class	a) Uses at least one open question after introducing each new piece of content.	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	b) Allows every voice to be heard – by using partnering or small groups when appropriate.	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	c) Allows participants to do at least 50% of the talking and doing, starting early in the session.	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	Comments					
H. The format of the class	a) Is easy for educators to understand and use.	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>NA</i>
	Comments					

Other comments about the lesson plan:

Thank you for your comments!

Class Observation Tool:

“How Will We Know the Education is ‘Learner-Centered’?”

AGENCY / SITE _____

CLASS TITLE _____ DATE/TIME _____

DESCRIPTION OF LEARNERS:

Number _____ Category(s) _____ Language/s _____

Other _____

For each of the following principles and practices:

- Think about what happened before, during, and after the class.

Please use the following scale to describe the extent to which the educator demonstrated each principle or practice (P or P).

Definition of scale:

1 = Not observed or needs considerable further support

2 = Observed though not consistently and/or not highly skilled

3 = Observed: Shows satisfactory use of principle/practice – overall consistent and moderately skilled application of the P or P

4 = Observed: Shows strength with this principle/practice – very consistent and very skilled application of the P or P

NA = Not applicable or appropriate(try to explain why)

- **Rationale:** Please include brief and specific description relating what you observed to your rating

We'll see it in the...	What will we see, hear, or feel when it's truly learner-centered?	Possible Indicators
A. environment	<ul style="list-style-type: none"> • Learning begins at the front desk. • The whole environment announces that CA-WIC is an education-oriented organization that grows people. • It is inviting; definitely not business as usual. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<ul style="list-style-type: none"> • Ppts warmly received for appointments. • Class and waiting areas have <ul style="list-style-type: none"> ✓ Enough room in classroom ✓ Few auditory or other distractions ✓ Comfortable chairs, lighting, and temperature ✓ Chairs in circles ✓ Colorful posters ✓ Ways to accommodate/engage children ✓ Space appears to be dedicated to learning – not storage or other functions
B. learning sequence starts with an anchor	<ul style="list-style-type: none"> • Participants anchor the topic in their own lives <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Anchor:</p> <ul style="list-style-type: none"> • Ppts start by exploring how their lives or experience relate to the topic (Think about and/or share w/a partner: – What activities did you like doing as a child? Or what snacks did you have last week?)
C. kind of information given	<ul style="list-style-type: none"> • The information offered is brief and snappy and powerful and relevant. • It represents the essence of the topic, the fundamentals that will eventually help them make good decisions. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Content is:</p> <ul style="list-style-type: none"> • Related to their category (such as pregnancy, age of child) • Something new that participants will find interesting and able to use the next month or so • Limited to 1 (or 2) main points for a 20 minute class • No more than 1/3 – 1/2 of the session devoted to content • Focuses on behavior change • Culturally appropriate

We'll see it in the...	What will we see, hear, or feel when it's truly learner-centered?	Possible Indicators
<p>D. way information is given</p>	<ul style="list-style-type: none"> • Big visuals, simple props, hands-on work is used when possible – making the new information understandable to everyone, regardless of background. • Culturally appropriate <p><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Visuals and props:</p> <ul style="list-style-type: none"> • Illustrate and enhance learning • Are easy for both participants and teachers to see, use, and understand • Minimizes any reading participants must do (if absolutely needed, use volunteers) <p>Hands On Work:</p> <ul style="list-style-type: none"> • Activities included so that participants can touch and physically practice using information • Participants are asked to do something with the information • Appropriate for the learning of various cultures
<p>E. affective or emotional aspects of the class being addressed</p>	<ul style="list-style-type: none"> • The class focuses on the emotional factor that influence learner's behaviors <p><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Classes deal with the emotional aspects of the class in addition to the rational/logical components. These might include participants'</p> <ul style="list-style-type: none"> • Self-image • Concerns • Desires
<p>F. learning sequence follows content with application</p>	<ul style="list-style-type: none"> • Participants apply their new knowledge in the class <p><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Apply:</p> <ul style="list-style-type: none"> • After participants receive the information as described above they practice using the skills and knowledge (eg: selecting possible WIC foods from a virtual store)

We'll see it in the...	What will we see, hear, or feel when it's truly learner-centered?	Possible Indicators
<p>G. learning sequence follows application with transfer</p>	<ul style="list-style-type: none"> Participants have the opportunity to transfer their new learning into their future. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Away:</p> <ul style="list-style-type: none"> Ppts plan how to use skills/knowledge in their lives (eg: what ways might you try to reduce the amount of sugar in your drinks?)
<p>H. way questions are asked</p>	<ul style="list-style-type: none"> No right and wrong answers. No asking what we already know. Instead, teachers give good information and then ask open questions so learners can make something of it for themselves. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>One thought provoking relevant open question/each learning activity; e.g.:</p> <ul style="list-style-type: none"> “Which of these benefits of eating fruits and vegetables are important to you?” “What iron rich foods would you serve to your family?”

<p>I. teachers' facilitation skills</p>	<ul style="list-style-type: none"> • Participants are engaged and made to feel safe and respected from the very beginning of the session. • Facilitators carefully read and respond to the participants body language, tone of voice and other non-verbal communication • Facilitators wait, affirm, and weave. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<p>Ppts verbal and non-verbal language signal they are engaged (as culturally appropriate):</p> <ul style="list-style-type: none"> • Leaning forward • Eyes following class activities • Smiling • Talking • Asking questions • Expressive tone of voice • Laughing • Moving • Participating in activities <p>...Teachers look for body language and respond to it appropriately.</p>
<p>J. voices of participants</p>	<ul style="list-style-type: none"> • Every voice is heard - partnering or small groups are used when appropriate. • Participants do at least 50% of the talking and "doing", starting early in the session <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<ul style="list-style-type: none"> • Teachers do not dwell on themselves, their experiences, or on class content. • Focus is on actively engaging all willing participants in the topic area
<p>K. spirit of the room</p>	<ul style="list-style-type: none"> • It's fun. <p style="text-align: center;"><i>1 2 3 4 N/A</i></p> <p>Rationale:</p>	<ul style="list-style-type: none"> • A "buzz is heard" • The participants and educators appear energized and excited • People are laughing, smiling and happy to be there

Additional comments about your class observation:

Thank you for your comments!

FTW COST SURVEY

FTW Team LEADERS	Hours	Dollars
Participating in Training as a Learner		
<ul style="list-style-type: none"> • Hours (consider time travel and attendance time) • Expenses (consider transportation, room and board, and per diem) 		
Developing Lesson Plans		
<ul style="list-style-type: none"> • Hours (consider developing, revising and testing design and any developing or procuring any handouts or other props of the class) • Expenses (consider props and fees for additional storage of props) 		
Designing and Leading Staff Training		
<ul style="list-style-type: none"> • Hours - consider <ul style="list-style-type: none"> ○ developing, revising the design and any handouts or additional props, ○ prep time for training, ○ Time actually leading sessions ○ Time evaluating, cleaning, and debriefing after training • Expenses (consider training materials, costs of room and food, and transportation) 		
Observing Staff		
<ul style="list-style-type: none"> • Hours(consider time to observe, debrief and travel) • Expenses (consider travel or any other expenses) 		
Other		
<ul style="list-style-type: none"> • Hours (please specify activities) • Expenses (please specify costs) 		
Educators Participating in FTW		
Participating Training as a Learner		
<ul style="list-style-type: none"> • Hours (consider time in FTW workshops or related in-services and additional travel) • Expenses (consider travel or any other expenses) 		
Teaching LCE Classes		
<ul style="list-style-type: none"> • Hours (consider time to help develop, prepare, lead, clean up after classes, and evaluating classes) 		
Other		
<ul style="list-style-type: none"> • Hours (please specify activities) • Expenses (please specify costs) 		

<i>Number of team leaders participating in FTW</i>		<i>Approximate pay per team leader (hourly – not including benefits)</i>	
<i>Number of educators participating in FTW</i>		<i>Approximate pay per educator (hourly – not including benefits)</i>	

COST SURVEY

AGENCY LEADERS	Hours	Dollars
<p style="text-align: center;">Participating in Training as a Learner</p> <ul style="list-style-type: none"> • Hours (consider time travel and attendance time) • Expenses (consider transportation, room and board, and per diem) 		
<p>Developing Lesson Plans</p> <ul style="list-style-type: none"> • Hours (consider developing, revising and testing design and any developing or procuring any handouts or other props of the class) • Expenses (consider props and fees for additional storage of props) 		
<p>Designing and Leading Staff Training</p> <ul style="list-style-type: none"> • Hours - consider <ul style="list-style-type: none"> ○ Developing, revising the design and any handouts or additional props, ○ Prep time for training, ○ Time actually leading sessions ○ Time evaluating, cleaning, and debriefing after training • Expenses (consider training materials, costs of room and food, and transportation) 		
<p style="text-align: center;">Observing Staff</p> <ul style="list-style-type: none"> • Hours (consider time to observe, debrief and travel) • Expenses (consider travel or any other expenses) 		
<p style="text-align: center;">Other</p> <ul style="list-style-type: none"> • Hours (please specify activities) • Expenses (please specify costs) 		
Agency Educators		
<p style="text-align: center;">Participating in Training as a Learner</p> <ul style="list-style-type: none"> • Hours (consider time in trainings or related in-services and additional travel) • Expenses (consider travel or any other expenses) 		
<p>Teaching Classes</p> <ul style="list-style-type: none"> • Hours (consider time to help develop, prepare, lead, clean up after classes, and evaluating classes) 		
<p>Other</p> <ul style="list-style-type: none"> • Hours (please specify activities) • Expenses (please specify costs) 		

<i>Number of agency leaders participating in LCE study</i>		<i>Approximate pay per team leader (hourly – not including benefits)</i>	
<i>Number of educators participating in LCE study</i>		<i>Approximate pay per educator (hourly – not including benefits)</i>	

To Be Completed By WIC Personnel Only

WIC ID (Family) _____

WIC Site _____

Date _____ - _____ - _____

WIC Participant Survey

Instructions

Please **answer** the following questions.

Please note that:

- There are no right or wrong answers.
- **Your answers will be kept private - your name will not be on the survey.**
- Your answers will be used to improve WIC classes.

Please use a pencil to mark answers by placing an X in the appropriate box.

- Mark the answer that best describes how you feel.
- **Mark only 1 box for each question, unless directed otherwise.**
- **If you make a mistake, please erase or clearly scratch out before marking a new answer.**

The survey should take about 20 minutes to complete.

- **Return your completed survey to your WIC teacher.**

If you have comments or questions about any part of this survey, please contact:

- Patricia Crawford or Dana Gerstein, Study Leaders, University of California, Berkeley; (510) 642-5572

Thank you very much for sharing this information with us!

Section A. For each question, please mark the box or write on the blank line next to the answer that best describes you.

- 1. What is your gender? ₁ Female ₂ Male
- 2. What is your birth date? _____ / _____ / _____
Month (Write out) Day Year
- 3. How long have you participated in the WIC Program? _____ (Write in time in months) **OR** _____ (Write in time in years)
- 4. Who does most of the food preparation in your home? ₁ I do ₂ Someone else does
- 5. How many of your children have participated in WIC (including stepchildren and foster children)? _____ (Write in number)
- 6. What is the number of people living in your household who eat from the same food supply (including yourself)?
₁ 1 ₂ 2 ₃ 3 ₄ 4 ₅ 5 ₆ 6 ₇ 7 ₈ 8 or more
- 7. What is the number of children you have that live with you?
₁ 1 ₂ 2 ₃ 3 ₄ 4 ₅ 5 ₆ 6 ₇ 7 ₈ 8 or more
- 8. Are you currently pregnant? ₁ Yes ₂ No
- 9. Are you currently breastfeeding? ₁ Yes ₂ No
- 10. Where were you born? ₁ Mexico ₂ Vietnam ₃ United States ₄ Other country (Please specify _____)
- 11. How many years have you lived in the U.S.? ₁ All my life **OR** ₂ Please specify number of years _____
- 12. What language do you usually speak at home? ₁ English ₂ Spanish ₃ Vietnamese ₄ Other (Please specify _____)
- 13. What is your ethnicity? (Please mark only one.)
₁ Asian/Pacific Islander ₂ Black/African American ₃ Hispanic ₄ White, non-Hispanic ₅ Other (Please specify _____)
- 14. Are you married? ₁ Yes ₂ No
- 15. Do you work outside the home? ₁ No ₂ Yes, full-time ₃ Yes, part-time
- 16. Do you go to school? ₁ No ₂ Yes, full-time ₃ Yes, part-time
- 17. What is the highest year of school you have finished? (Please mark only one.)

₁ Grade 8 or less
₄ Some college

₂ Some high school
₅ College graduate

₃ High school graduate or GED completed
₆ Other (*Please specify* _____)

Section B. Please answer some questions about the last WIC class you went to.

Please mark only one box for each question.

18. Have you been in a WIC class before?

- ₁ Yes ₂ No *(If No, skip to question 27)*

19. How long ago were you in your last WIC class?

- ₁ Within the last month ₂ Within the last 2 to 6 months ₃ More than 6 months ago

20. What was the class about?

- ₁ Fruits and Vegetables ₂ Other *(Please specify what the class was about _____)*
₃ Don't remember

**Think about the last WIC class you attended.
 How much did you like each of the following?**

Please mark only one box for each question.

	I liked it a lot	I liked it okay	I did not like it	This did not happen
21. The way this class was taught.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
22. How inviting the room was.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
23. How I got to practice what I learned during the class by doing an activity.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
24. How I learned from the other people in the class.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
25. How I had chances to ask questions.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
26. How I had chances to share my ideas.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Section C. Think about what you might be planning to do or are thinking about doing.*Please mark only one box for each question.*

Are you thinking about or planning on...	Not thinking about doing it	Thinking about starting in the next 6 months	Have a clear plan to do this right away	Already doing it
27. Offering your family more <u>fruit</u> at meals or snacks.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
28. Offering your family more <u>vegetables</u> at meals or snacks.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Section D. Think about how sure you are right now that you can do these things.*Please mark only one box for each question.*

How sure are you that you can...	I'm sure I can	I think I can	I think I cannot	I'm sure I cannot
29. Serve meals or snacks with 1 or 2 more <u>fruits</u> .	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
30. Serve meals or snacks with 1 or 2 more <u>vegetables</u> .	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Section E. Think about your feelings about fruits and vegetables. *Please mark only one box for each question.*

	I agree a lot	I agree a little	I disagree a little	I disagree a lot
31. I like the taste of many <u>fruits</u> .	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
32. I like the taste of many <u>vegetables</u> .	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
33. Fruits and vegetables cost too much.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
34. If I served more <u>fruits</u> , my family would eat them.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
35. If I served more <u>vegetables</u> , my family would eat them.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
36. I do <u>not</u> have time to fix vegetable dishes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
37. Fruits and vegetables are <u>not</u> really all that important for my family.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
38. None of my family's favorite foods include fruits or vegetables.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
39. Fresh fruits and vegetables are usually available where I shop for food.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Section F. Think about what you eat.

Think about *your* usual eating habits in the *last month*.

There is no right or wrong answer, and it is very important that we learn what *you actually* eat, not what you think you should eat.

Remember to include all meals or snacks you ate at home, in the car, in a restaurant or take-out.

Please mark the box showing how often you ate or drank each of these foods during the last month. Mark only one box for each food.

How often, in the last month, on average, did <u>you</u> eat or drink...?	Never or almost never	Once or twice a week	Most days	More than once a day
40. Fruit drinks, such as Kool-Aid, Sunny Delight, Capri Sun, Hi-C, Tang, Tampico, Gatorade, lemonade, horchata, atole, agua fresca, guava drinks.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
41. 100% fruit juice, like orange, apple - fresh, frozen, canned or as a juice box (not counting sodas or other drinks).	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
42. Any fruit: fresh, frozen, or canned fruit (not counting juice).	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
43. French fries, tater tots, or other fried potatoes.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
44. Other vegetables, including string beans, peas, corn, carrots, tomatoes, boiled or baked potatoes, broccoli, bok choy, ong choy, bamboo shoots, lettuce, nopales, salsa, chile peppers, or any other kind of vegetable – raw, cooked, fresh, frozen, canned, or in soups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Section G. Think about some things you did yesterday.

45. Please check *all* of the things you did *yesterday* to include more fruits and vegetables in your day.

- ₁ Kept fruits or vegetables within easy reach for my family.
- ₂ Had a fruit or vegetable as a snack.
- ₃ Included a fruit or juice at the morning meal.
- ₄ Bought frozen, canned, dried or fresh fruits or vegetables.
- ₅ Steamed or microwaved fruits or vegetables.
- ₆ Other – please describe: _____

THE END

**You have now completed the survey. Please hand in this survey
to your teacher.**

Thank you very much for sharing your thoughts with us.

Focus Group Discussion Questions

[Opening Question - All participants are asked to answer this question, going one by one around the table.]

Let's begin with some introductions. Could you each introduce yourselves and tell us how many children you have at home and their names and ages.

[After this question, assistant should begin recording.]

1. First question, can you tell me about the kinds of fruits and vegetables that you and your children eat most often at home?

How do you fix these foods for your children?

How do you serve these foods to your children?

How do you encourage your children to eat them?

2. In general, how important is it to you that your children eat fruits and vegetables?

What are some of the reasons you feel it could be important to eat fruits and vegetables?

3. Have you always offered your family these fruits and vegetables and served them in the way you have described?

If this is different from how you have done it in the past, what made you make these changes?

When did this change?

Was there anything that helped the change?

You each attended a class here at WIC about Fruits and Vegetables.

[Remind them that this class was probably the most recent WIC class that they went to.]

Think about that Fruit and Vegetable class, do you remember it?

[Wait a minute.]

What do you remember about the class?

Were there any things that you thought were interesting about the class?

Was there anything you did not like about the class?

Now, think about whether there were things that you learned in the class that you have done at home.

4. [*Show pictures of WIC classes.*]

How was the Fruit and Vegetable class that you attended at WIC the same or different from these pictures?

What about the class made you feel welcomed?

Do you remember sharing anything or speaking in the group during the class?

[*May want to follow-up with this question*] How much of a chance did you have to share your own ideas?

How much of a chance did you have to hear other people's ideas about how they offer or serve fruits and vegetables to their children?

Was this class useful for you?

Please think of some suggestions you have to make the class better.

5. [*The assistant will now briefly summarize the main points.*]

Is there anything else you would like to add about anything we talked about today?

To Be Completed By Focus Group Staff Only

WIC Agency _____

Date _____

**WIC Participant Focus Group Discussion
Survey**

1. What is your age? _____ years old

2. What country were you born in? _____

3. How many children do you have at home? _____

4. Do you work outside of your home?

Yes

No

If yes, how many hours per week do you work outside your home? _____ hours

5. Did you attend a Fruit and Vegetable class at WIC in the last year?

Yes

No

Don't remember