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Los Angeles

Using Photovoice to Identify Contextually Relevant Elements of a Title I School Health Plan

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Education

by

Sabrina Lee Bow

2013

ABSTRACT OF THE DISSERTATION

Using Photovoice to Identify Contextually Relevant Elements of a Title I School Health Plan

by

Sabrina Lee Bow

Doctor of Education

University of California, Los Angeles, 2013

Professor Robert Cooper, Chair

This exploratory study used a qualitative research approach to examine a predominantly Latino Title I elementary school's existing health plan to identify how the plan addresses obesity in children and how the school engages parents in these activities. Additionally, the researcher employed photovoice to interview mothers and elicit information about their food purchase, preparation, consumption, physical activity practices, and channels of communication for health information within their household. This study was guided by the following research questions: (1) How does the current school health plan address obesity in children? (2) In what ways is the school working with families to lower obesity in children? (3) What are the elements of a contextually relevant health program for a Title I school? The findings from this study suggest that, while the school's health plan components may provide a framework for obesity

intervention, the plan does not include a comprehensive obesity intervention program for students. Moreover, there was no evidence of widespread participation among parents in any of the health and nutrition activities provided by the school. From the data emerged the unexpected finding that suggests that low-income mothers are making deliberate choices around high-quality food and physical activity to establish a micro-environment of health within their households in spite of the influence of the obesogenic, under-resourced environment that encompasses the local neighborhood.

This study contributes new knowledge about four elements of a contextually relevant school health plan for a predominantly Latino Title I school. The model comprised by these four elements acknowledges multicultural and multiethnic food traditions while providing research-based nutrition information, facilitates student and family access to physical activity and health information, and addresses the economic constraints on food purchase experienced by low-income families. Additionally, this model outlines a paradigm in which parent engagement is facilitated by decreasing barriers to participation and increasing two-way communication between schools and families in a way that is idiosyncratic, driven by the needs of the families, supported by the socioecological resources of the community, and is economically and linguistically appropriate for the students and families served by Title I schools.

The dissertation of Sabrina Lee Bow is approved.

Beverly Lynch

Edith Omwami

Linda Rose

Robert Cooper, Committee Chair

University of California, Los Angeles

2013

DEDICATION

When I was a young teenager I saw a television segment by Feed the Children, a Christian nonprofit working toward eradicating child hunger. The segment featured a young boy named Jonathan. A tow-headed 11-year-old, Jonathan lived in abject poverty in the hills of Appalachia. One of his chores was to draw well water and bring it back to his family's dilapidated trailer home. It was cold and he was without shoes. However, he was not without spirit. His gap-toothed smile broke wide as he said with the grace and innocence of a child, "I like to work." Jonathan's words touched my core, and I began to cry uncontrollably.

Since that day more than 20 years ago, Jonathan's words are a touchstone to which I return when I seek a reminder of the purpose of my work. I have dedicated my career to improving the lives of children. Whether it is through developing educational opportunity through charter schools, or speaking kindly to a student, it is through all of our actions, large and small, public and private, that we impact our children.

This dissertation is dedicated to Jonathan.

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Mom and Pops: I remember the hundreds of volunteer hours you spent at Doña Merced Elementary School and when you bought the 1980 World Book encyclopedia set. You taught me how to be independent, and how to persevere. Because of you, I can maintain dignity and integrity when faced with any adversity. Thank you.

Additionally, I am blessed to count among my mentors Mary Shambra, David Tokofsky, and Dr. George D. Taylor. I am deeply grateful for your counsel on the meaning and mantle of leadership.

VITA

1998	Bachelor of Science, Biological Sciences University of California, Irvine
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Chapter 1: Problem Statement

Introduction

In the context of the epidemic of childhood obesity and the higher incidence of obesity among low-income and minority youth, this exploratory qualitative study used photo-elicited preliminary individual interviews, as well as document review, a focus group, and follow up individual interviews, to identify the elements of a contextually relevant school health plan for a Title I elementary school with a predominantly Latino and African American student body. The focus of the document review was to identify how the current school health plan addresses obesity in children and how the school is currently working with families to lower obesity in their children. The document review was informed by Allensworth and Kolbe's (1987) model for a coordinated school health program. This model is based on eight service, educational, and environmental components: (1) health education; (2) physical education; (3) health services; (4) psychological and counseling services; (5) nutrition services; (6) health promotion for staff; (7) safe school environment; and (8) parent and community involvement. Using a community-based research methodology known as photovoice, I conducted preliminary photo-elicited individual interviews with mothers from the school to obtain information about food purchase, preparation and consumption, and physical activity practices in their household. The themes that emerged from these interviews were used to create the protocol for a focus group and for follow-up individual interviews. This study enabled me to identify five elements of a contextually relevant health plan for a Title I school with a majority Latino population. These elements, if adopted and incorporated into a school's health plan, may enhance the school's ability to address obesity among its students.

Numerous international studies have shown that the association between socioeconomic status (SES) and obesity may vary by population, sex, and age (Sobal, 1991, 1994; Sobal, & Stunkard, 1989; Stunkard & Sorensen, 1993; Sundquist & Johansson, 1998). In the United States several studies have shown that low-SES and minority groups have a higher prevalence of obesity (Statistics, 2000; Y. Wang & Tussing, 2001; Y. Wang, Monteiro, & Popkin, 2002). This phenomenon has been observed in low-income children and youth ranging from preschool children (Mei et al., 1998), and school aged children, and adolescents (Ogden & Carroll, 2010). As this study was conducted at a Title I elementary school with a 72% Latino and 8% African American student body, next I present a brief review of demographic, socioeconomic, and obesity statistics for these two minority groups within the United States.

Demographics

Together, African American and Latino persons accounted for 30% of the total U.S. population in 2012 (U.S. Census, 2012x). In California, African Americans and Latinos represented nearly 45% of the state's population, with African Americans comprising 6.6% and Latinos making up 38.2% respectively (U.S. Census, 2012y). For the purpose of clarification, the United States Census Bureau defines:

> Hispanics or Latinos are those people who classified themselves in one of the specific Spanish, Hispanic, or Latino categories listed on the Census 2010 questionnaire— "Mexican," "Puerto Rican," or "Cuban"— as well as those who indicate that they are "another Hispanic, Latino, or Spanish origin." People who do not identify with one of the specific origins listed on the questionnaire but indicate that they are '"another Hispanic, Latino, or Spanish origin" are those whose origins are from Spain, the Spanish-speaking

countries of Central or South America, or the Dominican Republic. The terms "Hispanic," "Latino," and "Spanish" are used interchangeably.

"Black or African American" refers to a person having origins in any of the Black racial groups of Africa (U.S. Census, 2010).

Income and Poverty

In 2011, the median annual household income in the United States was $50,054 compared to the median annual household income of Latinos and African Americans at $38,624 and $32,229, respectively (U.S. Census, xxxx). The U.S. Census Bureau measures poverty using a combination of measures comprised of total pre-tax household income (including earnings, unemployment compensation, Social Security, and public assistance) and family size. Capital gains or losses and noncash benefits such as food stamps, public housing, and Medicaid are not included. In 2011, the poverty threshold for a one-member household was $11,484, and for a four-member household comprised of two adults and two children under age 18 the poverty threshold was $22,811 (U.S. Census, qqqq). In 2011, 46.2 million people in the United States were living in poverty and the poverty rate across the country was 15% (U.S. Census, 2012z). Among African Americans and Latinos, 27.6% and 25.3%, respectively, were in poverty (U.S. Census, zzzz).

Obesity

The United States is experiencing an epidemic of obesity among its youth. Since 1980, the percentage of children who are obese has more than doubled, and rates among adolescents have more than tripled. In 2004, 18.8% of 6- to 11-year-olds and 17.4% of 12- to 19-year-olds were considered obese, and an additional 20.4% of 6- to 11-year-olds and 15.3% of 12- to 19-

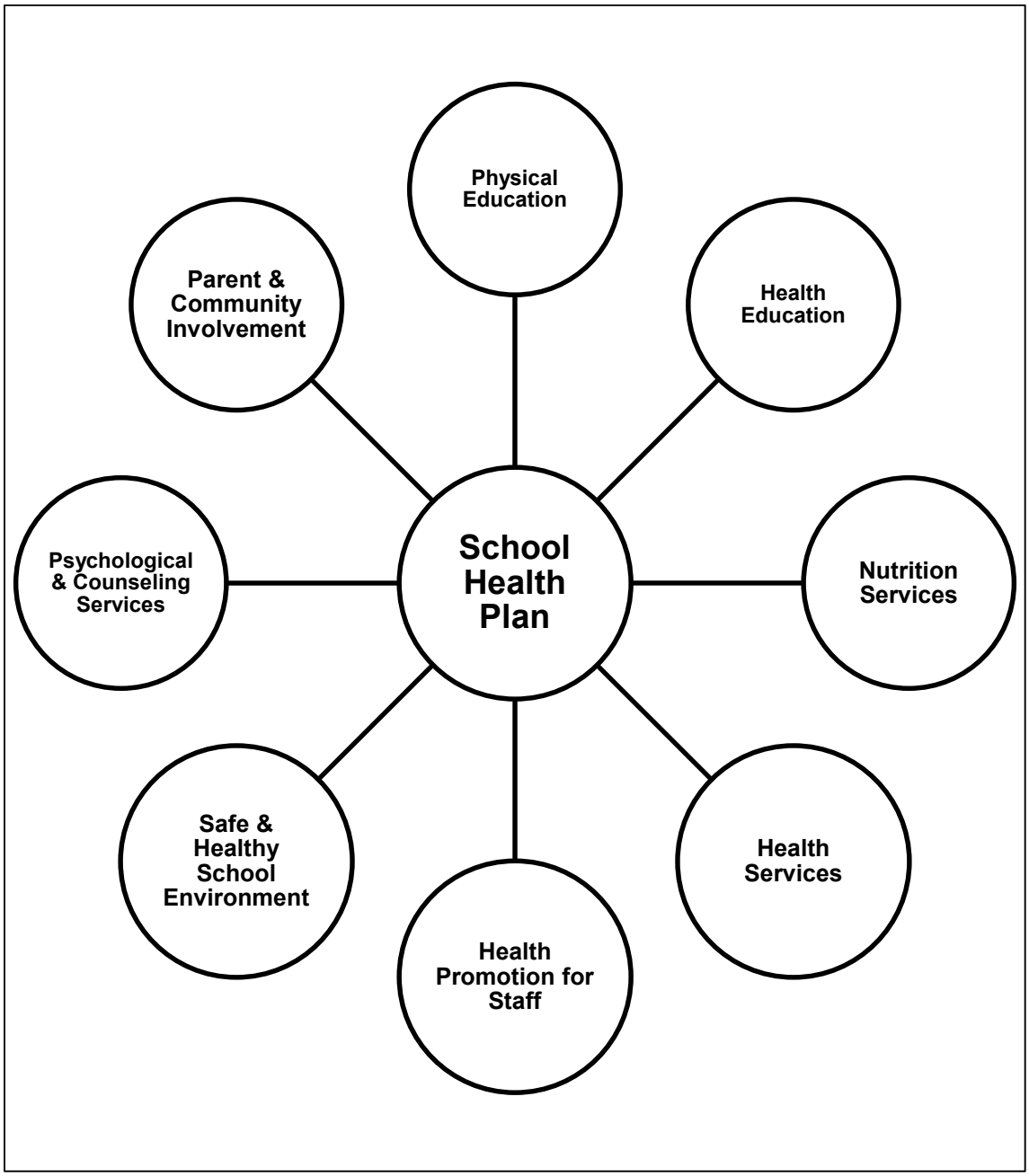
year-olds were considered overweight (O'Toole, Anderson, Miller, & Guthrie, 2007). According to the 2005 California Health Interview Survey (CHIS 2005), 21% of California adults are obese and another 35% overweight. The prevalence of obesity among U.S. adults aged 20 years and over has increased over time, from 19.4% in 1997 to 28.2% for January–June 2010 (National Health Interview Survey, 2010). According to the 2009 California Health Interview Survey, 19.3% of Latino children aged 5 to 17 years, and 70.2% of Latino adults are overweight or obese, compared to 51.1% of non-Latino adults in the state (CHIS, 2009). In 2010, African Americans were 1.4 times as likely to be obese as non-Hispanic Whites (National Center for Health Statistics, 2012). Between the periods 1988–1994 and 2007–2008 the prevalence of obesity increased from 10.7% to 19.8% among non-Hispanic Black boys, and from 16.3% to 29.2% among non-Hispanic Black girls (Ogden & Carroll, 2010). With the prevalence of obesity among low-income and minority children at levels significantly higher than their higher SES and White, non-Latino peers, the Surgeon General's Office declared obesity prevention targeted to these groups a priority (U.S. Department of Health and Human Services, 2001). One community-based approach to addressing obesity in children and youth is to develop and implement school health plans.

School Health Plans

Student health plays a central role in student achievement (Kleinman et al., 2002; Murphy et al., 1998). Students who are well-nourished and physically active are better able to reach their academic potential and exhibit positive behaviors in the classroom (Alaimo, Olson, & Frongillo, 2001; Florence, Asbridge, & Veugelers, 2008; Gordon-Larsen, Harris, & Ward, 2003; Murphy et al., 1998; Strong et al., 2005). Schools are taking various approaches to create environments that support healthy eating and increased physical activity. These initiatives

include assessing school food environments and policies, school physical activity environments and policies, taking school body mass index measurements and implementing coordinated school health plans (Roseman, Riddell, & Haynes, 2011). As developed by Allensworth and Kolbe (1987), the eight components of a coordinated school health plan include health education, physical education, nutrition services, parent and community involvement, health services, health promotion for staff, safe and healthy school environment, and psychological and counseling services.

Figure 1: Allensworth and Kolbe's Coordinated School Health Plan



Research indicates that the benefits of comprehensive school health systems include less school vandalism; improved attendance by students and staff; reduced health care costs; reduced substitute teaching costs; better family communications; increased self-confidence; lower rates of tobacco use among students; lower cholesterol levels for students and staff; and improved physical fitness (Healthy Kids for the Year 2000: An Action Plan for Schools, 2000). However, although the benefits of coordinated school health plans speak for themselves and while many schools implement these plans, the reality is that childhood obesity continues to increase, especially in low-income and minority communities.

The reasons why schools struggle to attain their obesity prevention and intervention goals may be attributed to limited implementation of the health plan in relation to nutrition education and parent engagement. School staff members identify the leading barriers to providing nutrition education as 1) lack of time to coordinate between the classroom and the cafeteria, and 2) the lack of reinforcement of nutrition education messages throughout school and at home (Hammerschmidt, Tackett, Golzynski, & Golzynski, 2011). Additionally, schools actively involve parents and the community in the school health plan with varying degrees of success. Roseman et al. (2011) reviewed 26 school-based nutrition interventions conducted between 2000 and 2008. They found that only 15% of the interventions included community involvement or ethnic/heterogeneous groups.

The lack of community and or ethnic group involvement in school nutrition programs is underscored when we consider the numerous barriers to school involvement for Latino parents. These barriers include the inability to understand English, the belief that involvement equals interfering with school, unfamiliarity with the school system, lack of education, too many competing responsibilities such as multiple jobs, negative experiences with school, school

personnel's negative or condescending attitudes, and lack of transportation and childcare (Burmudez & Marquez, 1996; Cotton, 1989; Huerta-Macias & Villamil Tinajero, 1998; Torres-Guzman, 1995).

African American parents encounter barriers as well. The research suggests that schools have not been able to implement and sustain parent involvement with ethnically diverse parents (Koonce & Harper, 2005). Additionally, some studies have shown that African American parents report negative school experiences (McCaleb, 1994), intimidation by school staff (Anderson, 1994; Harry 1992), lack of understanding of how to navigate the educational system (Rao, 2000), and inconvenient meeting times (Trotman, 2000) as barriers to parental involvement.

Research indicates that although many schools implement coordinated school health plans, these programs may not be effective in changing the health outcomes for minority and low-income students and their families. The barriers to school involvement frequently encountered by minority and or immigrant parents suggests a gap between the intended outcomes of the school's health plan and the target audience. It follows that a contextually relevant school health plan—one that acknowledges the economic and social constraints of low-income and minority families and reduces barriers to parent engagement—may facilitate a school's ability to implement a successful obesity intervention program.

Contextually Relevant Elements of School Health Programs

Given the epidemic of childhood obesity nationwide, and its severity especially among low-income and minority children, it behooves Title I schools to review their current health plans and redouble their effort to reduce obesity among this vulnerable population by adopting contextually relevant pedagogy and developing contextually relevant programs. Many

researchers suggest that community or culturally specific adaptations of empirically based intervention programs not only may increase the likelihood that families and individuals will participate and complete programs, but also may improve outcomes for those participating children and families (Castro, Barrera, & Martinez, 2004; Catalano et al., 1993; Gorman & Balter, 1997). In the context of comprehensive school health plans that aim to increase the health outcomes for all students, there is evidence to support the participation of ethnic and cultural groups in the determination of strategies that will be most effective for those subgroups in relation to the entire school population (Roseman et al., 2011). Because I conducted this study at a Title I school with a predominantly Latino student population, next I discuss some of the considerations schools the study site should consider when designing a contextually relevant health plan for Latino families.

The high rates of poverty among Latino families and children; the heterogeneity of the Latino populations, including distinctive immigration histories for each subgroup; and the geographic concentration of specific Latino subgroups have a significant bearing on the health status of Latino children (Mendoza, 1994). Many Latinos are concerned about improving the health of their families. Although recent immigrants may acknowledge that diet can affect health, fewer are able to explain how vegetables and fruits are beneficial to health. Additionally, many want more specific guidance on choosing healthful diets for themselves and their families (Kaiser, 2006). School-based parent health education programs can capitalize on this demonstrated interest and offer a curriculum that is culturally and socially appropriate given the language, culture, and socioeconomic constraints that low-income Latino families may face in obtaining, preparing, and consuming healthy foods.

Castro, Barrera, and Martinez (2004) recommend modifying prevention interventions to accommodate the needs and characteristics of specific ethnic populations. An effective prevention program for Latino families should consider key facets of Latino culture, including the cultural values of parental respect and *familismo* (Gil, Wagner, & Vega, 2000; Marin & Marin, 1991), personal preferences such as *personalismo* (Comas-Diaz, 1994), traditional gender roles (Arredondo, Weddige, Justice, & Fitz, 1987; Marin & Marin, 1991), and spiritualism (Koss-Chioino, 1995).

In planning school-community collaboration programs, schools need to build on the cultural values of Latino parents, stress personal contact, foster communication, create a warm and positive environment, and facilitate and structure accommodations for parent involvement (Scribner, Young, & Pedroza, 1999). Through this type of culturally appropriate program, schools are better able to influence parents' role construct with regard to involvement in their child's education. An example of success is Chrispeels and Gonz's 2004 study of 1,156 parents in 20 California schools (Chrispeels & Gonz, 2004). The team found that found that parents' role construct was influenced by a culturally sensitive nine-week parent education course. Additionally, parents' role construct was influenced by increased self-efficacy through knowledge gained through the program. Put simply, this means that through programs that are culturally appropriate for the target audience, schools can empower parents to become more involved in their child's education and, collaterally, in school activities. This portends positive results for a contextually relevant health program designed to include obesity prevention and intervention among Latino children.

Scope of the Study

This qualitative exploratory study contributed new knowledge about how a Title I school may develop a contextually relevant health program for the student and family population it serves. This study was guided by the following research questions: (1) How does the current school health plan address obesity in children? (2) In what ways is the school working with families to lower obesity in children? (3) What are the elements of a contextually relevant health program for a Title I school?

Research Design

A qualitative research design was best suited to this exploratory study because it enabled the researcher to access objective descriptions of the school's health plan through document review and to follow a three-part thematic framework of Food, People, and Places to elicit mothers' description of their family's practices around food purchase, preparation and consumption, physical activity habits, and communication channels for health information within their respective household through a series of interviews and a focus group. A qualitative approach allowed the researcher to conduct interviews and focus groups to capture "direct quotations about personal perspectives and experiences" (Kleinman et al., 2002, p. 40). Photovoice was used to conduct photo-elicited preliminary interviews with each of the participants.

Photovoice is a community-based participatory research method defined as "a process by which people can identify, represent, and enhance their community through a specific photographic technique" (Wang, Cash, & and Powers, 2000). This definition builds on the leading definition proffered in C. C. Wang and Burris's seminal article that describes photovoice as a method that enables people to record and reflect their community's strengths and concerns,

promotes critical dialogue and knowledge about important issues through large and small group discussion of photographs, and reaches policymakers (Wang, & Burris, 1997). Photovoice was an appropriate method for this study because it is primarily used as a way to collect data to document individual or community realities and answer descriptive research questions (Catalani & Minkler, 2010). Additionally, although mothers were provided with general guidelines for subjects and objects to capture as photographic images of Food, People, and Places, it was the mothers themselves who ultimately decided how and what to photograph and how to compose the photographs. This application of photovoice is consistent with C. C. Wang and Burris' (1994) discussion of photovoice wherein participant selection or ranking of the photographs places the emphasis on the participant, rather than on analysis conducted by the researcher.

Site

This study was conducted at El Mar School (a pseudonym), a Title I charter elementary school located in a 90,000-student district in Southern California. El Mar School is part of the Agua Vista Educational Collaborative (a pseudonym), a charter management organization.

El Mar School was established in 2000 and enrolls approximately 600 students in grades kindergarten through eight. The El Mar School elementary student body is 72% Latino, 12% White, and 8% African American. Half of El Mar School students are English learners and 79% qualify for free or reduced meals. El Mar School qualifies for Title I designation under the No Child Left Behind Act of 2000 based on the percentage of its students who qualify for free or reduced price meals (FRM) through the National School Lunch Program, which is administered locally through the California Department of Education School Nutrition Program. The threshold for Title I designation is 40% or more students qualifying for free or reduced price meals. To be eligible for free school meals, the family's income must be at or below 130% of

the poverty level. To be eligible for reduced-price meals, the family income must be between 130% and 185% of the federal poverty level corresponding to family size. As an example, for the 2012–13 school year, 130% of the federal poverty level is $29,965 for a family of four; 185% is $42,643 (U. S. Department of Agriculture). As such, El Mar School's 79% FRM-eligible and 72% Latino and 8% African American student body allow it to be characterized as a high-minority Title I school. These attributes suggest some level of generalizability of this study's findings to other high-minority, Title I schools.

Participants

The participant group was comprised of seven self-identified Latino mothers representing seven families. Six of the seven families are designated as low-income, as indicated by their children's eligibility to receive free or reduced-price school meals under the National School Lunch Program, which is based on household size and income. Although one of the mothers did not represent a low-income household, she was included as a participant because her children attend a Title I school where 79% of the families are low-income households. This points to an important assumption on which this study is based: The researcher approached her investigation from the perspective that a *schoolwide* program such as the school's health plan would indeed serve all students and, moreover, a Title I school would develop and implement schoolwide programs informed by the needs and goals of its majority, low-income students.

Two of the mothers participated in the study in English; five participated in the study in Spanish. Each of the mothers had at least one child enrolled at the school; five mothers had two or more children at the school. Six of the seven mothers did not work outside of the home at the time of the study. Among the seven mothers, the researcher had 14 unique contacts through the study activities. Two mothers participated in three study activities—preliminary interview, focus

group, and follow-up interview. Three mothers participated in two study activities—the preliminary interview and either the focus group or the follow-up interview. Two mothers participated in the preliminary interview only.

Data collection and analysis

Each of the seven mothers was given a disposable camera and asked to take 27 photographs according to a protocol provided by the researcher. The protocol followed the three-part thematic framework of Food, People, and Places. Examples of subjects and objects included *your kitchen*; *small appliances* (*microwave, blender*); *your family during a meal at home*; *childcare provider/babysitter*; *your child's classroom*; *farm* or *garden*; *grocery store*; and *hospital*. The protocol is included as an appendix. After the mothers returned the cameras, the researcher developed the photographs and used them as the basis of preliminary individual interviews under the photovoice methodology. The semi-structured interview protocol followed the Food, People, and Places framework. The researcher engaged each of the seven mothers in a discussion of the food purchase, preparation, consumption, physical activity practices, and communication channels for health information in their household. The researcher secured an audio recording and generated a transcript for each interview. Transcripts were reviewed for emerging themes. These themes were used to create a semi-structured protocol for the focus-group interview in which three of the mothers participated.

Because the original research design planned to include 12 to 15 mothers, and the final participant group resulted in 7 mothers, the researcher conducted follow-up individual interviews. Three of the mothers agreed to participate. As with the preliminary interviews and focus group, the follow-up interviews were recorded transcripts were generated. The researcher

triangulated the themes that emerged from the interviews and focus group to review, organize and make sense of the data from all of the sources.

Public Engagement

The purpose of this study was to understand how the current school health plan addresses obesity in children and provides pathways for parent engagement in obesity prevention and intervention activities for a predominantly minority Title I elementary school. Additionally this study sought to engage mothers in individual and focus-group interviews to understand food purchase, preparation and consumption, physical activity practices, and communication channels for health information within their household. The findings that emerged from this investigation contribute new knowledge to the existing research base and informs how schools can work with parents as partners in the discovery of challenges to healthy eating, the promotion of best nutritional practices, and ultimately the development of an effective culturally relevant school health plan that includes obesity prevention and intervention goals and activities. The recommendations from this study have broad implications for policy-makers and practitioners as we begin to improve the obesogenic environment of low-income communities to combat childhood obesity at both a national and local level.

Chapter 2: Literature Review

This qualitative, exploratory study investigated the existing health plan at a Title I elementary charter school and the ways in which families participate in obesity intervention activities. The research questions that guided this study were:

1. How does the current school health plan address obesity in children?
2. In what ways is the school working with families to lower obesity in children?
3. What are the elements of a contextually relevant health plan for a Title I school?

In this paper, the terms "health education" and "nutrition education" are used interchangeably. This is informed by the researcher's assertion that one cannot facilitate or participate in the teaching and learning of health or nutrition apart from the other. In support of this assertion is the comprehensive school health plan model purported by Allensworth and Kolbe (1987) that identifies the eight essential components as health education, physical education, health services, psychological and counseling services, nutrition services, health promotion for staff, safe school environment, and parent and community involvement. Additionally, the researcher posits that any health/nutrition intervention—such as an obesity intervention—must be situated within an education program and not held out as an independent initiative with its own purpose, goals, activities, and outcomes. This nesting of an intervention within a program, a program within a school, and a school within its community is aligned with a socioecological model that serves as the conceptual framework for this study.

This chapter begins with a review of data documenting the rise of obesity in the United States, with particular emphasis on obesity trends among low SES and minority children. Obesity is defined as a chronic health condition and the impact of obesity on the economy and labor force, and upon academic performance of students, is detailed. This is followed with a

discussion of obesogenic food environments. Next, federally mandated local wellness policies, coordinated school health plans, and school nutrition policies are reviewed. The discussion of these programs highlights the limitations to implementation and the shortcomings of these efforts with respect to the insufficient engagement of parents and community. This is followed by a description of best practices for working with Latino families, citing an understanding of acculturation, familism, language, and communication modality as facilitators of a contextually relevant delivery model of parent education. This chapter ends with a description of the theoretical framework for the study, which draws from the socioecological model of systems theory and contextually relevant pedagogy.

Obesity

According to the 2010 Census, 16% (50.5 million) of the United States population was of Latino/Latino origin, an increase from 13% (35.3 million) in 2000 (U.S. Census Bureau, 2011a). It is estimated that by 2050, 25% of the U.S. population will be Latino (U.S. Census Bureau, 1996). The Latino population is marked by a lower academic achievement and educational attainment (U.S. Census Bureau, 2011b) and a higher incidence of obesity (Flegal, Carroll, Ogden, & Curtin, 2010). Notwithstanding the economic impact of education on socioeconomic status (Day & Newburger, 2002), the confluence of obesity and hindered educational attainment warrants the attention of schools, communities, and policymakers. This study proposes that schools are at the center of communities and have extended contact with children and families, and are therefore in a powerful position to provide information, shape attitudes, and influence behavior regarding health and nutrition. With this in mind, this study will examine how schools may strengthen their role in providing equity and access in relation to health education to low-income families.

There has been an upward trend in the prevalence of obesity among U.S. adults and adolescents over the past few decades (Flegal et al., 2010) and the incidence of obesity among Latinos is particularly acute. According to the 2009 California Health Interview Survey, 19.3% of Latino children aged 5 to 17 years, and 70.2% of Latino adults are overweight or obese, compared to 51.1% of non-Latino adults in the state (California Health Interview Survey, 2009). California's state population grew by 10% to approximately 37 million between 2000 and 2010, with Latinos representing the fastest-growing subgroup, increasing by 27.8% to represent 37.6% of the state's total population (U.S. Census Bureau, 2011a).

The incidence of obesity is also notable in African American populations. In 2010, African Americans were 1.4 times as likely to be obese as non-Hispanic Whites. During the period 2007 to 2010, 70% of African American men and 80% of African American women 20 years of age and over were overweight or obese (Center for Disease Control, 2012). In 2010, African American children and adolescents 6–17 years of age were 1.7 times as likely to be obese as compared to non-Hispanic Whites. Compared to 14.6% of non-Hispanic White children and youth, 25.7% of African American children and youth were obese (Federal Interagency Forum on Child and Family Statistics, 2012).

This combination of increase for Latinos in the overall population, coupled with the rise of obesity among both Latino and African American populations, has significant implications for the national economy. Using data from the 1988 and 1994 National Health Interview Surveys (NHIS), researchers found that the economic cost attributable to obesity was $99.2 billion dollars in 1995. Of that amount, approximately $51 billion were direct medical costs for the treatment of obesity-related chronic diseases such as diabetes, coronary heart disease, hypertension, breast and colon cancer, and osteoarthritis. Additionally, indirect costs such as work-lost days,

restricted activity, bed-days, and physician visits are increasing substantially. Work-lost days and physician visits attributed to obesity increased 50% and 88%, respectively, between 1988 and 1994. The overall loss of productivity attributed to obesity was $3.9 billion, representing 39.2 million days of lost work, 239 million restricted-activity days, 89.5 million bed-days, and 62.6 million physician visits (Wolf & Colditz, 1998).

The loss of productivity and decline in health are further underscored when the interrelationship between the phenomena of childhood and adult obesity is acknowledged. In a 2010 study, researchers found a strong association between maternal and childhood obesity—42.1% of children who had obese mothers were also obese, compared to the 23.3% of children who were obese but did not have obese mothers (Van Cleave, Gortmaker, & Perrin, 2010). Furthermore, childhood obesity has near and long-term consequences. Immediate consequences include the development of gallstones, hepatitis, and sleep apnea. Intermediate consequences include cardiovascular disease such as high blood pressure and cholesterol levels. Long-term consequences include increased likelihood of persistence of obesity into adulthood, and obesity-related morbidity (Must & Strauss, 1999). Simply put, obese children are more likely to become obese adults, thus propagating the cycle of poor health and lost productivity (Braddon, Rodgers, & Wadworth, 1986; Flegal, Carroll, Ogden, & Curtin, 2008; Must & Strauss, 1999). However, more profound is the downward trajectory of reduced productivity stemming from reduced poor health and the impact upon academic performance of children and youth.

> What is very clear, is that education and health for children are inextricably entwined. A student who is not healthy, who suffers from an undetected vision or hearing deficit, or who is hungry, or who is impaired by drugs or alcohol, is not a student who will profit optimally from the educational process. Likewise, an individual who has not been provided assistance in the shaping of healthy attitudes, beliefs and habits early in life, will be more likely to suffer the consequences of reduced productivity in later years (Allensworth, 1987, p. 409).

A body of evidence exists linking students' regular consumption of adequate nutrition to school performance as measured by improved school attendance, academic performance, or cognitive ability (Alaimo et al., 2001; Jyoti, Frongillo, & Jones, 2005; Kleinman et al., 1998; Murphy et al., 1998). Low-nutrition and hunger contribute to poor behavior and low performance in low socioeconomic status students (O'Toole et al., 2007). The 2006 Student Health Policies and Programs Study cited under-nutrition during childhood as a contributor to the underdevelopment of physical health of children, including cognitive development and academic performance.

In a 2009 study of diet quality and nutrient adequacy of Latino children from low socioeconomic status families at high risk for obesity, researchers found that while the children's diets were adequate in most essential nutrients, they did not support long-term health because the children's consumption of percent total fat, percent saturated fat, cholesterol, added sugar, and sodium exceeded that of recommended dietary guidelines. Additionally, the authors suggested that further study of the dietary intake of Latino children of low socioeconomic status families may inform culturally tailored health interventions (Wilson, Adolph, & Butte, 2009). This finding is relevant to the present study because diet correlates to obesity, and obesity is a persistent health factor that acutely impacts health and academic performance among low SES students. Van Cleave et al. defined obesity as a chronic health condition, contributing to behavior and learning problems, allergies, serious visual impairment, serious auditory

impairment and chronic ear infections, among others. In a six-year study, researchers found that Latino children were significantly more likely to suffer from a chronic condition and that the greater prevalence of obesity and asthma contributed to this difference (Van Cleave et al., 2010).

Obesity as a chronic health condition has been examined for its impact on quality of life (QOL). In a 2002 study of 106 obese children and adolescents aged 5 to 18 years, these youth reported significantly lower health-related quality of life in all domains—physical, psychosocial, emotional, social and school functioning—compared to normal-weight youth. Notably, the quality of life score for these youth was comparable to that for youth diagnosed with cancer and receiving chemotherapy. Additionally, obese children reported impaired school function four times as much, exhibited a higher rate of depression, and were absent an average of four more school days per month than healthy children (Schwimmer, Burwinkle, & Varni, 2003). Schwimmer's research is consistent with other studies that have shown that children with chronic illnesses have greater school absenteeism rates than their healthy peers (Cook, Schaller, & Krischner, 1985; Vetiska, Glaab, Perlman, & Daneman, 2000; Weitzman, 1986; Weitzman, Walker, & Gortmaker, 1986). Impaired cognitive functioning and academic performance; greater prevalence of asthma and depression; and higher rates of absenteeism are obesity-related factors that schools cannot ignore when looking at the disparity in educational attainment among ethnic groups.

Latinos are overrepresented among both overweight and obese students (Delva, O'Malley, & Johnston, 2007) and among those with lower levels of education. In 2008, approximately 18% of adults (41 million individuals) aged 20 and over had not obtained a high school diploma. Not attaining a high school diploma or its equivalent is defined for purposes of this study as "dropping out." The dropout rate of Latino adults was 41%, compared to 23% of

African American, 14% of Whites, and 15% of Asians for that year (Fry, 2010). This snapshot of the achievement gap is seen consistently over time. During the 30-year period between 1970 and 2009, the gap in educational attainment between Latinos and other racial groups persisted, with 61.9% of total Latinos attaining a high school diploma or higher, compared to 87.1% of Whites and 86.7% overall. The gap continues into college degree attainment. While the total population and the non-Latino White subgroup was marked by 29% achieving college or more, the Latino subgroup reached only 13.2%, (U.S. Census Bureau, 2011b).

The phenomenon of obesity as a chronic health condition that impairs academic achievement and has a profound impact on the national economy with respect to health care cost and loss of productivity warrants attention to develop effective interventions that catalyze sustainable solutions to a problem that affects children and adolescents, schools, communities, and society at large.

Title I Schools

Title I schools are schools that receive federal funding through the Title I program, made possible by the Elementary and Secondary Education Act of 1965 (ESEA) and its reauthorization in the No Child Left Behind Act of 2001. In the 2010–11 school year, 66,646 schools across the United States and Puerto Rico received $14,463,416,198 of federal funding from the Title I program (NCES, 2011). More than two-thirds (67%) of all elementary schools and 29% of all secondary schools in the US receive Title I funds. More than half (58%) of all Title I students are African American or Latino, and 2.5 million of all children from Title I schools have limited English proficiency (U.S. Department of Education, 2002).

The Title I program provides financial assistance to local educational agencies (LEAs) and schools with low-achieving children, especially in high-poverty schools, to improve the

academic achievement of the disadvantaged. The program's purpose is to ensure that all children have a fair and equal opportunity to quality education and reach, at minimum, proficient levels on state academic standards and assessments. The program finances the additional academic support and learning opportunities that are often necessary to help low-income students succeed in school.

Title I, Part A of ESEA aims to accomplish its purpose of providing educational equity to all children by improving basic programs operated by local education agencies. Subpart 1 lists the basic program requirements for state educational agencies (SEAs) and LEAs wishing to receive Title I funding. States must submit a comprehensive plan to the Secretary of Education that satisfies all the requirements of the Act. Requirements include the demonstration of adopted challenging academic standards, use of a standard accountability system, and implemented academic assessments (Part A, Section 1111). LEAs wishing to receive a sub-grant of Title I funds are also required to file plans, with their respective SEAs, that are coordinated with the programs listed in the Act.

The Act explicitly describes which schools are eligible to receive funds, referred to as "eligible school attendance areas." Part A, Section 1113 explains, "the term eligible school attendance area means a school attendance area in which the percentage of children from low-income families is at least as high as the percentage of children from low-income families served by the local educational agency as a whole" (Part A, Section 1113). In the event that funds in a given LEA are insufficient to serve all eligible schools, a local educational agency will target and concentrate funds in a ranking order favoring schools with the highest percentages of children from low-income families. For example, in 2002, 46% of Title I funds was distributed to the highest-poverty schools, in which over 75% of the school's students were from low-income

families. Another 27% percent of funds was distributed to schools in which 50 to 74% of students were low-income, and the remaining 27% of funds was distributed to schools with less than 50% low-income students (U.S. Department of Education, 2002).

Title I, Part A gives specific guidelines as to how each local educational agency is to measure the level of poverty in its schools. Those measures include the number of children ages 5 through 17 in poverty according to the most recent census data; the number of children eligible for free and reduced-priced lunches under the Richard B. Russell National School Lunch Act; the number of children in families receiving assistance under the State program funded under the Social Security Act; the number of children eligible to receive medical assistance under the Medicaid program; or a combination of such indicators, with respect to all school attendance areas in the local educational agency (Part A, Section 1113). Once the measures are used, LEAs are able to identify eligible school attendance areas and determine the ranking of each school.

Targeted assistance and schoolwide programs.

Schools in which low-income students comprise less than 40% of the population are eligible to receive Title I funds by providing a "targeted assistance program" to a particular student population. Funds for targeted assistance programs may only be used for students identified as failing, or those most at risk of not meeting state standards, and to design instructional programs to meet the needs of those students. Title I eligible schools that have greater than 40% low-income students have the option to offer a targeted-assisted program or may use the funds to develop and operate a schoolwide program. Title I funding for a schoolwide program allows a school to upgrade its entire education program to improve academic achievement for all students. In the 2010–11 school year, 48,990 schools, or 74% of

all Title I schools, operated schoolwide programs (NCES, 2012). General guidelines for a schoolwide program include but are not limited to the following components: a comprehensive needs assessment of the entire school (including taking into account the needs of migratory children); schoolwide reform strategies; instruction by highly qualified teachers; professional development for faculty and staff; and strategies to increase parental involvement (Part A, Section 1114).

Both targeted assistance and schoolwide programs are required to use instructional strategies that are supported by science-based research and must implement parental involvement activities. Part A, Section 1118, recognizes the importance of parental involvement in children's education and requires LEAs and schools to make specific efforts to facilitate parent participation. "A local educational agency may receive funds under this part only if such agency implements programs, activities, and procedures for the involvement of parents in programs assisted under this part consistent with this section" (Part A, Section 1118).

LEAs and eligible schools are to jointly develop with, and distribute to, parents a written parental involvement policy that describes what measures will be taken to incorporate them to the school. Parents are notified of the policy in a uniform format and it must be provided in a language the parents can understand, to the extent that is reasonable. The parental involvement policy should include a school-parent compact that outlines how parents, the entire school staff, and students will share the responsibility for improved student academic achievement. In particular the section addresses the need to educate school faculty and staff, "with the assistance of parents, in the value and utility of contributions of parents, and in how to reach out to, communicate with, and work with parents as equal partners, implement and coordinate parent programs, and build ties between parents and the school" (Part A, Section 1118).

National School Lunch Program

The United States Department of Agriculture's (USDA) Food and Nutrition Service administers the National School Lunch Program and School Breakfast Program to ensure that students are provided meals with adequate nutrition during the school day (Delva et al., 2007). The National School Lunch Program (NSLP) was established by the National School Lunch Act in 1946 in response to nutrition-deficiency-related health problems identified among young men being drafted during World War II. The program provides lunch to over 29 million children each school day, covering approximately 99,000 schools (95% of all public and private schools), with 17.5 million students receiving reduced-price or free meals. In 1966 the Child Nutrition Act established the School Breakfast Program (SBP), and made it permanent in 1975 (Millimet, Tchernis, & Husain, 2008). In 1994, Congress passed the Healthy Meals for Healthy Americans Act which required the Department of Agriculture to develop a new menu planning system to help schools meet specific nutrient standards set out in the Dietary Guidelines for Americans. This enables schools, or their food service providers, to utilize their preferred combination of foods to meet the nutrition guidelines.

On a typical school day in the 2004–2005 school year, about 62% of students participated in the NSLP and about 18% participated in the SBP. Participation decreased as grade level increased, dropping from 73% among elementary students to 60% among middle school students to 44% among high school students. Reasons for participating in the NSLP include being hungry (35%) and liking what was served on the menu that day (13%). Middle and high school students were more likely than elementary school students to cite hunger as the primary reason for participating in the school lunch program. Reasons for nonparticipation in the NSLP include bringing lunch from home (28%), not liking the food served that day (20%), and not liking

school food in general (9%). NSLP participants consumed more nutrients at lunch than nonparticipants, attributable to the fact that participants were four times as likely to consume milk at lunch. Participants also were more likely than nonparticipants to have adequate usual daily intakes of key vitamins and minerals (A. Gordon et al., 2007).

Although the NSLP has the potential to influence student eating habits and attitudes toward food, there are many aspects of the school food environment that exacerbate rather than ameliorate poor dietary habits. These aspects include convenient access to unhealthy "junk" food through vending machines, competitive food sales in the cafeteria and school stores, and ineffectual or incomplete school health plans (Vecchiarelli, Takayanagi, & Neumann, 2006). In a survey of competitive food policies among the largest school districts in each state and the District of Columbia, substantial changes to nutrition policies and foods offered at schools had occurred by 2004–2005 in response to the 2004 federal mandate for districts to adopt local wellness policies. None of the districts, however, had adopted a policy that met all recommendations of the Institute of Medicine guidelines for the role of schools in preventing childhood obesity (Greves & Rivara, 2006). Furthermore, in 2006, in a survey of school nutrition policies governing food sold outside of NSLP, researchers found that few states required schools to restrict the availability of deep-fried foods, to prohibit the sale of low-nutrient foods, or to include healthy beverages among beverage offerings (O'Toole et al., 2007). A revision of the policies governing the sale of foods outside of the school meal programs is an opportunity for schools to increase the nutritional content of their food environments.

Coordinated School Health Plans

Schools are part of the environmental context that shapes food availability, eating patterns, and attitudes toward food. Schools are the ideal place for health and nutrition

education and interventions to begin, as schools both create an environment and have direct, regular access to individuals—both students and families. In 2004, Congress established a requirement for all school districts to adopt a "Wellness Policy" that included nutrition guidelines for all foods available on school campuses during the school day, as well as guidelines for nutrition education and physical activity. To best examine the school environment and the policies that effect the food environment therein, they will be examined using the elements of the coordinated school health plan model, described next.

In 1987, Allensworth and Kolbe developed the current model of a coordinated school health plan (CSHP), which is based on eight components: health education, physical education, health services, psychological and counseling services, nutrition services, health promotion for staff, safe school environment, and parent and community involvement (Allensworth & Kolbe, 1987). Together, these eight components comprise a set of services, policies and programs designed to meet the health and safety needs of students in grades kindergarten through 12, as well as the school staff (Jones, 2008), and each contributes to the health and well-being of students. However, the degree to which components are implemented effectively varies among schools. A successful coordinated school health plan is created and informed by a health council comprised of school, family and community representatives, and managed by school site staff and administrators who view health as an integral part of the school's mission (Jones, 2008).

The Center for Disease Control supports the implementation of the coordinated school health plan through its funding of state education agencies and uses the eight components as its basis for school health guidelines, health monitoring systems, and recommendations for practice (Jones, 2008). Health education is provided through a K–12 curriculum that addresses physical, mental, emotional, and social aspects of health. The goals of health education curriculum are to

develop students' knowledge of numerous health topics, including personal and family health, community and consumer health, disease prevention and control, substance use and abuse, injury prevention, and nutrition. Furthermore, a robust curriculum is designed to assist students in maintaining and improving their health and reducing health-related risk behaviors, such as smoking, overconsumption, and sedentary behavior (Jones, 2008). In addition to health education, physical education is also provided through a K–12 curriculum. Quality physical education curriculum should promote students' physical, mental, emotional, and social development through a variety of physical activities (Jones, 2008).

A school's health plan may also include the provision of school health services to ensure access and/or referral to primary health care services, prevent and control communicable disease, provide emergency care for illness or injury, and provide sanitary conditions for the school facility and environment. Additionally, school health services may provide resources for family and community health through counseling, interventions and referrals (Jones, 2008).

A coordinated school health plan may also promote health among employees by sponsoring health assessments such as blood pressure screening, health education and fitness activities, and by otherwise encouraging employees to pursue healthy lifestyles and to see an improved commitment to student health through positive role modeling. Staff health promotion programs positively impact employer costs by increasing productivity, reducing absenteeism, and reducing health insurance costs (Jones, 2008)

Complementing the health and physical education components are school-based *nutrition services* that should provide access to a variety of nutritious and appealing meals that meet the health and nutrition needs of all students. School nutrition programs are based on the U.S. Dietary Guidelines for Americans. Nutrition services may connect to classroom activities to

provide nutrition activities such as cooking classes and may provide opportunities to liaison with community-based organizations providing health and nutrition information to students and families (Jones, 2008). The school environment can significantly affect student food choices because of the large proportion of calories consumed at school relative to the entire day (French, 2005).

School-based obesity interventions.

The rise of obesity among children has prompted public health officials to respond with obesity interventions that aim to reduce childhood obesity rates. Many of these obesity strategies are being implemented in schools where children can have direct access to the resources and services offered by the interventions. School-based obesity intervention programs aim to impact children's dietary or physical-activity-related behaviors through nutrition education and physical education programs. The efficacy of the school-based obesity intervention program has been the subject of several studies that aim to identify factors related to effective programs as well as any adverse effects that may result from their implementation. Two reviews of school-based obesity intervention programs are discussed here.

Doak, Visscher, Renders, & Seidell (2006) conducted a review of 25 school-based interventions to look for statistically significant results in preventing or reducing overweight and obesity among children and adolescents. The effectiveness of the interventions was not based solely on percentile changes for the intervention group, but rather was dependent on the program producing statistical differences between the intervention and comparison groups in relation to height/weight measures (BMI), skin-folds, or both. Doak et al. found that 17 of the 25 (68%) interventions under review were effective in producing statistically significant results for at least one time point or subgroup (Doak et al., 2006). The interventions under review were required to

meet specific criteria to be included in the study to ensure that the outcomes could help researchers identify aspects of prevention programs that are most likely to succeed if implemented on a larger scale. The school-based intervention programs under review included: (1) a focus on school-aged children (6–19 years of age); (2) the use of anthropometric measurements of body weight or adiposity (such as BMI or skinfolds) at baseline and follow-up; (3) an intervention on a diet or physical-activity-related behavior or both; and (4) published results or publicly accessible evaluation documentation. For programs that included physical activity intervention, the researchers noted if a program included activities inside and outside school (Doak et al., 2006).

Doak et al. used a set of 10 questions for evaluating the interventions (effective and noneffective) from criteria developed by Kumanyika et al. to look for factors shared in common by the effective programs. These criteria included sustainability, access to all children within the community, integration with existing programs, extent of research-based activities, and level of involvement by students, parents, teachers, and members of the broader community. Answers from the questionnaire showed that 82% of effective programs intervened on diet and 88% included physical activity related behaviors. It is important to note that 20% of effective programs focused on altering TV-watching behaviors, while none of the noneffective strategies addressed that area. More than half of all interventions (67%) included activities for students inside and outside of school. All 17 effective programs targeted the sociocultural environment of the participants but only 24% of those interventions targeted the participant's physical environment. Researchers found that almost all (94%) intervention programs were deemed sustainable over time at the institutional level; however, only 69% of those programs could be continued with minimal financial input from the organizations using them. Teachers were

involved in all statistically significant programs, child participation was prevalent in 82% of effective programs, and parent participation was used in 47% of programs showing positive results (Doak et al., 2006).

Delivery of intervention also varied among the studies. Simonetti D'Arca et al. tested two different types of intervention delivery. The Multimedia Action School distributed printed materials, involved audiovisuals, and discussion meetings with families and teachers, while the Written Action School distributed only printed materials among students, teachers, and families. "In the first school there was a statistically significant decrease in obesity and overweight whereas in the written action there was no change" (Simonetti D'Arca et al., 1986). Studies also showed potential differences in intervention effectiveness based on gender, age, and ethnicity. Doak et al. found that five of the effective programs showed differences between boys and girls. Three programs favored girls and had no statistically significant results for boys, and two programs were effective for boys and not girls. Only one of the interventions, the CATCH study, reported on ethnicity. Although this intervention was not effective on any ethnic group it showed an adverse effect on African Americans with a statistically significant increase in BMI and skinfold measures when compared to Whites and Hispanics (Doak et. al, 2006).

Although most effective programs were considered to be sustainable over time, some programs were more sustainable than others. For example, Flores et al. utilized the Dance for Health program, a $1,500, 12-week intervention program that proved effective for girls. Flores et al. reported "significant reductions in BMI between intervention and control girls (BMI change -0.8 and 0.3 respectively). Girls also showed changes in fitness (heart rate change -10.9 beats/min and -0.2 beats/min respectively; Flores et al., 1995). Conversely, the Simonetti

D'Arca et al. study that adopted a low-cost approach and only distributed printed materials was not effective when compared to the more expensive Multimedia Action School plan.

Summerbell et al. (2009) also conducted a similar review of 22 studies: 10 long-term (at least 12 months) and 12 short-term (12 weeks to 12 months). Only one long-term study that combined dietary education and physical activity interventions resulted in improvements for girls receiving the intervention, but not boys. One other long-term study that focused on physical activity alone appeared to be effective in preventing obesity. Of the 12 short-term studies, only two resulted in minor reductions in overweight status in favor of the intervention group (Summerbell et al., 2009). Researchers also note the limitations of not addressing community-level factors in both effective and noneffective interventions. Summerbell et al. explain "The interventions identified in this review rarely considered the impact of parents' and family's increasingly complex working and living arrangements, yet the potential for change at the family level in the absence of addressing supportive strategies is likely to be diminished" (Summerbell et al., 2009). Student and adult stigmatization is a major issue that is also not addressed by most programs. All but one of the studies under review failed to report on the prevalence of overweight and obesity for the adults teaching the program, parents, school staff, and other community leaders. Doak et al. suggests "these factors may be important to children's perceptions of education-based messages, community support, and long-term sustainability of the program" (Doak et al., 2006). Summerbell et al. also note that many obesity interventions are implemented in well-educated populations, a factor that can compromise the generalizability and effectiveness of intervention programs in communities with lower socioeconomic status.

School-based prevention programs can be classified into three levels: classroom approaches, schoolwide approaches, and multisetting approaches. Multisetting approaches

expand prevention efforts beyond the school to also include the family, community, and peers. This approach is based on a contextual systems, or ecological, framework that emphasizes the interactions and relationships among influential systems in the child's life (school, family, community, peers; Shepard & Carlson, 2003). The socioecological model identifies four levels of influence on an individual's health including intrapersonal, organizational, community, and environment to inform a community-based health intervention that includes children, parents, and other caregivers, and it offers a comprehensive, intergenerational response to the crisis of obesity (de Silva-Sanigorski, 2010). An ecological orientation recognizes not only the influence of multiple systems on the child, but also how the interaction between these systems creates dynamics that affect the child. Several studies pointed out the problem of poor parent participation. Although parent participation cannot be completely controlled, programs can be designed and implemented in such a way that will increase the likelihood that parents will participate (Shepard & Carlson, 2003).

Health Literacy

The National Assessment of Adult Literacy (NAAL) is a nationally representative assessment of English literacy among American adults age 16 and older. Between 1992 and 2003, the NAAL showed that Latinos and those who did not graduate from high school were overrepresented among individuals with below-basic prose literacy (U.S. Department of Education, 2003). In addition to an assessment of general literacy, the 2003 NAAL includes the first national assessment of health literacy among adults. This assessment found that Latino adults demonstrated lower health literacy than all other ethnic groups, with 58% of White adults demonstrating intermediate health literacy compared to 31% of Latino adults (Kutner, 2006). Furthermore, there are health literacy differences among Latinos of different language

dominance, education level, and country-of-origin. In a review of 28 studies on health literacy among Latinos in the United States, researchers that found that compared to their counterparts, Spanish-speaking, less-educated, and foreign-born Latinos had lower levels of health literacy (Koskan, Friedman, & Hilfinger Messias, 2010).

These findings are significant when it is noted that Latinos are also overrepresented in populations marked by low health status and low educational attainment (California Health Interview Survey, 2009; Fry, 2010), as poor literacy can affect an individual's health by hindering their "personal, social and cultural development" as well as limiting the development of their health literacy (Nutbeam, 1998, p. 20). Although there are several definitions of health literacy (American Medical Association, 2000; Center for Health Strategies Inc., 2000; U.S. Department of Education, 2003; U.S. Department of Health and Human Services, 2000), the definition selected for this literature review is that laid forth by the World Health Organization: "Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (Nutbeam, 1998). In 2004, the U.S. Department of Health and Human Services identified health literacy as a priority to enable people to be informed about their own health and to take action to prevent disease and illness (U.S. Department of Health and Human Services, 2004).

As a body of evidence suggests that literacy in relation to education has a strong influence on health (Deaton, 2002; Molla, Madans, & Wagener, 2004; Winkleby, Jatulis, Frank, & Fortmann, 1992) it is clear that schools are in a critical position to positively impact the health status of students and families. In the next section, the concept of contextually relevant pedagogy and its application to health education is examined.

Photovoice

Developed in the mid-1990s by Caroline Wang and her colleagues (C. C. Wang, 1999; C. C. Wang, & Burris, 1994; C. C. Wang & Burris, 1997), photovoice is a community-based participatory research method defined as "a process by which people can identify, represent, and enhance their community through a specific photographic technique" (C. C. Wang et al., 2000). The photovoice methodology is primarily used to answer descriptive research questions, generally as a way to collect data to document individual or community realities (Catalani & Minkler, 2010). Participant selection or ranking of the photographs places the emphasis on the participant, rather than on analysis conducted by the researcher. This emphasis is informed by feminist theory, critical pedagogy, and action research (C. C. Wang & Burris, 1994). Wang and Pies (2004) assert that "photovoice requires a new framework and paradigm in which participants drive the analysis—from selection of their own photographs that they feel are most important, or simply like best, to the 'decoding' or descriptive interpretation of the image" (C. C. Wang & Pies, 2004).

Photovoice can make significant contributions to participatory needs assessment. One of the notable advantages of using this method includes the opportunity for researchers to discern the world through the participant's own point of view. The use of visual images satisfies the descriptive requirements of needs assessment and demonstrates the originality and perspective of some of the most vulnerable populations (C. C. Wang & Burris, 1997). Other advantages of photovoice include a larger sample of various social and behavioral settings, enabling of participants to share the stories and ideas of nonparticipants, depictions of assets in the community, and stimulation of community problem-solving, organizing, and social action (C. C. Wang & Burris, 1997). Photovoice can be utilized in various ways. Notably, this methodology

can adapt to specific participatory objectives in public health promotion, diverse groups or communities, and for a wide range of public health issues (C. C. Wang & Burris, 1997).

An example of this work is found in the photovoice project, "Trying to Eat Healthy," which used documentary photography and three focus-group meetings to document and discuss the challenges that low-income women face in accessing healthy food in New York City. The nine participants recruited were almost all ethnic or racially minority mothers and came from low-income backgrounds. In the first session, participants received an overview of the photovoice method, were given disposable cameras, and asked to take photographs that depicted their experiences with access to healthy food in Central Harlem (Valera, Gallin, Schuck, & Davis, 2009). At the second meeting, the participants were able to review and share their photographs with each other. Researchers served as facilitators and asked questions that catalyzed the participants' thought process. Three major themes emerged: the lack of access to healthy food, an emergent awareness of their local environment, and the process of becoming agents for social change. The study found that participants struggled with the ability to buy healthy foods to feed themselves and their children. In particular, a photograph depicting the high cost of fruits and vegetables prompted another participant to discuss her challenges with buying healthy food for her children when the prices were too high. Group discussions also revealed that participants were aware of the environmental conditions that perpetuated their food insecurities. For example, one participant photographed and compared the cost of a bottle of water to the drastically reduced price of a can of soda. Participants expressed frustrations at the food marketing techniques that often times encourage customers to buy unhealthy food (Valera et al., 2009).

Theoretical Framework

Reviews of the intervention literature, particularly in obesity prevention, have shown that interventions using a socioecological framework to guide their design are more likely to be successful (Flynn, 2006). School health prevention programs that are based on a multisetting approach have incorporated parent and/or family interventions (Shepard & Carlson, 2003). The incorporation of parent involvement intervention strategies in these programs is influenced by an ecological theoretical orientation, recognizing the contribution of many factors within the child's environment that impact developmental outcomes. Intervention approaches that focus solely on within-child factors or the classroom/school neglect the major socializing force of the home within the child's ecology (Shepard & Carlson, 2003). This underscores the potential benefit to include and involve parents and the family in obesity intervention programs.

Obesogenic food environments.

The obesity epidemic among adults, adolescents, and children in America has caused researchers to look for determinant factors that reach beyond genetics. Researchers are beginning to see that obesity prevention and intervention efforts that focus on only the individual may not lead to sustained outcomes because the programs fail to consider the environment in which health decisions and health behaviors, such food consumption and physical activity, occur (Jeter & Cassady, 2006). Recent studies have observed the association between obesity rates and the environment where these individuals reside and have found that obesity is "rooted in a complex tangle of individual, household, and community-based factors" (Cummings & Macintyre, 2006; Lavizzo-Mourey, 2007).

Food prices.

The effects of food prices and the probability of obesity among young adults have recently been studied. Studies have found that among teenagers, higher fruit and vegetable prices and lower fast-food prices are associated with higher weight outcomes (Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007; Auld & Powell, 2009).

A retrospective cohort study of high school seniors in the US found that a $1.00 increase in fast-food price was associated with a 6.7 percentage point decrease in the probability of obesity for women. In other words, a 10% increase in fast-food price was associated with an 18.8% decrease in the probability of being obese (Han & Powell, 2010). Inversely, when the price of fruits and vegetables was increased by $1.00, the probability of women being obese increased by 16.7 percentage points (Han & Powell, 2001). Similar results were found among male adolescents; the probability of obesity fell by 13.2% when a 10% increase in fast-food prices occurred (Han & Powell, 2010). It is important to note that when individual factors such as participant's income, hourly wages, and hours worked, and parental education and work status were controlled for, many of the food price extrapolations fell and lost their statistical significance (Han & Powell, 2010).

Food availability and location.

The distance and locations that low-income families travel to shop for food has also been researched. Hillier et al. surveyed 198 adults receiving Supplemental Nutrition Program for Woman, Infants, and Children (WIC) benefits and 134 stores in Philadelphia to measure the rate of available healthful food and the "social distance" participants travel to acquire them. Hillier et al. refers to social distance as "the combination of environmental challenges a person faces in efforts to acquire the foods she/he hopes to purchase" (Hillier et al., 2011). The study found that supermarkets averaged the highest score (36.8) in healthful food availability, followed by

grocery stores (23.9) and corner stores (13.8). Researchers discovered that 98.5% of participants reported doing most of their non-WIC shopping in one store, which was almost entirely (98%) at a chain supermarket. The distance they travel to do their shopping was on average 1.58 miles for non-WIC food and 1.07 miles for WIC food. Only 29.3% of participants shopped within the zip code where they live and 1.5% shopped within the census tract they belong to (Hillier et al., 2011). Hillier et al. also found that participants who reported being food insecure tended to travel further to buy food than their food-secure counterparts.

Food deserts are also a particular concern to researchers who look to find a relationship between these geographic areas, with few or no full-service food outlets, and overweight school children. Studies have found that low-income communities have fewer grocery stores (Chung & Myers, 1999; Morland et al., 2002), and these are linked to poor diets and higher propensities to overweight and obesity (Reidpath et al., 2002). The risk of students being overweight in food-desert districts was statistically greater than those not in food-desert districts by 2 points (Hillier et al., 2011). The study also found that over a period of two years (1999–2001) the rate of obesity had increased significantly higher in food-desert districts (2.34% points) compared to those not in food-desert districts (1.08% points; Hillier et al., 2011).

Parents and the Home Environment.

Examining the complex relationship among the macrosocial factors that include cultural norms, food availability, and laws and policies (Glass & McAtee, 2006) it becomes apparent that children, parents and families are situated within communities and food environments. A look at food environments and the role they play in the obesity epidemic is especially important given the increase in total caloric intake, consumption of fast-food, and sweetened beverages (Duffey & Popkin, 2007; Koplan & Dietz, 1999; Nielsen & Popkin, 2002, 2003; Vartanian, Schwartz, &

Brownell, 2007; World Health Organization, 2003). Resolving the obesity epidemic requires a complex, coordinated effort at the community and population level to sustainably change the way people eat, move, and live. Obesity should be viewed as a multifaceted system whose behavior is affected by a variety of factors, including not only those that pertain to individuals, but also society—such as the food, physical, cultural, and economic environment (Huang, Drewnowski, Kumanyika, & Glass, 2009). Therefore, obesity interventions must take into account the complexity of this phenomenon and respond to both individual and socioenvironmental factors.

Socio-Ecological Context.

Childhood obesity is a complex issue and both individual efforts and societal changes are needed. Communities have their own societal subsystems within a particular geographic area and the way in which an individual often identifies within a community is defined by race, ethnicity, socioeconomic status, and group memberships (MacQueen, 2001). To create effective programs within communities, one must take into account the varied nature of relationships, networks, and how they may all work together synergistically (Wellman, 1990). Many studies have shown that obesity interventions cannot be developed without considering and involving the social and environmental context of the community (Glass & McAtee, 2006).

For this study, the researcher introduces the socioecological model, discussed later in this review under "theoretical framework," which defines the "environment" as anything outside the human body that can influence behavior and health status (Egger & Swinburn, 1997; Sallis & Owen, 2002). The environment may have several facets: physical (buildings, transportation systems), political (policies), economic (food prices), and communications (media and advertising). Schools support the development and maintenance of a safe and healthy school

environment through addressing the physical environment of the campus. Physical conditions include temperature, noise, lighting, and pollution (Jones, 2008). Additionally, schools are subject to the nutrition policies of their district, which may in turn be influenced by the economic environment of reduced school budgets. Likewise, schools contribute to the communications environment that informs and influences students and families. For example, schools may provide health and nutrition information through school bulletins, websites, email, and automated phone messages. However, it is important to note that school-based health information is just one of the many messages about food to which families are exposed. Mass marketing by the food industry is also a leading influence upon children's food consumption and health (National Research Council, 2006).

In the context of developing a contextually relevant health education delivery model for Latino families, schools must consider these interrelated and interdependent environmental dynamics. One of the goals of this study is to understand how contextual relevance may inform the design of a health plan for a Title I school. Given that the majority of Title I schools serve minority student populations, it follows that language and acculturation are imperative to consider when assessing the socioecological context of a school site and the students and families it serves. Here the researcher identifies language, acculturation, and familism as cultural constructs that are imperative to consider when designing and implementing a parent health education program for Latino families.

First, a definition of culture must be given. General anthropologic definitions of culture describe it as a distinct set of beliefs, morals, values, customs, and institutions that people inherit as they grow up in a culture. Guarnaccia & Rodriguez (1996) defined culture as "both a product of group values, norms and experiences and of individual innovations and life histories" (p. 421).

Culture has also been described as "what we talk about; how we talk about it; what we see, attend to, or ignore; how we think; and what we think about" (Porter & Samovar, 1991, p. 21). To develop and implement successful health education program for parents, schools must acknowledge the differences in beliefs and practices among generations, how decisions and practices are influenced by cultural norms, and how language may hinder or facilitate communication with parents and families.

Acculturation.

Acculturation was first defined as a sociological process in which cultural change resulted from contact between two autonomous and independent cultural groups (Redfield, Linton, & Herskovits, 1936). Acculturation is also defined as the acquisition of dominant cultural norms by members of a nondominant group (Gordon-Larsen et al., 2003). For the purposes of this study, the dominant culture is defined as "American, English-dominant" and the nondominant group as "Latino, Spanish-dominant." While this entails the categorization of Latinos as a single cultural group, it is important to recognize the heterogeneity of Latino culture and the acculturation processes experienced by Latino immigrants from various countries of origin.

In the process of acculturation, the phenomena of conflicts, biculturalism, and acculturation gaps impact the dynamic of immigrant families. Acculturation conflicts result when messages from the culture of origin (herein home culture) and host culture become difficult to reconcile. Acculturation gaps are the result of differences between adolescent and parent levels of home culture and host culture involvement (Smokowski, Rose, & Bacallao, 2008). Acculturation can affect obesity by encouraging the abandonment of traditional beliefs and behaviors that minimize the risk of overweight and the adoption of beliefs and behaviors that

increase the risk of overweight (Caprio et al., 2008). In an examination of the cultural factors associated with racial and ethnic differences in childhood obesity, Caprio et al. (2008) found that as Latinos acculturate to the U.S. "host culture," their fruit and vegetable consumption decreases while their soda consumption increases. Additionally, research points to immigrant children's role as acculturation agents by rejecting the lower-calorie traditional foods prepared at home and favoring the higher-calorie foods, beverages, and snacks they consume at school or see advertised on television (McArthur, Anguiano, & Gross, 2004). Immigrant children may also resist efforts by their parents to restrict the availability of foods from the mainstream culture (Caprio et al., 2008). Some researchers also indicate that acculturation may play a significant role in increased rates of overweight among Mexican-American families in particular. Duerksen et al. (2007) found that when Mexican American families ate at fast-food and buffet-styles restaurants rather than traditional, authentic Mexican restaurants, it led to higher rates of overweight.

With both acculturation and globalization there are changes in preferences for certain foods and forms of leisure and physical activity, as well as educational and economic opportunities (Allen et al., 2007; Unger et al., 2004). Furthermore, culture can influence the perception of risk associated with obesity. Studies of Latinos have found that many mothers of obese children believe their child to be healthy and are unconcerned about their child's weight, although these same parents are likely to believe that obese children in general should be taken to a nutritionist or physician for help with weight reduction (McArthur et al., 2004).

Gordon-Larsen et al. (2003) found that acculturation processes affected differences in overweight—and proximate determinants such as physical activity and diet—as immigrants acculturate to U.S. society. From their study population of 20,000 nationally representative

youth in grades 7–12, the researchers identified a sample of 8,613 Latino adolescents and their families. This study found that acculturation and proximate factors consistently explained the lower likelihood of overweight among first generation Latino adolescents. However, more significantly, the study showed that as Latinos born in the United States were increasingly acculturated, they demonstrated more overweight-related behaviors such as overconsumption and smoking in comparison to foreign-born Latinos (Gordon-Larsen et al., 2003).

Smokowski et al. (2008) investigated how these acculturation factors related to Latino family dynamics, including familism and parent-adolescent conflict. The study found that home culture involvement and biculturalism were cultural assets related to positive outcomes, whereas acculturation conflict hindered positive family dynamics and facilitated parent-adolescent conflict. Furthermore, parent-adolescent acculturation gaps were inversely associated with familism, meaning as parents and their adolescents shared similar levels of acculturation the familiar ties among family members are closer. It is not possible to talk about acculturation without discussing familism and how it shapes the values, behaviors, living arrangements, and decision-making of households.

Familism.

Familism is a multifaceted value and behavior system that describes how family membership is constructed, how members regard kin, and what members do (Keefe, 1984). Familism upholds the primacy of the family over the individual interests of its members (Parra-Parra-Cardona, Bulock, Imig,Villarruel& Gold,2006). In this paper, familism refers to an etic construct, and *familismo* refers to an emic construct for Latino families. Attitudinal *familismo* circumscribes the values of loyalty, solidarity, and reciprocity among family members (Calzada, 2010). Attitudinal *familismo* is grounded by four beliefs: (1) family comes before individual,

(2) familial interconnectedness, (3) family reciprocity, (4) and familial honor (Lugo Steidel & Contreras, 2003). Behavioral *familismo* is action that reflects these beliefs. An ethnographic study of immigrant Latino families found that *familismo* is manifested in shared finances, shared living, shared daily activities, shared childrearing, and immigration (Calzada, 2010).

Each of these shared activities hinges upon shared decision making within a household that often includes extended family members. Unlike the dyadic model of parent-child relationship seen in White families, Latino families often function under a plurality model where extended family members collaboratively make decisions that affect children specifically and the entire household generally. With this in mind, school health plans must take an expanded view of the Latino family, and consider how multigenerational and extended families view health and nutrition. Understanding the dynamics of Latino families through the lenses of acculturation and familism can inform the development and implementation of culturally relevant school health education programs for Latino families. Without recognizing the role of acculturation, the extent of adoption of and adaptation to the host or dominant culture by students and their parents, and familism, schools will not be able to facilitate and sustain positive health outcomes, such as obesity mitigation, for Latino students.

Parents and the school environment.

It is not possible to talk about the influence of the environment without also acknowledging the role of parents and the community in both creating and reacting to that environment. As part of a coordinated school health plan, schools may engage parents and community members through health advisory councils to increase its effectiveness (Jones, 2008). As the literature suggests, cultural influences on the predisposition to childhood obesity warrant the need for culturally tailored interventions (Daniels et al, 2005; Koplan & Dietz, 1999;

Kumanyika, 2008; Y. Wang & Tussing, 2004). Therefore, parent participation in the development of health interventions may enable schools to provide authentic opportunities for parent involvement and develop contextually relevant programs in partnership with parents and families. However, Kitzman-Ulrich et al. (2010) assert there is limited research on *family-based* childhood obesity interventions in minority families. The authors' review indicates that many studies were conducted in schools—which facilitated contact with a large number of children—but provided limited access to families.

Although there is a large body of research documenting the benefits of parent involvement on student achievement in school (Epstein et al., 2002; Henderson & Mapp, 2002; Peña, 2000), and that parent involvement can be influenced by a culturally sensitive parent education program (Chrispeels & Gonz, 2004; Quezada, Diaz, & Sanchez, 2003), there is limited research on the role parents play in the implementation of local school wellness policies and consequently, in school health plans. In researching this area, the researcher found just one report addressing parent engagement in school wellness policies. Agron et al. (2008) conducted key informant interviews of low-income parents of school aged children in California, and found that few parents were knowledgeable about their school's wellness policy. Moreover, those that were knowledgeable had limited participation in the schools health plan attributable to language barriers, feelings of inadequacy, and a perceived lack of respect (Agron et al., 2008).

Limitations to parent involvement in schools.

Parent involvement in schools not only benefits individual student academic achievement in terms of improved grades, attendance, motivation, attitude, and behavior (Cassity & Harris, 2000; Gettinger & Guetschow, 1998), but also the school community at large (Karther & Lowden, 1997). As previously discussed, acculturation, familism, language and communication

modality (Calzada, 2010; Gordon-Larsen et al., 2003; N. P. Gordon & Iribarren, 2008; Keefe, 1984) are dynamics to consider when designing contextually relevant school health plans for Latino parents. Furthermore, Calzada suggests that by applying parent training programs informed by Westernized parenting styles schools may "[fail] to capture the distinctive nature of parenting in Latino families" that incorporate the extended family (2010, p. 167).

Language and modality.

Healthcare systems' research on the language preferences of a diverse and growing Latino population can inform the language and modality for school-based parent health plans. In a discussion of the role of cultural competence in mental health services for Latino patients, Guarnaccia and Rodriguez (1996) state that it is not sufficient to bring together Latino staff and patients and "have everyone speak Spanish" (p. 420). Broadening this myopic attempt to provide a culturally tailored program to Latino clients also applies to how schools may best work with Latino families. A 2008 study by Kaiser Permanente showed that demographic and health-related characteristics differed among Latino adults identified as Spanish-dominant, bilingual, and English-dominant (N. P. Gordon & Iribarren, 2008). This study found that Spanish-dominant Latinos were less likely to have computer and internet access. Additionally, although Spanish-dominant and bilingual Latinos were less likely than their English-dominant counterparts to believe that their health practices had a large impact on their health, the former did indicate high interest in obtaining health education. Spanish-dominant participants had a greater preference for lower-technology health education modalities such as videos, taped phone messages, and print material over internet-based communication. Incorporating strategies to alter the home environment (Kitzman-Ulrich et al., 2010) and respecting the values and preferred communication modalities of parents (Shepard & Carlson, 2003) are two promising approaches

for schools hoping to work with parents to create an effective, culturally relevant school-based intervention.

Chapter 3: Methods

This qualitative, exploratory study reviewed the existing health plan at a Title I elementary charter school according to the components of a coordinated school health program as defined by Allensworth and Kolbe (1987): (1) health education; (2) physical education; (3) health services; (4) psychological and counseling services; (5) nutrition services; (6) health promotion for staff; (7) safe school environment; and (8) parent and community involvement. The study also examined the ways the school is working with families to lower obesity in children. The third component of this study was an identification of elements of a contextually relevant health plan for a Title I school based on interviews with parents from the school. In this chapter, I describe the study's design, the role of the embedded researcher, site selection, participant group, data collection methods, and data analysis process, as well as the steps taken to ensure credibility and establish trust with the participants.

Design

A qualitative research design was best suited to this study, which used objective descriptions of the school's health plan through document review as well as information elicited from parents about their decisions regarding (1) food purchase and preparation and (2) dietary and physical activity habits of the parents as individuals and the family as a whole. Qualitative methods enabled the researcher to conduct preliminary and follow-up individual interviews and a focus group to "capture direct quotations about personal perspectives and experiences" (Kleinman et al., 2002, p. 40). Research methods consisted of seven semi-structured, photo-elicited preliminary interviews, a focus group interview, and three structured follow-up interviews with mothers of students from the school (the study site). The collective data from

the interviews and focus group enabled the researcher to identify elements of a contextually relevant health plan for a Title I school with a predominantly Latino student body.

During the course of this study, the author operated an embedded researcher, playing dual roles as both researcher and study site administrator. Over the course of investigation, the author served as the executive director at the study site. This position as an embedded researcher gave rise to both advantages and challenges that an independent researcher would not have encountered. Here, the author describes how access to the study site was secured and how the study was conducted as an embedded researcher.

Given the researcher's leadership position and authority within the organization, it was imperative to define and distinguish the researcher role from the author's professional role in the organization. To formalize the school's authorization of this study within the organization, a pre-study presentation was delivered to the school's Board of Directors, and a memorandum of understanding (MOU) was entered into with the Board that authorized this study's scope, process, and goals. In study recruitment materials, and in the parent interviews and focus group, the author established herself as a researcher conducting a project that would ultimately benefit the school.

The original research design, as approved by the researcher's dissertation committee, consisted of reviewing documents, engaging another trained interviewer to interview the principals of each of the El Mar School sites, conducting 12 to 15 photo-elicited interviews with self-identified Latino families, conducting a focus group of five to six interview participants, and reporting the findings back to the school. It was anticipated that 50 to 60 parents would return the consent form, and from this potential participant pool, a stratified random sample of at least six families from English only/dominant and Spanish only/dominant language preference groups

would be taken. However, the response to the study invitation was not as anticipated, and as the school year began to draw to a close, it was decided that the snowball method would be used to recruit study participants. The author personally approached two mothers with whom she had built good relationships—Ana, a Spanish monolingual mother of two, and Janet, a bilingual mother of three boys—and presented this study proposal.

Although one of the primary goals of this study was to identify contextually relevant elements of a *schoolwide* health plan for this Title I school, participant recruitment was limited to the school's Latino families, as they represented the majority of the school's population. For this reason, it was explained to Ana and Janet that the goal of this study was to better understand how the school's health plan could better serve Latino families. It was further explained that recruitment was limited to self-identified Latino parents, and it was explicitly stated that participation in the study was completely voluntary and would have no bearing on their child's academic evaluation, and that the information parents shared would be completely confidential. Ana and Janet were asked if they would be willing to participate themselves and also to recruit other parents. Ana and Janet both agreed. They were provided with English and Spanish copies of the Research Information Form to share with prospective participants. Within one week, nine additional mothers returned consent forms indicating the parent's name, contact information, language preference, and grade level of their student(s). Language preference was indicated by parent response to "I prefer to be interviewed in (1) English, (2) Spanish, or (3) No preference. I am comfortable in either language." Four mothers elected to participate in English; seven mothers elected to participate in Spanish.

During each parent interview and focus group, the researcher consistently emphasized that "there are no right or wrong answers" as a way to reassure the mothers that there would be

no stigma associated with their participation or responses. Additionally, the mothers were informed that their child's experience with teachers, and their family's experience with the school in general, would in no way be affected by their participation in the study.

Participants

Upon receipt of the consent form, each of the participants was given a disposable camera and an instruction sheet titled "Photo Scavenger Hunt." The instruction sheet directed participants to take up to 27 photographs from among the following categories: (1) Food, (2) People, and (3) Places in your Community. The instruction sheet listed examples of subjects for each category. Parents were asked to return the camera within approximately 10 days. Of the 11 mothers who received a camera, two did not complete photograph collection, and two mothers took pictures but later decided not to continue with the project. The final participant group was comprised of 7 mothers, each representing one family. Six of the seven families were designated as low-income, as indicated by their eligibility to receive free or reduced price school meals under the National School Lunch Program, administered locally through the California Department of Education School Nutrition Program. To be eligible for free school meals, the family's income must be at or below 130% of the poverty level. To be eligible for reduced-price meals, the family income must be between 130% and 185% of the federal poverty level corresponding to family size. As an example, for the 2012–13 school year, 130% of the federal poverty level is $29,965 for a family of four; 185% is $42,643 (U.S. Department of Agriculture).

There were six 2-parent households and one 1-parent household. In each of the 2-parent households, the mother did not work outside the home. The 1-parent household was led by a single, working mother. Three families had only boys, three families had only girls, and one family had girls and boys. The range of children per household was one to three. The median

number of children in the household was two. One English-dominant and one Spanish-dominant family each had a preschool-aged child in addition to school-aged children. In this study, "primary grades" is defined as kindergarten through second grade; "upper elementary" is defined as grades three to five; "middle school is defined" as grades six to eight. Profiles for each of the seven participants are provided in Table 1.

Table 1: Participant profiles

Pseudonym	Child Grade Level/s	Qualifies for Free & Reduced Meals	Ethnicity	Language Modality	Language Preference	Participated in the focus group
Janet	Boys (Gr 2, 4, PreK)	No	Mexican	Bilingual English/Spanish	English	Yes
Elaine	Grade 1 girl	Yes	Mexican	English only	English	No
Ana	Grade 2 girl, Grade 3 boy	Yes	Mexican	Monolingual Spanish	Spanish	No
Julia	Boys (Gr. 6, 8)	Yes	Mexican	Spanish dominant / English limited	Spanish	No
Patricia*	Boys, (K, Gr. 2)	Yes	Mexican	Monolingual Spanish	Spanish	Yes
Lisset	Girls, (K, Gr. 1)	Yes	Mexican	Spanish dominant	Spanish	Yes
Socorro	Grade 2 girl	Yes	Mexican	Monolingual Spanish	Spanish	

Data Collection

Document review.

In the first-level review of the charter petition, text analysis was made with a focus on words and phrases such as "health, nutrition, and obesity." The researcher tabulated unique references for each word or phrase. In addition to the key word tabulation, the school's documents were examined for broad themes of health and wellness. Additionally, and with the second research question in mind ("In what ways is the school currently working with families to

reduce obesity in children?") the documents were reviewed for descriptions of parent programs or expectations for parent engagement. The second-level review of the school's charter was informed by three elements identified in the school's charter related to health and parent-related outcomes: (1) the school's dual language curriculum; (2) extended community learning; and (3) wellness. Using these three elements as a lens, the school's charter was reviewed for evidence and description of the eight components of an ideal coordinated school health plan as defined by the Allensworth and Kolbe model: (a) health education; (b) physical education; (c) health services; (d) psychological and counseling services; (e) nutrition services; (f) health promotion for staff; (g) safe school environment; and (h) parent and community involvement. Additionally, the professional development agenda and calendar of events for 2010–11 and 2011–12 school years were reviewed for evidence of these eight school health plan elements.

Photo-elicited interviews.

The actual number of photographs taken by the mothers ranged from 14 to 23; the average number of photographs taken was 18. The photograph count does not include those that were rendered indecipherable during the film development process. While the content of many photographs included multiple subjects and objects from among the three main categories of food, people, and places, photographs were assigned to the dominant subject or object represented based on the categorization implicit in the instructions for the scavenger hunt. Notwithstanding the categorization of the photographs, this study did not include content analysis of the images. The description and categorization of the images is included to provide the reader with context around the photographs taken by the mothers. The selected photographs are provided as examples of those used during the photo-elicited preliminary interviews. The main themes of food, people, and places were evenly represented among the 130 photographs.

Thirty-eight percent of the photographs primarily depicted places, 34% primarily depicted food or food-related objects, and 28% primarily depicted people or objects used for recreation. Table 2 lists the number of photographs taken by each mother in each of the three main categories.

Table 2: Photographs taken by the mothers

Pseudonym[1]	Total Photographs	Photographs of Food	Photographs of People	Photographs of Places
Janet*[2]	23	7	9	7
Elaine	14	4	6	4
Ana	21	7	8	6
Julia	14	8	3	3
Patricia*	23	9	4	10
Lisset*	15	4	2	9
Socorro	20	6	4	10
Totals	130	45	36	49
	100%	34%	88%	38%

Upon return of the cameras, individual interviews were conducted with each of the mothers. Interviews were offered during the day or evening, and during the week or weekend. All of the mothers elected to participate in their interview during the school day. Some mothers brought their preschool and school-aged children with them to the interview. In preparation for the interview, single prints and a CD of each set of photographs were prepared. A copy of the photographs was prepared labeled with a numeric identifier for each family as well as a brief description of the photograph to facilitate organizing subject/s and object/s captured. Each mother's set of photographs was organized according to the three main categories listed in the participant instruction sheet, (1) Food, (2) People, (3) Places in Your Community. At the

[1] The names of the study participants were changed to protect their anonymity.
[2] * indicates participated in focus group

beginning of each interview, the mother was presented with the sorted photographs and given time to look through them. Each individual interview began with the statement. "I see you took pictures of ___and ____. To help us get started, tell me about when and where you took these pictures." Using each mother's sorted set of photographs as a visual aid, a semi-structured protocol was used to conduct a preliminary interview with the seven mothers. Because each set of images was unique to each mother, not all questions from the prepared protocol were given to each participant. In this way, the semi-structured interview protocol facilitated an organic yet guided discussion that provided the researcher with insight into the dietary and physical activity practices of each family, economic constraints around food purchase and consumption, and the mother's knowledge of and perception of the school's health-related activities.

Using participant-generated photographs in this way is an example of a community-based participatory research method known as photovoice. Photovoice, defined by C. C. Wang and Burris's seminal article, is a method that enables people to record and reflect their community's strengths and concerns, promotes critical dialogue and knowledge about important issues through large and small group discussion of photographs, and reaches policymakers (Wang & Burris, 1997). Photovoice was an appropriate method for this study because it enabled the collection of data identified as important by the participants and answered the third descriptive research question that guided this study: "What are the elements of a contextually relevant health plan for a Title I school?"

Each preliminary interview lasted approximately 45 minutes. The interviews were recorded using a digital audio recorder. A protocol of semi-structured interview questions was used to inquire about the photographs, often following with ad hoc probing questions to elicit more detail or description. As each set of photographs varied among participants, the actual

interview questions also varied. The mothers were told that the researcher was interested in hearing their descriptions of the photographs, and that the researcher would be taking notes during the interview. At the end of the interview, each mother was given an envelope with $10 cash, the compensation offered to each participant. Five of the seven mothers accepted the cash compensation; two declined. The seven interviews were completed within a 13-day period. The digital audio recordings were sent to a transcription service and the transcripts were coded for emergent themes. These themes were used to develop a semi-structured protocol for the focus group.

Focus-group interview.

After emergent themes were identified, a protocol was developed for the focus group.

A semi-structured protocol enabled the researcher to ask the same questions, probe for deeper responses, and elicit comments on how to increase the contextual relevance of the school's health plan. Three mothers participated in the focus group, which was held one month after the final interview. Two of the three mothers were monolingual Spanish speakers, and the third was bilingual. Emergent themes were presented as prompts. One of the mothers was asked to assist in co-facilitating the dialogue. The mothers were informed that notes would be taken during their discussion and they were encouraged to have a candid conversation about the themes. The mother who was co-facilitating led the group through the prompts, and at various points in the discussion probing questions were asked to elicit additional detail.

Follow-up individual interviews.

Because the final participant group was smaller than originally planned—7 rather than 12 to 15 mothers—additional steps were taken to ensure that the data that emerged from the interaction with mothers were robust. The original data collection concluded in May 2012.

Since that time, two mothers, Janet and Elaine, transferred their children to a different school and are no longer connected to El Mar School. The remaining five mothers continue to have students enrolled in the school. In an effort to obtain more detailed information about each mother's socioeconomic condition, physical activity, budget constraints on food purchase, and thoughts on how to more effectively communicate with families, a structured interview protocol consisting of 13 questions was created. The questions were selected from the USDA Guide to Household Food Security (Bickel, Nord, Price, Hamilton, & and Cook, 2000) to obtain information about type and availability of food in the household. In particular, questions 9, 10, and 11 were selected to ascertain if the mothers held the perception that the "food eaten by adults and children was inadequate in quality" (Bickel et al., p. 24).

Table 3: Follow-up interview protocol

1. What is the highest grade you completed in school?

2. Have you ever attended college classes or adult education classes (e.g. English classes, parenting classes?

3. Tell me about how you decide what to feed your children.

4. Tell me about your own physical activity habits.

5. Does your husband exercise? Do you ever do exercise together, or with your children?

6. Which of these statements best describes the food eaten in your household in the last year?
   - we always have enough to eat and the kinds of food we want
   - we have enough to eat but not always the kinds of food we want;
   - sometimes we don't have enough to eat;
   - often we don't have enough to eat

   (If sometimes or often not enough to eat) Here are some reasons why people don't always have enough to eat. For each one, please tell me if that is a reason why you don't always have enough to eat.

   Not enough money for food

   - Too hard to get to the store
   - On a diet

- No working stove available
- Not able to cook or eat because of health problems

(If enough food, but not the kind we want.) Here are some reasons why people don't always have the kinds of food they want or need. For each one, please tell me if that is a reason why you don't always have the kinds of food you want or need.

- Not enough money for food
- Too hard to get to the store
- On a diet
- Kinds of food we want not available
- Good quality food not available

7. Now I'm going to read you several statements that people have made about their food situation. Please tell me whether the statement was often, sometimes, or never true in the last 12 months.
   - We couldn't afford to eat balanced meals."
   - "We relied on only a few kinds of low-cost food to feed the children because we were running out of money to buy food."
   - "We couldn't feed the children a balanced meal because we couldn't afford that."
8. What do you think the school can do better to communicate with families?
9. How can the school get more families to attend workshops and educational events?

An iterative descriptive coding scheme (Strauss & Corbin, 1990) was used to triangulate the themes that emerged from the interviews and focus groups with the information embedded in the school's documents. This allowed me to review the data and organize them into major and minor themes to facilitate my analysis.

Credibility and Trustworthiness

The author engaged in a variety of activities to ensure the credibility of the data and her own trustworthiness as a researcher at a site where she is also employed as an administrator. Data was triangulated among the 10 parent interviews and one focus group, professional native speaker transcription services were used to generate transcripts for Spanish sessions, formal methods were used to establish a separate role as researcher apart from the administrator role,

and the mothers were reassured that their participation was highly valued and would in no way affect their child or family's experience at the school.

To ensure validity, the researcher compared and contrasted responses from the seven preliminary individual interviews, focus group, and the three follow-up individual interviews to obtain a broad yet secure set of findings (Maxwell, 2005). Of the seven mothers, there were three contacts with two mothers, two contacts with two mothers, and one contact with three mothers, for a total of 13 unique contacts, as illustrated in the following table.

Table 4: Summary of contact with the participants

Pseudonym	Preliminary individual interview	Focus group	Follow-up individual interview
Patricia	Yes	Yes	Yes
Lisset	Yes	Yes	Yes
Janet	Yes	Yes	--
Ana	Yes	--	Yes
Julia	Yes	--	--
Elaine	Yes	--	--
Socorro	Yes	--	--

Patricia and Lisset participated in the preliminary interview, the focus group, and the follow-up interview. Janet participated in the preliminary interview and the focus group. Ana participated in the preliminary and follow-up interviews. Three mothers, Julia, Elaine, and Socorro, participated in the preliminary interview only.

Because this study exclusively used qualitative methods, it was important to take steps to maximize credibility. The most significant threat to credibility was ensuring accuracy of translation from Spanish to English, specifically for nuance and jargon. For each of the five preliminary individual interviews that were conducted in Spanish, the audio recording was sent

to a professional transcription service and a native Spanish speaker transcribed the recordings. The author's own Spanish language proficiency in reading enabled the review of these transcripts. The preliminary interviews were semi-structured and were guided by the approved interview protocol. However, in the instances where probing questions were necessary to obtain more information, the mother was engaged in dialogue. The researcher's intermediate level of oral language proficiency in Spanish is a possible limitation to the study. While the interviews were intended to be conducted with an interpreter, it was decided that it would be more authentic to conduct the interviews personally to build rapport and to lower any anxiety the mothers may have had. Furthermore, the transcripts of the interviews were reviewed to identify important information that may have been missed during the interviews. The same methodology was applied to the follow-up interviews: recording the sessions and having them professionally transcribed. However, because the follow-up interviews were structured, following the same 13 questions for each mother, it was easier for the researcher to fully comprehend the mother's comments in real time.

Chapter 4: Findings

The purpose of this study was to investigate how a Title I school's health plan addresses obesity in elementary school children and engages parents in obesity intervention activities, and to identify elements of a contextually relevant health plan for a Title I school. This investigation yielded the following key findings:

Key Finding 1. While the school's health plan does not explicitly address obesity, the plan does include several program and service components that suggest the school's potential to directly address obesity among its students.

Key Finding 2. The school is working with families to lower obesity in children by implementing a "no junk food" policy and a farm-based nutrition program, as well as providing cooking classes and parent workshops.

Key Finding 3. The elements of a contextually relevant health program for a Title I school are (1) low- or no-cost on-site opportunities for physical activities outside of the school day; (2) pathways to obtain healthy food on a limited budget; (3) a community-based approach to aligning ethnic foods with nutrition standards; (4) access to health services and information; and (5) a participatory school environment.

In the sections that follow, first, a brief review is given of the study site, participants, and methods. Second, a detailed description is given of the data gleaned from the document review and the themes that emerged from the interviews with participants. Key and supporting findings are highlighted in each section.

Study Site, Participant Group, and Methods

This study was conducted at a Title I charter elementary school. Public schools are eligible to receive federal Title I funds, and are commonly known as "Title I schools," if at least

40% of the children in the school's attendance area or 40% of the enrolled students are from low-income families. As a charter school, El Mar School does not have an attendance area; it qualifies for Title I funding and designation on the basis of its high enrollment of low-income students. El Mar School enrolls approximately 580 students in grades K through 8. Approximately 70% of students qualify for free or reduced-price school meals, and the student body is 72% Latino and 8% African American. This study used an exploratory qualitative research approach to answer the following research questions:

1. How does the current school health plan address obesity in children?
2. In what ways is the school working with families to lower obesity in children?
3. What are the elements of a contextually relevant health program for a Title I school?

These questions were answered by analyzing school documents and by conducting preliminary individual interviews, a focus group interview, and three follow-up individual interviews. Photovoice, a community-based participatory research method, was used during the preliminary interviews. All seven participants were mothers of students at the school. Two of the mothers were bilingual or English only/dominant and elected to be interviewed in English. The remaining five mothers varied in language proficiency from monolingual Spanish to bilingual/Spanish dominant and elected to be interviewed in Spanish. Three mothers participated in the focus group, which was conducted in Spanish. Three mothers participated in the follow-up interviews, which were also conducted in Spanish.

Document Review

A review of the school's documents was conducted to identify how the school health plan, as codified in its organizational and business documents, addresses obesity in elementary school children. Because El Mar School is a Title I school with 70% of its students qualifying for free or reduced price school meals, it follows that any schoolwide program addressing

obesity would by definition serve its low-income majority segment. The primary document used in this analysis was the school's charter petition, which was most recently renewed by its district authorizer in June 2010 (El Mar School, memorandum of understanding, 2010). Additional documents included in the analysis were the professional development agenda, school calendars, class schedules, course lists for the 2010–11 and 2011–12 school years, and the employee handbook. Parent council meeting agenda were not available for review.

In the first-level review of the charter petition, text analysis was made with a focus on words and phrases such as "health, nutrition, and obesity." Forty-two unique references to "health" or "healthy" and 29 unique references to "wellness" and "nutrition" or "diet" were found. There were zero citations or references to "obesity." This absence was an early indication that the school's health plan did not directly address student obesity. However, a deeper review of the documents revealed that while the school's health plan does not explicitly articulate obesity prevention or intervention, it does include several programs that, if explicitly aligned toward obesity reduction as an outcome, would improve the school's ability to address obesity among its students. In addition to the keyword tabulation, the school's documents were examined for broad themes of health and wellness. Additionally, the documents were reviewed for descriptions of parent programs or expectations for parent engagement.

In the second-level review of the school's charter, three elements were found to relate to health and parent-related outcomes, as follows. The first program element is the school's dual-language curriculum, which is characterized as one that develops "English and Spanish literacy, historical perspective, and creative expression." This is important to note because, as 72% of the students are Latino and approximately 50% are English-language learners, the school's dual-language program may facilitate increased engagement with the Spanish-speaking, Latino

families that comprise the majority of the parent population. The second program element is "Extended Community Learning," examples of which are listed as "teacher visits to students' homes, parent volunteers in the classroom, and family education workshops". And, finally, the third program element, framed as an organizational outcome, is "Wellness" (El Mar School, memorandum of understanding, 2010). With these three elements in mind—dual-language curriculum, extended community learning, and wellness—the school's organizational documents were reviewed for evidence and description of the eight components of an ideal coordinated school health plan: (a) health education; (b) physical education; (c) health services; (d) psychological and counseling services; (e) nutrition services; (f) health promotion for staff; (g) safe school environment; and (h) parent and community involvement.

The document review yielded evidence of six components: physical education, nutrition services, safe school environment, health education, parent and community involvement, and psychological and counseling services. In contrast, limited to no evidence was found of two components: health services and health promotion for staff. Findings around parent involvement are explored below in the discussion of the second research question, "In what ways is the school working with families to lower obesity in children?"

The following table lists the summary of key and supporting findings for the first research question, "How does the current school health plan address obesity in children?" followed by a more detailed presentation of the findings that emerged from the document review which provide evidence, or lack thereof, for each of the eight components of the school's current health plan.

Research Question 1:
How does the current school health plan address obesity in children?

Key Finding 1.

While the school's health plan does not explicitly address obesity, the plan does include several program and service components that suggest the school's potential to directly address obesity among its students.

(1.1) Physical education: Although physical education is provided in compliance with state standards, there was no evidence of teacher training in physical education.

(1.2) Nutrition Services: The school contracts with a state-approved vendor to provide student meals. This vendor also provides students with nutrition-education workshops.

(1.3) Safe School Environment: There is evidence indicating the school maintains a safe physical environment

(1.4) Health Education: Although there is evidence of limited health education training for teachers, there is evidence to suggest that the school's farm program supports the health education program by providing an experiential nutrition program.

(1.5) Psychological and Counseling Services While the school does not employ a counselor, the implementation of the Communication & Guidance system may represent a decentralization of counseling services wherein all teachers provide the guidance services that may be otherwise provided by an individual counselor or other pupil-support staff member.

(1.6) Health Promotion for Staff: There was no evidence of health promotion for staff beyond the provision of health insurance plans.

(1.7) Health Services: While the school affirms adherence to the provision of health services, there is limited evidence that shows mandatory health screenings are regularly provided to all students.

Finding 1.1: No evidence of teacher training in physical education

The school's charter describes a holistic approach to wellness through a program that supports both physical and mental health. The charter states that wellness is facilitated by the implementation of "developmentally appropriate practices in physical, mental, and emotional health." With regard to coursework and standardized physical fitness examinations, students are expected to participate fully in physical education and health courses and to show improvement in state fitness test scores (El Mar School, memorandum of understanding, 2010). According to the class schedule, the school provided 200 minutes per 10-day period of physical education.

This is consistent with the California Education Code Section 51210(g). However, a closer reading of the Education Code Section 51222(a) reveals that unless a school is organized as an "elementary school that serves pupils in grades one through eight," schools are require to provide students in grades seven and eight with 400 minutes of physical education every 10-day period. These mutually exclusive provisions of the Education Code appear to provide K–8 schools, such as El Mar, with the option to adhere to two different minimum requirements for instructional minutes in physical education for students in grades seven and eight.

Table 5: Physical education instructional minutes

Grade span	Minutes per PE class	# PE classes per week	# PE classes per 10 days
K–2	Varies among sessions of 10 to 40 minutes	4	8
3–5	55	2	4
6–8	30	4	8

Additionally, upon review of the elective course offerings, the following physical activity classes were offered during the 2010–11 and 2011–12 years.

Table 6: Physical activity course offerings

Physical Activity Class	2010–11	2011–12	Grades Served
Baile Folklórico	X	X	K–2
Boot Camp	X	X	K–5
Danza Azteca	X	X	3–5
Exercise Drills	X	X	K–5
Hip-Hop Dance	X		6–8
Hula Hooping	X		6–8
Interpretive Dance		X	6–8
Pop Dance	X		3–5
Salsa Dancing	X	X	K–2
Soccer		X	6–8
Students Run L.A. (marathon club)		X	6–8
Volleyball	X		K–5
Zumba	X	X	K–5

The charter describes the physical education program as follows:

> Teachers are trained in effective Physical Education strategies and games that increase the physical health of all. Our regular PE program emphasizes strength, flexibility, and conditioning through warm-ups, movements, and games in which all participate. Students also learn to stretch and dance.… they can choose Elective classes like Running, Yoga, Square Dancing, etc.

However, in a review of professional development agenda for the 2010–11 and 2011–12 school years, no evidence of teacher training in physical education strategies was found. In light of the research on school-based obesity prevention and intervention, the most effective of which incorporate increased and sustained physical activities, this lack of teacher training points to a potential deficit in the school's health plan.

Teacher credentialing programs for elementary teachers include rudimentary training in physical education. Based on statistics that show that schools in low-income communities typically have a higher percentage of beginning and less experienced teachers (Ascher & Fruchter, 2001; Peske & Haycock, 2006; Statistics, 2000), it is could be argued that the teachers at this school are responsible for implementing a key part of the school health plan—physical education—without the benefit of training beyond that of their credential program or years of on-the-job experience that generally characterize teachers in higher SES communities. The significance of the lack of training is compounded when we remind ourselves that low-income children have a greater risk of developing obesity than their higher SES peers (Musk & Strauss, 1999). Therefore, the challenges of reducing obesity among low-income children may be further exacerbated by the quality of a school's physical education program with respect to teacher training as a limiting factor to the program's efficacy.

Finding 1.2: Vendor provides meals and nutrition education workshops for students

The school's charter states, "Children's healthy development is directly related to eating healthy, fresh foods" (p. 22). This assertion is consistent with the literature regarding the impact of nutrition on cognitive and physical development (Kleinman et al., 2002; Taras, 2005). The school contracts with a state-approved vendor to provide breakfast, lunch, and afterschool snack. This vendor also provides nutrition education through on-campus workshops for students as well as "off-campus, hands-on activities designed to encourage student interest and involvement around healthy eating." While no evidence was found regarding off-campus activities, in the 2010–11 and 2011–12 school years, this vendor provided eight nutrition workshops for students, as listed in the following table (S. Lee, personal communication, January 20, 2013).

Table 7: Vendor-Led Nutrition Workshops for Students 2010–2012

Participation by Grade Span	Date
Grade K–2	October 7, 2011 December 2, 2011 October 12, 2012
Grade 3–5	October 7, 2011 October 26, 2012
Grade 6–8	January 12, 2012 October 19 and 25, 2012

Finding 1.3: School maintains a safe physical environment

Located on a major urban thoroughfare, the school controls access to the campus through two main entrances and the campus is enclosed by a metal fence. The school conducts an annual fire drill in concert with the city fire department, as well as earthquake and evacuation drills. The city's fire department also performs an annual inspection of the two campuses, which include a check of emergency exit signage and lighting, fire extinguishers, and electrical systems. This evidence suggests that the school is adhering to state and municipal safety regulations for schools.

Finding 1.4: School farm provides an experiential nutrition program

Although the school's charter does not describe the health education program in detail, it does define the expectations for student wellness as continuous participation in "physical education and health classes, demonstrated improvement in State fitness testing, and presentation of a health theme at the trimester-end student conferences" (p. 47). Additionally, students in grades six through eight are expected to maintain a "wellness journal to document their physical

activities, food intake, and participation in health classes." Apart from physical education and health courses, the document review suggests that health education is also provided through excursions to the school's farm. Located one-half mile from the school campus, the farm is "the ultimate outdoor classroom" (school brochure, p. 2). The farm is a one-third acre space that is leased by the school from a city housing development agency.

The class schedules for the 2010–11 school year show that students participated in weekly "farm field trips" with their homeroom teacher, where lessons were facilitated by a part-time farm manager. The farm manager developed a weekly lesson plan that was connected to the California state standards for health education. The California Health Education Content areas include nutrition and physical activity (California Department of Education, 2008). The lessons centered on the plants grown at the farm, including the geographic origin, historical medicinal uses, and nutrient and vitamin content. For example, the lesson plans for strawberries and beets, respectively, cite, "1 cup [of strawberries] contains only about 45 calories and lots of Vitamin C and flavonoids, which are anti-oxidants" and "[beets contain] phytonutrients [called] betalains which are antioxidant, anti-inflammatory, detoxifying" (K. Irvine, personal communication, 2010a, 2010b). Additionally, the farm manager led cooking demonstrations during which the students prepared dishes using fruits and vegetables grown at the school's farm. For example, students participated in a cooking lesson where they followed a recipe for bruschetta, using tomatoes and basil grown at the farm.

The El Mar School's farm program began in the 2010–11 school year and continued under the coordination of the farm manager until February 2012 when the farm manager position was eliminated as a result of budget reductions. Since that time, the farm program has been taken up by parent volunteers who work with various teachers to provide "farm field trips" to

classes on an occasional basis. The school's current limited resource allocation to the farm program may be a temporary barrier to offering a more enriched health education program that includes farm-based experiential learning in nutrition. There is a small but growing body of research on the efficacy of school-based health education programs in relation to a cooking and gardening school program. For example, the 2011 study of the LA Sprouts cooking and gardening obesity intervention with low-income elementary students suggests that health education provided in this way may be a successful obesity intervention (Davis, Ventura, Cook, Gyllenhammer, & Gatto, 2011). Given this research, El Mar School may consider reinstating its farm program as afforded by the school budget.

In addition to the school's farm program, which appears to serve the entire student body, the school partnered with nonprofit organizations and local businesses to provide teacher training and workshop-based health education. Review of the 2010–11 and 2011–12 school calendars and professional development agenda indicate that teacher training in health education took place in two 45-minute sessions—August 20, 2010 and August 20, 2012. Both trainings were facilitated by representatives from the local Whole Foods grocery store. The sessions provided teachers with information on developing a lesson plan for student-created healthy snacks. Additional teacher training in health education was not substantiated by any of the other documents included in the scope of this study.

Finding 1.5 School provides Decentralized counseling services

Psychological services that pertain to special education are provided by the charter's authorizing district (Agua Vista Educational District, 2010). The school's 2011–12 organizational chart included a part-time Behavior Support Coordinator. The Coordinator's

responsibilities are described as "promot[ing] the development of moral autonomy and increas[ing] the effectiveness of problem-solving and conflict resolution efforts throughout the school" (Agua Vista Educational Collaborative, 2011). Prior year organizational charts do not include counselors or psychologists or other pupil support staff. Although there is limited evidence of counseling services beyond those provided by the Behavior Support Coordinator, the school employs a communication system called "Communication and Guidance," designed to facilitate positive behavior and relationships between teachers and students. The tenets of Communication & Guidance are described in the charter as follows:

> Teachers and Students learn to communicate their thoughts and feelings honestly, with peers and others using respectful words, actions; care for the classroom and school; resolve conflicts (with help from others as appropriate); agree upon classroom and school norms and responsibilities.

Finding 1.6: No evidence of health promotion for staff beyond health insurance

The school's health benefits plan for 2010–11 and 2011–12 provides employer-sponsored medical and life insurance for full-time employees. These eligible employees have the option to purchase a richer medical insurance plan and pay the difference in cost. Additionally, eligible employees may establish a medical flexible spending account and participate in voluntary dental and vision insurance plans, as well as supplemental accident, short-term disability and life insurance plans at their cost. Professional development agenda for the Summer Institute of 2010 and 2011 indicate that health insurance orientations were held. The employee handbook describes the process by which staff can take medical or nonmedical leaves of absence. Beyond

the medical insurance programs offered to full-time employees, there was no evidence of additional health promotion for staff.

Finding 1.7: Limited evidence of mandatory health screenings provided to students

The school's charter states that the school will adhere to Health and Safety Code Sections 120325–120375, and Title 17, California Code of Regulations Sections 6000–6075, and Education Code Sections 49423 and 49450, regarding student immunization requirements, and administration of medication and provision of vision, hearing and scoliosis screening (El Mar School, memorandum of understanding, 2010). While the school does adhere to student immunization requirements as part of its student enrollment process, no evidence was found of training or documentation of policies and procedures regarding administration of student medication. This lack of evidence suggests at worst that that such training is not occurring entirely, and at best that training in the administration of student medication is occurring despite not being codified in the staff development process. With regard to the required health screenings stipulated in Education Code Section 49450, there is limited evidence that the school provides these services. In the three-year course of this study, evidence was procured of only a single hearing screening for kindergarten students in September 2010 and a single vision screening for students in grades two through eight in November 2012 (S. Lee, personal communication September 17, 2010, November 30, 2012). There was no evidence of any screening for scoliosis.

It may be postulated that the lack of regularly scheduled, mandatory health screenings is related to the absence of a site-based or itinerant school nurse, as reflected by the absence of such position on the school's organization chart (El Mar School, organizational chart, 2010, 2011). It

is not surprising that the school would not have a school nurse, given the chronic reductions and deferrals in the State budget for public education. This is an unfortunate, unintended consequence that becomes particularly apparent when we acknowledge the rise of preventable health conditions such as obesity among low-income children and the concordant but increasingly unanswered need for these children to be served by school-based health professionals. The role of the school nurse, described as one that "strengthen[s]and facilitate[s] the educational process by improving and protecting the health status of children" is becoming more and more important in light of the epidemic of childhood obesity (California Education Code). As such, the school nurse may be an important, yet unfunded position, the lack of which may hinder the school's ability to implement an appropriate health services program when one considers the important role nurses play in ensuring student health through key actions such as assessment and referral. Furthermore, the California Education Code makes the connection between nurses and school-based nutrition education, stating that school nurses may:

> Consult with, conduct in-service training to, and serve as a resource person to teachers and administrators, and act as a participant in implementing any section or sections of comprehensive health instruction curriculum for students by *providing current scientific information regarding nutrition* (emphasis added).

Here the evidence clearly points to the strong potential of nurses to enhance not only the health services but also the nutrition education component of a comprehensive school health plan and thereby leverage the school's ability to reduce obesity among its students.

Although the student body of this Title I school is predominantly Latino and African-American, and as these two subgroups have an increased incidence of childhood obesity compared to their White and more affluent peers, the school's health plan does not explicitly address childhood obesity nor does it include goals to reduce obesity among its student body.

The evidence supporting this statement lies in the limited data that emerged from the researcher's analysis of the school's documents—including the charter, professional development agenda, monthly calendars, and course offerings—which outline a school health plan that describes to a limited extent the eight elements of a coordinated school health plan as described by the Allensworth and Kolbe model. Although Wellness is cited as among the leading elements of the school's educational program, there is no evidence of professional development for teachers in physical education or health education, despite the description of teacher training in these areas stated in the school's charter. Given the current state of the California economy marked by a declining state budget and increases in revenue deferrals, the lack of specialized training for teachers may be due to the school having limited funds available for professional development.

Another example of the limited implementation of the school's health plan is suggested by the evidence around health education. This study found that external facilitators, rather than school staff, are providing health and nutrition education, through off-site cooking classes led by community foundation staff and nutrition workshops led by the representatives from school's food vendor, as standalone activities. These activities, notwithstanding their potential value, do not appear to be organized as an extension of a *schoolwide* health and nutrition education program, as these activities appear to serve only a select group of students rather than students at large. This study did not yield evidence of a schoolwide nutrition education program. Additionally, there was no evidence of regular and complete health services provided. As discussed previously, in accordance with Education Code the school is required to provide routine screenings for hearing, vision and scoliosis. The role of the school nurse, or other health services provider, becomes increasingly important not only in identifying conditions that directly impede learning, such as low vision or poor hearing, but also in addressing the risk of obesity,

which magnifies the vulnerability of low-income children to succumb to negative health outcomes such as diabetes and asthma.

The absence of written policies for obesity prevention and intervention in relation to the school's charter may be attributed to the fact that the school's original charter petition was developed in 2000. Although the sharp increase in childhood obesity in the U.S. had already begun by then, the campaign against obesity was not yet on the national agenda as it is today, perhaps most prominently exemplified by the First Lady's "Let's Move" initiative. It is the researcher's contention that because the school does provide basic health programs such as physical and health education, updating the charter to include explicit obesity programs may be an appropriate first step in leveraging the school's ability to take on obesity—today's most important health challenge for low-income children—and, just as importantly, engage parents in this process. With this in mind, the next section discusses how the school currently engages parents and families in obesity intervention activities.

In what ways is the school working with families to lower obesity in children?

Key Finding 2
The school is working with families to lower obesity in children by implementing "no junk food" policies, providing a farm-based nutrition education program, and providing cooking classes and parent workshops.

Overall Parent and Community Involvement

As a starting point in the examination of how the school works with families to lower obesity in children, the researcher sought to first understand how the school described the pathways and expectations for parent engagement in general. In the review of the school's documents, and in accordance with the Allensworth and Kolbe model, evidence was sought that

described “parent and community involvement.” The school’s charter cites “Extended Community Learning” as one of three key elements of the education program design (El Mar School, memorandum of understanding, 2010). Additionally, the school’s mission statement ends with, “Toward these goals, our families and staff work as partners to support the students, act in the service of justice, and extend learning opportunities into the home and community.” Parents of students in grades Kindergarten through seven are required to attend student-led conferences held at the end of each trimester while eighth-grade parents are highly encouraged to attend their students’ individual committee presentation (El Mar School, mission statement, 2005). The charter also cites the following as opportunities and expectations of parent and community involvement:

1. Connections: teacher visits to students’ homes & other places
2. Field trips: frequent learning excursions in the community
3. Parent volunteers in the classroom & library, community council, events and work days.
4. Family education [through] workshops & annual parent satisfaction surveys.

In a deeper review of school documents, the school’s food policy and healthy cooking classes were identified as the main ways the school worked with families to lower obesity in children. Additionally, the school’s farm program, while primarily designed to deliver nutrition education to students, appears to also provide secondary benefits to parents.

Food Policy

The 2011–12 Parent Guidebook states the school’s food policy, prohibiting low-nutrition “junk” food items: “We value health and nutrition; we serve a wonderful and deliciously healthy breakfast and lunch program. Students may NOT bring any chips, sodas, candy, fast food, or

instant soups" (p. 6). Beyond this brief citation, supporting evidence was found for the "no junk food" policy during one of the participant interviews. During the portion of the interview where Janet talked about her son's classroom, she indicated that she recognized and supported the school's food policy, saying. "I do try to send snacks for the kids… healthy snacks." She elaborated, saying the she had responded to teachers' requests:

> Teachers made it known, at Community Council, to bring healthy snacks. I think there might have been a schedule at the beginning of the year, and I'd have to say for myself that over the past four months I haven't been signing up. I've just kind of been showing up with a box of Goldfish, or some pretzels.

Farm Program

As described previously in this chapter, the school's farm program is one way nutrition education is delivered to students. There is some evidence to suggest that the farm program is also a way in which the school works with families to lower obesity in children. The school's calendar from 2010–11 and 2011–12 lists "Farm Work Day" events one Saturday per month. Families were invited to join scheduled parent volunteers in service activities such as watering, weeding, and removing rubbish. However, in addition to these activities, parents were encouraged to take home the fruits and vegetables they harvested during work days. In this way, it appears as if the school promoted fruit and vegetable consumption, even though there was not a formal program in place. The school's farm program also resulted in a partnership with a foundation to offer cooking classes, as described in the next section.

Cooking Classes

The third way the school engages families in obesity intervention activities is through offsite nutrition classes for a select number of students and their parents. In recognition of the El Mar School farm program, the school was invited by the Jaime Oliver Food Foundation (JOFF) to participate in a healthy cooking program. JOFF sought to establish partnerships with local organizations, such as El Mar School, that had established farm or garden initiatives. Through its Big Rig Mobile Kitchen program, JOFF provided free cooking classes for groups of up to 16 participants (D. Devereaux, personal communication, 2011). Children, parents, and teachers were invited to participate. The Mobile Kitchen was an 18-wheel truck trailer converted to a professional teaching kitchen complete with stovetops and sinks. The school was able to secure two of the five available group reservations for its students and families.

During the five-week period beginning September 12, 2011, 32 students, parents, and teachers boarded the Big Rig Kitchen, which was stationed at a local community college campus. In the Kitchen, foundation staff members provided hands-on lessons during which participants learned the nutritional content of commonly consumed foods, how to read food labels, and how to prepare simple and convenient snack foods. The program provided nutritional information that some students acknowledged they did not previously have. Some students also stated that the new knowledge may influence their future dietary practices. One student said of the experience, "I didn't know there was so much sugar in stuff like flavored yogurt. I'm gonna switch to plain yogurt" while another student said, "I had no idea that honey was better for you than sugar." Pointing to the efficacy of experiential learning, the Mobile Kitchen program director said, "When you get kids to touch and cook the food themselves, they eat it" (Puente, 2011).

What are the elements of a contextually relevant health plan for a Title I school?

Key Finding 3
The data collected from photo-elicited preliminary interviews, a focus group interview, and follow up interviews with the study participants suggest that the elements of a contextually relevant health plan for a Title I school are (1) a participatory school environment; (2) access to health services and information; (3) pathways to healthy, affordable, culturally relevant food; and (4) opportunities for family physical activity outside of the school day.

A contextually relevant health plan for a Title I school must accommodate the constraints of economic status on a low-income family's ability to access information and resources, and participate in school activities. To identify the elements of such a plan, the researcher analyzed the data from the document review, preliminary and follow up parent interviews, and a focus group interview to identify key findings. From the findings, she synthesized the following four elements of a contextually relevant health plan for a Title I school: (1) a participatory school environment; (2) access to health services and information; (3) pathways to healthy, affordable, culturally relevant food; and (4) opportunities for family physical activity outside of the school day. These health plan elements are contextually relevant to Title I schools because they address the financial and socioecological barriers to parent engagement, fresh food, health services, and physical activity often experienced by low-income, minority, and English-limited populations. In the sections that follow, a brief research background is presented to preface the findings that emerged from the data analysis and which give rise to the four elements of a contextually relevant Title I school health plan.

Element 1: A Participatory School Environment

Current education theory emphasizes the importance of a partnership between schools and parents (Romualdi & Sandoval, 1995; Simoni & Adelman, 1993). However, the literature

also provides evidence that low-income parents experience a variety of barriers to parental involvement in schools. A 2001 literature review examining teacher and school-staff perceptions of low-income parents and public schools found that the "ideal" partnership is often based upon a middle-class bias and that this bias devalues low-income parents and deters or precludes their involvement in their child's school (Lott, 2001). Furthermore, Lott's study found that low-income parents are subjected to stereotypes about the poor and receive insufficient responses and support from their children's teachers and school staff. With regard to increasing parent involvement, a typical strategy adopted by school-community programs has been to train parents how to monitor homework or be "better parents" rather than involving them as peer collaborators, innovators, and critical sources of information (Fine, 1995).

These findings are reiterated in the barriers to parental participation in school-based health interventions. In a study of the San Antonio Bienestar school-based health promotion program, Mexican American parents identified five categories of barriers that hindered their involvement in the school's program. Parents cited low value, high cost, competing family demands, concerns about the program design, and conflict with social role norms as factors that inhibited their participation in the school's health plan (Garcia-Dominic et al., 2010). Several of these inhibitors are also identified in the work of Quezada et al., which states that Latino parents may have an inability to understand English, be unfamiliar with the school system, have limited or no access to transportation or childcare, and may shy away from school personnel's negative or condescending attitudes (Quezada et al., 2003).

It is known that across the spectrum of ethnicity and language, low-income parents experience barriers related to poverty, lack of time, atypical work schedules, heavy family responsibilities, coordination or lack of child care, transportation issues, and, often, barriers of

minority ethnicity, color, and language (Lott, 2001). Therefore, it was not surprising that the mothers in this study described their personal experience with several of these barriers.

Finding 3.1
Lack of child care, inconvenient meeting times, impersonal school-to-home communication, and limited English proficiency are barriers to parent participation in school.

In this study, the mothers acknowledged that they were aware of workshops offered by the school. However, two mothers described inconvenient meeting times or lack of understanding of the workshop topic as barriers that deterred or prevented their participation in these activities. When asked about her participation in parent workshops, Elaine indicated that the sessions were inconvenient for working parents, saying, "No, I haven't done any of the workshops because they're right in the middle of the school day and I'm off at work." When Elaine was asked if she would be more likely to attend workshops offered during the evening or weekends, she replied that "It would have to speak to me," indicating that both the time of day and the topic were considerations for her. During Patricia's preliminary interview, she indicated that, despite a sense of obligation, she still did not attend workshops: "Debo de asistir ¿verdad? [A] veces no vengo porque no vengo*." (I should go, right? But sometimes I don't go because I just don't go.*) Here it is unclear if Patricia's lack of participation reflects apathy or a different motivation or influence. When Patricia was probed for her thoughts on why other parents do or do not attend workshops on school health, she suggested that perhaps parents do not believe health is an important topic. She was then quick to offer her own affirmation of the importance of health workshops saying, "Porque muchos pensamos que a lo mejor no es importante, pero sí es importante, porque yo creo que ahí es donde hablan de la nutrición, de todo eso." (*Because*

many of us maybe don't think it's important, but it is important. And I believe that's where they talk about nutrition and all of that.)

Patricia's perceptions of parent engagement at the school, and the possible barriers she and other parents experience, warranted further exploration. During her follow-up interview, she said that most of the workshops were in the evening and it was difficult to leave her children with her husband. The researcher recalled that during her preliminary interview, Patricia alluded to the traditional gender roles she and her husband assume regarding cooking and childcare. She said, "Pero dice 'estás tú, no trabajas, es tú trabajo' me dice." (*But he says, 'you're there, you don't work, so it's your job*.) With this in mind, Patricia was asked if she would be more likely to attend evening workshops at the school if childcare were provided at the school. She replied enthusiastically, *"¡Oh, sí!"*

During the focus group, the mothers discussed the idea of personal peer outreach among parents as being more effective in increasing parent attendance at school workshops. As the focus-group peer facilitator, Janet asked the other two participants, *"¿*Tú crees que en nuestra cultura también como que estamos más acostumbrados en que se invita, personalmente, ¿verdad?" (*Do you think in our culture we're more used to being personally invited, right*?) The other participants agreed, saying:

> Como que yo creo que eso podría ayudar mucho en la escuela, en que, no sé exactamente cómo será eso, pero la comunicación sobre los talleres o las reuniones o lo que ofrezcan aquí en la escuela es que sea, pues sí una presencia de grupos de mamás o papás invitando, a lo mejor días antes al taller, o una semana antes para hacerlo más personal porque yo creo que les gustaría. (*Like I think that could help out a lot at the school, in what I don't know how that would be, but the communication regarding the workshops or*

the meetings or what they offer here at the school, that it be, well yeah, a presence of a group of mothers or fathers inviting, maybe days before the workshop, or a week before to make it more personal because I think they would like that.)

Janet also expressed her concern that the school's Spanish-speaking parents, the majority of whom are low-income, were not receiving timely or linguistically appropriate information from the school. She reported that she received automated calls and e-mails, but wondered, "How are the non-English speakers going to find out, the ones who don't speak English?" Janet is a parent leader of the school, and because she is bilingual she said that the school will ask her for help in translating messages to parents. She explained, "I translate it but I think that those who don't have cell phones or Internet, well they don't [get the information]." The barriers to parent participation caused by a lack of English proficiency were echoed later in the focus group, *"*Muchos padres piensan 'Pues no, no vengo, pues porque no sé hablar inglés o no entiendo' y no vienen y si van aprendiendo, pues van a sentirse más cómodos." (*And maybe a lot of parents think, 'Well no, I won't go, well, because I don't know how to speak English, or I don't understand well,' and they don't come, and if they learn, well they're going to feel more comfortable*.)

Element 2: Access to Health Services and Information

Among the recognized benefits of regular well-child visits are access to preventive and developmental health services, delivery of timely immunizations, reduced use of acute care services, and opportunities for parents to discuss concerns with health-care providers (Chung, Lee, Morrison, & Schuster, 2006; Hakim & Bye, 2001; Hakim & Ronsaville, 2002). However, there is evidence in the literature that suggests that low-income children may not be receiving

these services at an adequate level when compared to their higher SES peers (Dubay & Kenney, 2001; Short & Lefkowitz, 1992). A 2002 national study of factors that affect children's receipt of recommended wellness and dental visits found that of the 35,938 children included in the study, 23.4% did not receive the recommended well-child visits and 46.8% did not receive the recommended number of dental visits. The study found the factors that affected a child's receipt of services included age, insurance status, parent education level, and family income. Children who were 10 years old or younger, uninsured, had a parent who was less than college educated, or from a low-income family were those least likely to receive this preventative care (Yu et al., 2002).

These studies show how low-income children, comprising the majority of students served in Title I schools, experience less frequent access to regular health care than their higher SES peers. In this study, four of the mothers discussed their experiences receiving information from health care providers. Two of the mothers reported obtaining information about nutrition from their child's pediatrician, one mother reported receiving limited information from her child's dentist, and one mother reported receiving only limited health information and none about preventative care from the MediCal clinic she visits. The variety in the mothers' access to health information may be attributed to the spectrum of household income and education level represented among this study's seven participants. Against the backdrop of these different experiences with health care providers and access to health information, one source is notable for its absence—the school as a source of health services or information.

Finding 3.2
None of the participating mothers cited the school as a reliable source of health information.

As described in the document review, Finding 1.7 shows that while the school affirms adherence to the provision of health services, there is limited evidence that mandatory health screenings are regularly provided to all students. This finding underscores an already existing deficiency in the ability of low-income students to access regular wellness visits and preventative care. It is in this context that the next section discusses the data illustrating how the mothers in the study access health information from a variety of sources, but none report obtaining health information from the school.

Three mothers (Janet, Lisset, Socorro) reported obtaining health information from their child's health care provider. Janet shared that her three sons have developed a preference for diluted juice, a practice she began based on her pediatrician's advice, saying, "I've always diluted the boys' juice, ever since they were little, because the doctor always told me, 'You can dilute it with water.' To this day, even if they go serve themselves, I notice they'll pour some water in their apple juice." Lisset said that her pediatrician gave her the same advice, "*El pediatra siempre me enseño a tener siete onzas de agua con dos de jugo* [The pediatrician always taught me to have seven ounces of water with two of juice]." Additionally, Lisset shared that because she is not currently working, she had time to attend classes or events at the school and is always looking for ways to be more healthy: *"Trato de estar como viendo de qué forma puedo yo ayudarme a estar saludable y estar saludables mis hijas*. [I try to look for any way I can to help myself and my daughters be healthy]." During Lisset's follow up interview, it was discovered that although Lisset does not work outside the home currently, she is a nurse. Her professional training as a health care provider may explain why she is more inclined to be health-conscious. Socorro described taking her children to the dentist for regular cleanings. When asked if the dentist ever asked about the children's food consumption, she replied that the dentist

had never asked about foods: *"*¿Si me preguntan? Sí, pero no me han preguntado de los alimentos. No me han preguntado nada de eso." (*Did they ask me anything? Yes, but they've never asked me anything about foods*.) Socorro added that her impression was that her family should follow the information in the dental brochure to the best of their ability, saying, "Bueno, que debemos de seguirlos lo más que podamos, seguir las indicaciones que se dan ahí en los folletos." (Well, we should follow as best we can, the indications that they give there in the brochures.)

In contrast to Janet and Lisset's access to health care providers through private insurance, Ana said she and her husband do not have health insurance and rely on accessing health care from county clinics. She reported that she obtains directory information about doctor, dentist, and opthomologist offices from MediCal clinics, but not any information about preventative health strategies. She said that the only health information she receives is generally from the pamphlets at the clinics, "Pero no recibimos información, lo único que uno cuando va a estas clínicas, ellos tienen como folletos en la pared y ahí es cuando uno agarra la información." (But we don't receive information. The only thing is when you go to these clinics. They have pamphlets on the wall, and that is where one gets the information.)

Two of the mothers (Janet and Ana) reported that they learned more detailed information about food and nutrition from their female relatives. Janet described how her sisters gave her information about breastfeeding, which supplemented the information she received from her children's pediatrician: "My sister, Pat, was an excellent support for me with the nursing, on how to do it. With my other sisters, especially with my first experience, with my first-born, I was asking a million questions." Ana said her mother-in-law is a nutritionist and has taught her how to read food labels:

> Nos ha enseñado muchas cosas como por ejemplo, a leer la etiquetas de las cosas, como, a veces las cosas tienen como aceites que son malos para el cuerpo….y ella nos dice "cuando diga así," como si dice aceite de maíz, pues es un aceite… (*She has taught us many things, for example, to read labels, like sometimes which items have which oils that are bad for the body… and she tells us "when it says this" like it says corn oil, well then it is a good oil….*)

Elaine, Ana, and Julia reported using the internet to obtain health or nutritional information. Ana said she had relied on the internet to get information on mental health, Zumba, and yoga classes. Julia uses the internet to procure recipes and to obtain information about exercises for which she is unsure, saying, "[En] Univision.com… ahí me meto saca recetas y para ver los ejercicios cuando quiero hacer un ejercicio o una duda de algo me meto ahí." (*On Univision.com…. I go there to find recipes and to see exercises when I want to exercise and am unsure about something, I find it there.*)

Element 3: Pathways to Affordable, Healthy, Culturally Relevant Food

Extensive research in the late 1980s focused on understanding conditions and characteristics of food availability within households. This led to the current conceptual definitions for food security and food insecurity. *Food security:* Access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum the ready availability of nutritionally adequate and safe foods, and an assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies). *Food insecurity:* Limited or uncertain

availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways (Life Sciences Research Office, November 1990).

Food insecurity, a condition resulting from financial resource constraints, affects millions of U.S. households every year. Approximately 1 in 10 households in the country is food insecure, a trend that has remained consistent since 1995 (Nord, Andrews, & Carlson, 2005). Food insecurity limits the amount and types of foods a family can acquire to provide for a healthy lifestyle for all household members at all times. The influence of local food environments on the risk for obesity is important in general but may be particularly important for food-insecure populations—those which experience periods of time when they are "uncertain of having, or unable to acquire, enough food for all household members because they had insufficient money and other resources for food" (Nord, Andrews, & Carlson, 2007). Food insecurity rates are higher than the national average for households with incomes below the federal poverty line (37.7% were food insecure in 2007), households with children headed by single women (30.2%), and Black (22.2%) and Hispanic households (20.1%; Nord et al., 2007) . Additionally, those individuals that have less than a 12th grade education, speak Spanish, and have spent less than half of their life in the U.S. are more likely to be at-risk for food insecurity (Kaiser, Baumrind, & Dumbauld, 2007). Moreover, studies show that children of immigrant families (18.8%) are at greater risk of food insecurity than children of U.S. born parents (11.3%; Capps, Horowitz, Fortuny, Bronte-Tinkew, & Zaslow, 2009). Seemingly counterintuitively, but borne out in the literature, food insecurity is associated with increased risk for obesity in both children and adults (Adams, Grummer-Strawn, & Chavez, 2003; Casey et al., 2006).

Many Latino households, which tend to be greater in size, are food insecure and unable to meet the basic nutritional needs of its members because the household members do not earn

enough income or have the appropriate resources. In 2008, the average Latino household income was $48,955, compared to $66,590 for Whites, and the average number of household members was 3.2 compared to 2.4 for Whites (U.S. Bureau of Labor Statistics, 2009). The National Council of La Raza (NCLR) reports that "in food-insecure households, Hispanics' weekly median spending on food was equal to 83% of the cost of the 'Thrifty Food Plan,' the USDA's standard for the least expensive diet that meets basic nutritional guidelines" (NCLR, 2010). Researchers have found that when families fear running out of food, they are likely to resort to low-cost high-calorie foods to prevent hunger (Drewnowski & Specter, 2004). However, most of the foods are "empty calories" that contain few nutrients but added sugars and fats. Consequently studies have found that children of food-insecure homes consume a higher percentage of calories from fat and are more likely to be obese (Widome, Neumark-Sztainer, Hannan, Haines, & Story, 2009).

Consistent with the literature around food insecurity among low-income and Latino households, five of the seven of the mothers (Janet, Elaine, Ana, Lisset, Socorro) stated that economic constraints influenced their food purchases, both for groceries and for meals outside the home. Janet said that her family occasionally eats out on weekends and said, "Yes, budget is a consideration for [our] food budget, especially eating out." Elaine said that she avoids convenience stores, "I'm very conscious with my money, and I know that they inflate the prices so I usually don't go into those little stores." One mother, Patricia, did not cite economic constraints during any part of her preliminary interview. However, during her follow up interview, when asked how how frequently in the past 12 months her family "relied on only a few kinds of low-cost food to feed the children because we were running out of money to buy

food" she indicated that this happened often. Additionally, she responded affirmatively to the prompt, "Sometimes we don't have enough to eat due to insufficient money."

Prioritization of Healthy and Higher Quality Foods.

In contrast to what the researcher anticipated, this study revealed that although mothers have limited economic resources, they place value on better quality or higher nutrient foods and are willing to pay more, make resource tradeoffs, and shop at multiple grocery stores to obtain it for their children.

Finding 3.3
Despite limited economic resources within the household and the convenience and affordability of low-quality food, mothers shop at multiple stores, prioritize consumption of healthy food, and report that fruits and vegetables are served regularly in the home as part of a diet that incorporates traditional ethnic foods.

As an example, Lisset shared her willingness to make financial tradeoffs to provide her children with healthy food:

> Al final y al cabo, "eso es algo saludable para ella," le digo, "yo prefiero limitarme en otras cosas y comprarle las cosas a las niñas." Entonces, sí, tratamos de no estar comprando otras cosas que no son necesarias. Y sí trato, pero pues es difícil también, pero, aquí se puede. Podemos, tenemos más oportunidades de darles a los hijos un poco más saludable que en México. (*In the end "it's something healthy for her," I say, "I'd rather limit myself in other things and buy things for the girls." So yes, we do try to not be buying other things that aren't necessary. And I do try, but it's hard, but it can be done. We can, we have more opportunities to give our kids a little more healthy things than in Mexico*.)

The mothers in this study reported that they shop at multiple grocery stores to find the meat and produce selections they want. All seven of the mothers said that they partronized at least two

grocery stores, generally one for fruits and vegetables, and another for meat. Lisset said that by shopping at different grocery stores she is able to purchase the quality of food she wants for her family: "Y en la González, aunque la calidad de la carne es buena, es más cara, pero no importa porque es lo que yo busco." (*And at Gonzalez [Market], although the quality of the meat is good, it's more expensive, but that doesn't matter because that's what I'm looking for*.) Janet's assessment of the produce at Superior Market is representative of the other mothers' comments, "I like Superior because of the produce. I feel like sometimes it's fresher." Julia's family does not drink dairy milk and although she will shop at Northgate Market, a Latin grocery store, for most comestibles, Northgate does not sell her preferred dairy alternatives—almond or coconut milk—so she will shop at Fresh 'n' Easy for those items. This idea was reiterated in the focus group when the mothers discussed shopping at different stores and markets. One focus group participant said, "Yo también voy a la Superior, voy a Costco por las cosas más grandes, pero, es que uno está tomando en cuenta la calidad de la comida, no más el costo. (*I also go to Superior, I go to Costco for the larger things because one takes into account the quality of the food, not just the cost*.)

Lack of or limited availability of fresh foods is characteristic of low-income communities. This phenomenon was confirmed by Ana who enthusiatically described the foods in her refrigerator and pantry as each of the mothers did, and also shared her frustration with not always being able to find 100% juice at her local market. She said, "Siempre trato de buscar jugo que sea 100% jugo, pero casi no es posible encuentra ese jugo, está siempre variado con otro – con azúcares, con otros jugos." (*I always try to look for juice that is 100% juice, but it's almost never possible to find this juice, it's always mixed with something else—with sugars, with other juices*.) However, she said that would be willing to make the financial sacrifice to pay the

nearly $7 per gallon for 100% juice rather than the products regularly available in her local market. During the follow-up interview with Ana, she said that she was trying to change dietary habits of her children, "Estoy tratando de hacer cambios en la alimentación con mis hijos. Estoy haciéndoles más jugos verdes por la mañana, estoy dándoles muchos más frutas y verduras, y tratando de que coman menos carne. Y más cosas saludables." (*I'm trying to make dietary changes with my children. I'm making more green juices in the morning, I'm giving them many more fruits and vegetables, and trying to eat less meat and more healthy items*.)

Fruit and Vegetable (F&V) Consumption

Given the what the mothers reported about their economic constraints, the measures they take to shop at different stores, and the priority they place on providing their children with healthy food, it was not surprising to learn that fruits and vegetables (F&V) were consumed regularly in the household. Six of the seven mothers commented on the availability and consumption of F&V in their household. Elaine described her household as being abundant with F&V: "There's always apples and pears and bananas and oranges, and if we can get [them] mangoes and pineapple. We always have a ton of fruits and vegetables at the house." Patricia said that she has maintained the habit of eating fruit since she emigrated from Mexico. Noting the ability of fruit to "*para limpiar el estomago* [cleanse the stomach]," she shared that she consumes fruit each day before breakfast. However, the mothers' comments regarding F&V availability and consumption generally focused on how the children were provided F&V within the household. Mothers reported that F&V were eaten before and as part of meals. One example is found in Janet's description of a typical family meal in her home: "There's always some kind of vegetable, and I may include some beans in there. We always have fruit before any dessert, and the boys are used to that and they love that." Patricia's comment reflects the intentionality

shared in each of the interviews. She said, "*Pues, trato de que sean saludables, trato de que siempre coman frutas en todas las comidas, ya sea una manzana* [Well I try for them to be healthy, I try for them to eat fruit at every meal, even if just an apple]." Likewise, Julia said she puts fruit on the table so when her sons arrive they can grab a piece of fruit before meals, like an apple: *"Las frutas yo pongo en la mesa porque cuando llegan mis hijos ellos se pueden agarrar una fruta antes de comer como manzana."* Here Julia alluded to a habit that she is developing in her children. Her deliberate action of putting fruit out suggests that Julia is playing a key role in shaping her sons' food habits by establishing fruit as the default healthy snack in the home, and thereby creating and reinforcing a habit that her preteen sons can continue on their own. What is seen here are explicit examples of mothers making deliberate decisions about the availability of F&V to their children.

The mothers' reported patterns of F&V consumption are promising with regard to a family focus on healthy eating and obesity prevention, as dietary patterns with higher F&V intake are associated with a variety of positive health outcomes, including improved weight management (Bazzano, 2006), and as low F&V consumption has been associated with low SES, lack of access to fresh F&V, and lack of self-efficacy (Kratt et al., 2000; Siega-Riz and Popkin, 2001; Pomerleau et al., 2005). A recent study of the barriers and facilitators of F&V consumption found that fruit and vegetable consumption was facilitated by family traditions, perceived health benefits, and advice by physicians, and impeded by inaccessibility, cost, and time (Yeh et al. 2008). The mothers in this study report data consistent with these facilitators, but their reports may not be reliable given their acknowledgement that cost is a barrier to F&V consumption. Notwithstanding this, the F&V consumption reported by the mothers in this study hold promise for healthy lifelong habits as supported by several studies that have found that the a

child's home food environment not only shapes dietary practices into adulthood, but also impacts the dietary practices of the entire family unit (e.g., children, adolescents, adults; Yeh et al. 2008; Kratt et al., 2000; Campbell et al., 2007a,b).

Likewise, Contento et al. investigated the relationships between mother's food choice criteria, food knowledge, and the food intake of their preschool children (Summer 1993). The researchers found that mothers who preferred foods based on their healthfulness were highly knowledgeable about the health effects of food; conversely, mothers who made food choices based on taste and disregarded health criteria demonstrated low scores on food knowledge. Results also showed that children belonging to mothers in the "health positive" group "ate significantly fewer calories, less total fat, less saturated fat, and more Vitamin A" than children in the "high taste" groups. Contento et al. concluded that the food choice criteria used by the mother has significant effects on what the children eat; further, it can carry implications that reach beyond their preschool years. To provide an example of the importance of lowering childhood obesity as a way to prevent adult obesity, a review of an epidemiologic study of children from 1970 to 1992 found that 26 to 41% of obese preschool children were found to be obese as adults. Additionally, the review found that obese preschool and school-age children are 2.0 to 6.5 times more likely than nonobese children to become obese adults (Serdula et al., 1993).

Consumption of Traditional Ethnic Foods

In addition to mothers' reports of fruit and vegetable consumption in their home, the mothers also described the ethnic foods eaten by their family. During the individual interviews, five mothers (Janet, Elaine, Julia, Ana, and Patricia) described Mexican foods eaten or Mexican food traditions followed in their household. Of these five mothers, three reported following a

traditional Mexican diet (Julia, Ana, and Patricia). Julia talked about her family's consumption of Yokult, a probiotic drink that aids in digestion. She referenced her ethnic heritage, stating, "Usamos muchos nosotros Latinos." (*As Latinos, we use it a lot*.) She also described traditional Mexican foods, such as tortitas de papas (potato sandwiches) or chicken or cheese enchiladas as food, "de mi país" (*from my country*). Ana talked about her traditional custom of eating Mexican pastries with coffee every afternoon, "Nosotros como latinos, tenemos esa cultura de que siempre en la tarde tomarnos un café con pan mexicano." (*As Latinos, we have this culture of always having coffee with Mexican sweet bread in the afternoon*.) Likewise, Patricia described the traditional Mexican dishes of pozole, tamales, and champurrado that her family makes during Christmas. Patricia posited that her Mexican food traditions might be different from those of other countries, "Entonces también por eso y yo pues, yo creo—como el pan porque nosotros en México están acostumbrados a comer mucha tortilla y mucho pan. Yo no sé en otros lados, ¿verdad?" (*Well then…in Mexico we're very used to eating a lot of tortilla and a lot of bread. I don't know about in other places, right?*)

Janet and Elaine described following a more varied or American diet. As Janet describes what meals might look like in her house, she says, "I make enchiladas…or I'll have a Mexican sour cream, the Mexican cheese…I'd say it's definitely some traditional, but also just like a typical American meal at times…We could grill some hamburgers, and we'd have maybe some corn." Additionally, Janet said that many of the traditional Mexican recipes are from her mother, and that she is also trying to "introduce healthier options."

Finding 3.4
Mothers cited the influence of their cultural heritage on their family's dietary practice.

While the present study did not investigate the acculturation status or food consumption patterns of the immigrant families at the school, it is helpful to make brief reference to the literature on increased prevalence of obesity among immigrants as they adopt an American diet and lifestyle. The literature shows evidence of the "healthy immigrant effect," a phenomenon that describes how upon arrival in the United States, immigrants are healthier than their native counterparts, but that over time this health advantage erodes (House et al., 1990; Stephen, Foote, Hendershot, & Schoeborn, 1994). In 2006, Antecol and Bedard substantiated this effect through an analysis of data from the National Health Interview Survey. Using self-reported health status, health conditions, and activity limitations, the researchers concluded that overall, immigrants to the United States arrive with a lower Body Mass Index (BMI) and converge toward natives as they remain in the country. The researchers concluded that the "immigrant weight assimilation" in relation to increasing BMI suggests that the host culture (U.S.) and or environmental factors impact their health behaviors such as dietary and physical activity.

The implication for Title I schools, as they are more likely to serve minority and immigrant students, is to recognize the various ethnic food traditions observed by their families and facilitate a respectful dialogue with parents about selecting healthier options, such as portion size, preparation method, ingredient substitutions, that are aligned with these traditions. In the present study, the mothers suggested this type of forum during the focus group interview. The mothers suggested a nutrition class for parents and said that each family has their own recipes and that by coming together in a class, the parents could share recipes and learn from each other. The idea of a parent nutrition class where parents could share traditional recipes as well as what Janet described as "ways to make them more healthy" suggests that schools could examine the ways in which nutritional information is presented, and the degree to which the suggested food

items are culturally relevant to the school's population. By adopting a collaborative approach with parents to map ethnic foods to nutritional standards, rather than imposing an "ideal" set of foods that may be unfamiliar to low-income and or immigrant families, a Title I school may be more effective in providing nutrition education and facilitating sustained changes in household dietary practice.

Element 4: Opportunities for Family Physical Activity Outside of the School Day

Finding 3.5
Mothers report their children regularly engage in physical activity and describe their own participation in low-cost community exercise classes.

Physical inactivity is a contributor to obesity. The literature shows that individuals with lower incomes and less education, especially those with less than a high school education, are less likely than others to engage in sufficient physical activity (Huston, Evenson, Bors, & Gizlice, 2003). Additionally, the literature shows that barriers to physical activity among low-income adults include cost, such as gym membership and child care during exercise (Dietz, 2001); limited time due to multiple jobs or care-giving responsibilities (Bradshaw, 2001); limited knowledge about health or risk factors of obesity (Juarbe, 1998); and language barriers that prevent knowledge about or participation in physical activity (Garcia & Marotta, 1997). With regard to children and youth, numerous studies have shown the correlation between low physical activity and inadequate neighborhood safety (Harrison, Gemmell, & Heller, 2007; Molnar, Gortmaker, Bull, & Buka, 2004; Romero, 2005; Sharpe, Granner, Hutto, & Ainsworth, 2005).

Given what is known about the economic and time constraints of low-income families, as well as issues of neighborhood safety in under-resourced communities, it may have been

expected that the mothers would report low levels of physical activity among their children and among the adults in the household. However, in contrast to this expectation, mothers not only expressed aspirations for their children's health and physical activity levels, but also reported that both children and adults were physically active. During her individual interview, Janet said that she did not want her sons to sit in front of the television for an extended period of time. Furthermore, she indicated that she encouraged them to be active (e.g., taking family bike rides or playing in the backyard), and said, "[my husband] and I really feel that's important for that to be a habit for them, for their future." In the focus group, Lara described how she wants her children to be healthy and active:

> Quisiera que mis hijas estén sanas para, de una manera u otra, eso les va a ayudar a que aprendan más, y mi prioridad de eso es de que ellas estén cuando ellas crezcan, estén creciendo con esa mentalidad de comer bien, de hacer ejercicios, de estudiar todo el tiempo para que ellas puedan lograr todo el tiempo lo que ellas quieran. [I would like for my daughters to be healthy so in one way or another, that's going to help them learn more, and my priority with that is that while they grow, they're growing with that mentality of eating well, doing exercise, studying all the time so they can achieve everything they want to.]

Patricia agreed, saying this it was important to for children to develop the habit of regular physical activity, *"Para que sea algo que han hecho desde chiquitos*. [So it can be something they've done since they were little]." During the individual interviews, each of the seven mothers reported that they and their children visited public parks and recreation centers often and engaged in various types of physical activity. In an effort to probe more deeply into where mothers obtained health information, and prompted by the photographs of parks taken by three

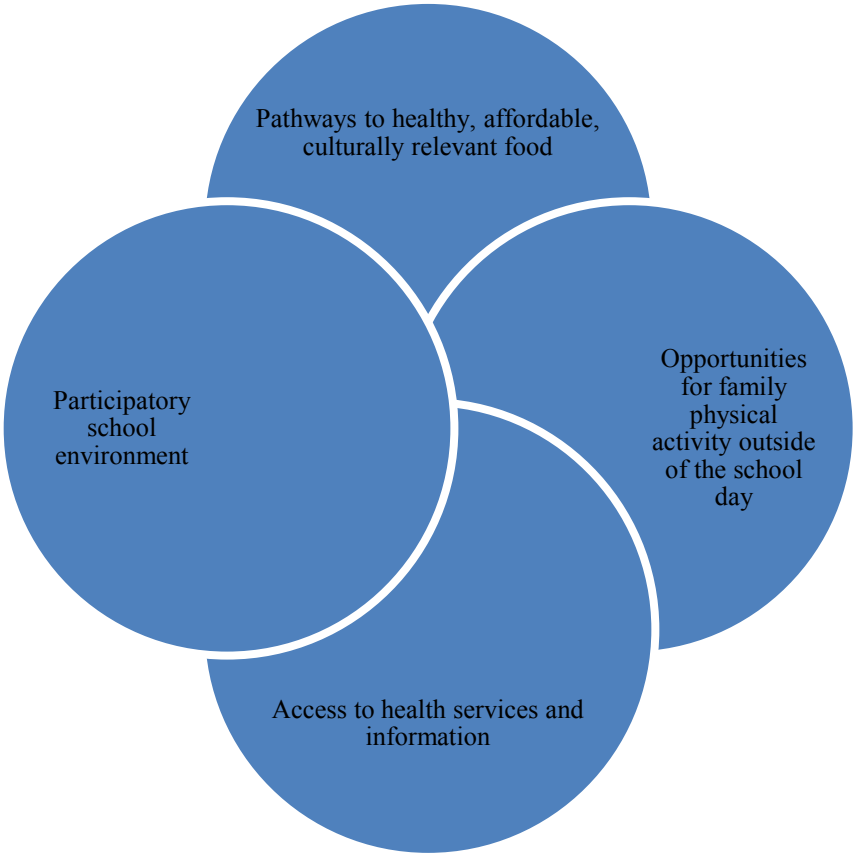
mothers, the mothers were asked about the availability of health information at their local park. When Lisset was asked if she ever received information about exercise or physical activity at the park, *"¿Recibe usted información sobre ejercicio o actividad física en ese parque?"* she replied that there is a park worker who lends balls to families and manages table games. Julia and Patricia reported that there was no health information distributed at their local park. Beyond this brief comment, there was no other mention or description of parks as a source of health information.

All of the mothers described going to parks as a family activity, as exemplified by Elaine's comment, "It's a lot of family members and the kids will have their own activities or they'll play at the jungle gym or they'll play tag or whatever, and then the grownups will actually engage in playing volleyball." Likewise, during Ana's follow up interview, she described how she, her husband, and two children go for three-mile family walks along the river path approximately three times a week. Additionally, four mothers (Janet, Julia, Ana and Lisset) reported exercising without their children. Janet takes an aerobics class two to three times a week. Julia reported that her regular exercise routine is to walk in the park after she drops off her sons at school. During their follow up interviews, both Lisset and Ana shared that they take a Zumba class at a private home, where the cost was less expensive—only $1.00 per class—than a retail gym. This provides additional evidence to support the idea that although these mothers have constrained economic resources, they seek out healthy options. In this case, Ana and Lisset's participation in a community exercise class suggests the existence of a peer network that provides access to physical activity to low-income participants.

A school's ability and success in providing and promoting health services and information, encouraging physical activity opportunities outside of the school day, and creating

pathways to obtaining affordable, healthy, culturally relevant food on a limited budget is dependent upon the degree to which the school fosters a participatory school environment. For Title I schools, a participatory environment must reduce barriers to parent involvement by accommodating parent schedules and child care needs, facilitating a peer-to-peer parent communication channels, and providing linguistically appropriate communication to English-limited constituents. Figure 2 provides a graphic illustration of this relationship.

Figure 2: Elements of a Contextually Relevant Health Plan for a Title I School



The model comprised by these four elements acknowledges multicultural and multiethnic food traditions while providing research-based nutrition information, facilitates student and family access to physical activity and health information, and addresses the economic constraints on food purchase experienced by low-income families. Additionally, this model outlines a paradigm in which parent engagement is facilitated by decreasing barriers to participation and increasing two-way communication between schools and families in a way that is idiosyncratic, driven by the needs of the families, supported by the socioecological resources of the community, and is economically and linguistically appropriate for the students and families served by Title I schools.

Chapter 5: Discussion

"In the end, as First Lady, this isn't just a policy issue for me. This is a passion. This is my mission. I am determined to work with folks across this country to change the way a generation of kids thinks about food and nutrition." --First Lady Michelle Obama

Obesity is a national problem that has an enormous negative impact on our health care system, our economic productivity, the academic achievement of our students, and the quality of life for millions of Americans. While there are genetic and lifestyle factors that predispose individuals to obesity, it is imperative to recognize that these individual factors are amplified by economic and environmental factors that exist at a national level. These factors include the prevalence of food deserts in both urban and rural communities, lack of safe spaces for outdoor physical activity, and the ubiquity of cheap, low-nutrition foods.

The rise of obesity is especially apparent in children. Since 1980, the percentage of children who are obese has more than doubled, and rates among adolescents have more than tripled. In 2004, 18.8%of 6- to 11-year-olds and 17.4% of 12- to 19-year-olds were considered obese, and an additional 20.4% of 6- to 11-year-olds and 15.3% of 12- to 19-year-olds were considered overweight (O'Toole et al., 2007). Furthermore, the incidence of obesity is especially acute among Latino and African American children (California Health Interview Survey, 2009; Federal Interagency Forum on Child and Family Statistics, 2012). With the prevalence of obesity among low-income and minority children at levels significantly higher than their higher SES and non-Hispanic white peers, the Surgeon General's Office declared obesity prevention targeted to these groups a priority over a decade ago (U.S. Department of Health and Human Services, 2001). Today, First Lady Michelle Obama's Let's Move initiative seeks to take the epidemic of obesity and resolve it within a generation. Let's Move is grounded

in five actions: (1) creating a healthy start for children; (2) empowering parents and caregivers; (3) providing healthy food in schools; (4) improving access to healthy, affordable foods; and (5) increasing physical activity ("Let's Move: America's Move to Raise a Generation of Healthier Kids,"). The Let's Move plan provides schools with guidance on how to provide high-quality nutrition, integrate physical activity during the school day, and teach children about healthy, active living. With the First Lady's challenge to the country as a reference point, my study focused on one Title I school and examined how the school's current health plan addresses childhood obesity and provides pathways for parents to engage in obesity intervention activities.. Through a synthesis of data from document review, photo-elicited parent interviews, and a focus group interview I identified three key findings:

Key Finding 1. While the school's health plan does not explicitly address obesity, the plan does include several program and service components that suggest the school's potential to directly address obesity among its students.

Key Finding 2. The school is working with families to lower obesity in children by implementing a "no junk food" policy and a farm-based nutrition program,and by providing cooking classes and parent workshops.

Key Finding 3. The elements of a contextually relevant health program for a Title I school are (a**)** a participatory school environment; (b) access to health services and information; (c) pathways to healthy, affordable, culturally relevant food; and (d) opportunities for family physical activity outside of the school day.

Elements of a Contextually Relevant Title I School Health Plan

The primary goal of my investigation was to examine the current health plan of a Title I school and analyze participant feedback across three overarching themes of Food, People, and Places to refine the currently accepted model of coordinated school health plans and include contextually relevant elements that address the strengths, challenges, and constraints faced by low-income families. This study contributes to the body of knowledge regarding school health programs in low-income communities by defining the elements of a contextually relevant Title I school health plan:

Element 1: A participatory school environment

Element 2: Access to health services and information

Element 3: Pathways to healthy, affordable, culturally relevant food

Element 4: Opportunities for family physical activity outside of the school day

The four-part model defined here outlines a paradigm in which parent engagement is facilitated by decreasing barriers to participation and increasing two-way communication between schools and families in a way that is idiosyncratic, driven by the needs of the families, supported by the socio-ecological resources of the community, and economically and linguistically appropriate for the students and families served by Title I schools. In the following sections, I describe my primary recommendation for the study site to update its health plan to include obesity prevention and intervention. This recommendation is supported by the findings that emerged from the data and is accompanied by supporting recommendations that mirror the thematic framework of the photo-elicited interviews: People, Food, and Places.

Update school health plan to include obesity prevention and intervention

Food insecurity and hunger, chronic health conditions, and under-resourced neighborhoods are among the myriad challenges of poverty experienced by millions of students in thousands of Title I schools everyday—even before the bell rings. Considering children spend the majority of their day in school and that nearly two-thirds of all Title I students are African American or Latino, (U.S. Department of Education, 2002), it becomes clear that Title I schools in particular are in a position to influence health outcomes and reduce obesity among the country's low-income and minority children. To bolster the study site's ability to meet this charge, my primary recommendation is for the school to update its health plan to include specific goals around obesity prevention and intervention. Based on the document review I conducted as part of this study, it became evident that although the school health plan included elements of a coordinated school health plan per the Allensworth and Kolbe model, the school's plan did not articulate in detail each of the eight elements and moreover did not include any specific description of obesity intervention programs or goals. As a starting point, the school should consider updating the Wellness outcome described in the charter to specifically include obesity prevention and intervention in the health education and physical education curricula.

However, the obesity intervention plan should go beyond the student and the classroom experience. In fact, the obesity intervention plan should aim to reach the entire family, even if different channels are used to reach children, parents, and caregivers so that the benefits of change are emphasized and reinforced at the family level. A California study recently reported that shared meal decision making among members of Latino households results in poorer quality diets (i.e., more fast food, lower fiber, higher saturated fat; Kaiser, 2006). These results underscore the need for obesity interventions to target all levels of the family. It is promising to

note that these family-level interventions would be supported by three major community initiatives to combat childhood obesity recently introduced in the city: The California Endowment's Building Healthy Communities, (The Young Men's Christian Association Pioneering Healthy Communities, and First 5 Best Start (Crampon, Humphrey & Norman, 2011).

In the following sections, I present supporting recommendations under the themes of People, Food, and Places and illustrate how the relationship between the school and the home provides a common thread that unifies a community dialogue on increasing health and reducing obesity.

People: Adopt a *promotoras* model of health communication

This study purports that a participatory school environment is a requisite condition under which to develop and implement a contextually relevant school health plan. A participatory school environment is one in which families—regardless of SES level, language, educational level, or immigration status—are embraced as peer-partners with school staff. In this context, Title I schools must be self-reflective about the latent attitudes and perceptions the teachers and staff have with regard to the concerns, efficacy, and aspirations for their children held by low-income parents in order to establish the foundation for a truly participatory school environment. As shown in Finding 3.1, mothers believe that more personalized and direct communication is needed to overcome barriers to parental participation. Mothers also reported linguistic barriers and lack of internet and computer access. These data suggest that the school's mission, which cites a goal of extending "learning opportunities into the home and community," may not be supported by communication processes and systems that successfully reach English-limited parents or those without access to internet. To close this communications gap and facilitate a

participatory school environment, the school should consider leveraging peer-to-peer parent communication to personally inform and engage parents in school activities. My recommendation is for the school to do this by adopting a *promotoras* model of health communication.

The *promotoras* model organizes lay community health advisors or *promotoras* to facilitate culturally relevant communication among parents and between parents and health and human service organizations. Promotoras are generally trusted and well-respected members of their communities and do not replace other health professionals, but rather work to bridge cultural and linguistic gaps between service providers and the target community (Baker et al., 1997) thus addressing the need for personal, linguistically appropriate communication identified by the mothers in this study. Sociologist Pierre Bourdieu (1986) developed the concept of social capital as the actual and potential resources to which one has access by virtue of belonging to a group, or "community." A promotoras model will catalyze and deepen the relationships between school staff, parents, and service providers, thereby increasing the social capital of parents and families Within a highly collaborative and participatory school environment, school staff and parents have the potential to reduce childhood obesity by developing solution-focused strategies grounded in the existing funds of knowledge present in the parent body and catalyzed by the social capital that grows out of this school-home partnership. As advocates and change agents, promotoras can facilitate critical discussions among parents that result in the creation of a common language that represents parent concerns and goals regarding obesity, among other health challenges facing Latino children (Ayers, 2001; Bakhtin, 1981; Hurtig, 2008). Examples of successful application of the promotoras model include the Latino Health Advocacy Program. Additionally, a promotoras model of health information delivery may also be successful with

African American families, which comprise the second largest subgroup at the study site. For example, The *Sisters Together: Move More, Eat Better* culturally sensitive obesity intervention program, launched by the Alexandria Health Department in Virginia in 2003, was based on research that showed that African American women preferred receiving health information from trusted family and community sources and the media (National Institutes of Health, 2009). The program was grounded in community partnerships with churches, health centers, and barber and beauty shops and reported successful weight loss for many of the participants (California Dietary Practices Survey, 2003). My recommendation that schools adopt a promotoras model to increase access to health services and information is informed by not only these data and what we know about the limitations to health care experienced by the under- and uninsured, but also what the present study found with respect to the school's provision of health services and what the mothers reported about the ways in which they receive health information, which was largely through female relatives. The lack of regular mandatory health screenings, including vision, hearing, and scoliosis screenings, points to a serious deficit in the school's health plan (Finding 1.7). This deficit may exacerbate negative health outcomes and the resulting impact of poor health upon academic achievement as experienced by the school's low-income students. However, the data does suggest that the school has collaborated with community-based health organizations to provide health screenings on an intermittent basis. My recommendation is for the site to redouble its effort to identify additional community partners to work in concert with the promotoras to provide access to health critical services to needy students at this Title I school. Underscoring the theme of family-level obesity interventions, the effort to increase health screenings to students should be complemented by an effort to increase health service access for the entire family.

Food: Provide nutrition education for parents and nutrition training for teachers

Finding 3.3 provides evidence of the mothers' emphasis on healthy foods and fruit and vegetable consumption in their households. Because this study included only Latino participants and the study site serves a predominantly Latino student body, here I offer support from the literature regarding Latino parents and their attitudes toward healthy diets. The present's study's finding of regular fruit and vegetable consumption within the home is supported a body of research around the aspiration of Latino parents to improve the health of their families. However, when we look at the subgroup of immigrant Latinos, we see that although recent immigrants may acknowledge that diet can affect health, fewer are able to explain how breastfeeding or vegetables and fruits are protective. Notwithstanding this, many want more specific guidance on choosing healthful diets for themselves and their families (Kaiser, 2006). Additionally, the complexity of ethnicity, immigration status, and socio-economic status as indicators of obesity become more evident as other studies show that in higher SES is associated with lower body mass index among Latinos (Winkleby, Albright, Howardpitney, Lin & Fortmann, 1994). In short, this research must be evaluated carefully in the context of how dietary patterns change after immigration to the United States and between first and second or higher generation Latinos. These concepts may have generalizability with other immigrant groups.

As a complement to nutrition education for parents, nutrition training should also be provided to teachers as part of a school health plan that includes an obesity intervention program. This study showed that the school contracts with a meal vendor that has provided nutrition education workshops for students during the past two years (Finding 1.2). From an operational standpoint, I recommend that the school leverage the relationship with this vendor to explore the

possibility of expanding nutrition education to parents and providing regular professional development for teachers. Teachers' training may be complemented and reinforced as they participate alongside students during these vendor-led nutrition workshops. Providing nutrition education to students, parents, and teachers may motivate and unify these constituents around healthy eating and support the school's obesity prevention and intervention goals. A key component of the contextual relevance of the school's health plan in relation to nutrition education programs for parents is the acknowledgement of the time and cost constraints faced by low-income families in choosing and preparing a healthful diet. For example, studies have shown that there are fewer grocery stores with affordable fruits and vegetables close to low-income neighborhoods (Harris & Bonner, 2001).

Food: Collaborate with families to align culturally relevant foods to nutrition standards

However, Finding 3.3 suggests that despite economic constraints, the mothers in this study shape household food consumption by prioritizing the purchase of high-quality foods, including fruit and vegetables, and preparing a variety of traditional ethnic foods. With this data in mind, and in conjunction with my recommendation to provide nutrition education programs to parents, I recommend that the school engage families in to align culturally relevant foods to nutrition standards. Through nutrition education classes the school can provide families with dietary information including but not limited to the nutritional content of food, food preparation methods, and the benefits of a balanced diet. During these nutrition classes, the promotora would encourage parents to share their food traditions and knowledge and provide support for their questions and concerns in a person to person setting. The promotora would then work with parents to map the foods that are comfortable and familiar to them with the nutrient or nutritional

standard. This idea is borne of an agnostic perspective of nutrients, meaning that the focus should be placed on the nutritional content and not on the food vector. Simply put, kale or collards, broccolini or bok choy would each have a rightful place on the "dark leafy greens" section of a contextually relevant food map regardless of any cultural or ethnic association.

Another consideration for the study site and other Title I schools with English-limited populations is the linguistic appropriateness of school communication with regard to the home language. Additionally, mindful of the positive correlation between SES and educational level, the reading level of the written school communications should also be examined to ensure that low-income parents are able to access the material. The research on health literacy suggests that written materials should be aligned to an eighth-grade reading level. The school should consider using this guideline for developing and publishing nutrition education materials as well as all written communication intended for parents. Furthermore, educational materials should be culturally adapted and tested with the target group, not merely translated from English into Spanish or other home language. As an example, some excellent materials developed in other states may have very limited use among some of California's Latino populations due to differences in regional food habits and Spanish usage, such as Spanish words for specific foods that vary in different Latin American countries. (Kaiser, 2006).

Places: Maximize school facilities use to provide opportunities for family physical activity

In a socioecological framework, there are multiple influences on physical activity and food consumption, including the social environment, physical environment, and macro level environment. The social environment includes peer and family networks. Social support is one factor that influences social networks. The physical environment (settings) includes home, workplace, school, and neighborhoods and communities. Factors that catalyze or impede

physical environment include availability, access, barriers, and opportunities. At the macro level environment, societal and cultural norms and values, health care systems influence physical activity and food consumption. And at the center of the socioecological framework are individual or personal factors that influence physical activity and eating behaviors—including motivations and self-efficacy, preferences, skills, and demographics (Pbert & Lemon, 2011). Sociologists and geographers have long identified the important of place, both literal and symbolic, in influencing the lives of people (Siegrist, 2000). "Place" can be defined by the nexus of shared identities and interconnected relationships (Etzioni, 1997; Minkler, 2004). Here I assert that schools occupy an important physical and relational space within the socio-ecological context of a community.

Moreover, Title I schools in particular are uniquely positioned both literally and figuratively to play a leading role in reducing obesity—a crisis experienced disproportionately by low-income and minority students. With an orientation to the present study site's predominantly Latino population, in an examination of community funds of knowledge for health and curriculum, Zanoni *et* al suggests that Latino children and families participate in a variety of community activities that bring together learning, nutrition, and health practices leading to educational interactions and health outcomes. This echoes the assertion made in the present study that urban schools, the majority of which have Title I status, are integral to these interactions (Valenzuela, 1999; Zarate & Conchas, 2010).

It is with this concept of the school as a key component of the physical and relational environment that I recommend that the study site maximize facility usage to provide opportunities for family physical activity. The school's recreational space consists of a 4,000 square foot playfield and a 2,500 square foot multipurpose room. The school should explore

ways to offer low- or no-cost opportunities for student and family physical activity at the school site during times when the facility may be underutilized, such as afterschool, weekends, and summer recess. This recommendation is supported by Finding 3.5 in which mothers reported that their children regularly engage in physical activity and described their own participation in low-cost community exercise classes. This suggests that the opportunity to participate in extracurricular, family physical activity may be met with a groundswell of interest. Moreover, this recommendation is consistent with a 2011 study of barriers and facilitators to healthy eating and physical activity which found that K–8 school staff participants indicated that expanding the physical education program would be best done by creating family programs (58%), before- or after-school programs (55%), and summer programs (45%) (Hammerschmidt, 2011).

In concert with expanding opportunities for family physical activity at the school site, the school should also provide teacher professional development (PD) in physical education. This recommendation is based on the lack of evidence of teacher PD in physical education, despite the description of such training in the school's charter (Finding 1.1). The school's current PD schedule, including a 10-day summer institute and several in-service days throughout the year, suggests that there is an opportunity for physical education to be included as a regular topic in the PD curriculum. The school's physical education program and associated PD should consider which activities would be best suited to the school campus as well as those activities that would complement the performing arts component of the academic program. Past physical activity classes have included several forms of dance—traditional Aztec, hip hop, and hula—as well as those requiring minimal equipment such as yoga. With regard to the human and intellectual capital needed to support professional development, the school should consider the kinesiology

department of a local university as a possible resource for curriculum content and volunteer trainers.

Limitations of the Study

This study has three main limitations that impact the generalizability of its findings: (a) size and demographics of the participant group; (b) my role as an embedded researcher, and (c) my level of Spanish language proficiency. The first limitation is the size of the participant group. The original research design called for 12 to 15 participants divided equally between English monolingual/dominant and Spanish monolingual/dominant participants. The final study yielded 7 participants. Of these 7 mothers, 2 were English monolingual/dominant and 5 were Spanish monolingual/dominant. Because the total school enrollment of 475 students represented approximately 375 unique families and comprised 70% Latino student body, I assumed a 10% response rate and anticipated receiving about 25 consent forms from parents representing both campuses. From this potential participant pool, I would have taken a stratified random sample of at least 6 families from English monolingual/dominant and Spanish monolingual/dominant language preference groups to select the final 12 to 15 parent participants. A handful of parents returned the consent forms after their initial distribution, but these parents did not identify themselves as Latino and therefore were not eligible to participate in the study. As the school year began to draw to a close, I decided to use snowball sampling by first personally recruiting 2 parents who would then "nominate other participants who [met] the eligibility criteria for [my] study" (Morgan, 2008). Although the participants in this study do not comprise a sample, the method by which they were recruited may have created bias toward the inclusion of mothers from single-income households in which the husband worked outside the home and mothers who were more likely to report higher levels of fruit and vegetable consumption within the home due

to the fact that the study was presented to them as one that focused on health and nutrition. Additionally, this study suffered from a lack of representation from English monolingual/dominant participants, with only two mothers participating in English. The original research design of sampling two linguistic groups within the Latino parents signals that it is important to acknowledge the way researchers and school site administrators alike may make suppositions about the English language proficiency among Latinos without recognizing that this group represents a pan-ethnic demographic of various levels of assimilation from the recent immigrants to those born and raised in the United States for generations.

The second limitation of this study is my role as an embedded researcher. As the executive director of the study site, I endeavored to delineate my role within the organization from my role as an educational researcher. While I communicated this to study participants in the informational briefs and consistently reassured parents that their participation in the study would have no bearing on their student's experience at school, it was difficult to separate my role at the organization. Replicating this study at a different site would enable me to have a more objective perspective and avoid this limitation.

The third limitation to this study was my level of Spanish language proficiency. Although I was very confident about my Spanish oral language proficiency at the beginning of the study, my language skills were strained during the interviews conducted in Spanish. While I understood what the participants were saying, my non-native language proficiency limited my ability to detect nuance in their statements and therefore made it difficult to ask probing questions that could have led to a more insightful dialogue.

Implications for Future Research

Given the participant group examined in this study, future researchers may want to

expand the study to include dual-income low-income households to better understand parental decisions around food choice and preparation given the demands on parent time outside the home. Additionally, future research should investigate using photovoice as a method to engage students and families in an action research project that examines knowledge regarding food, people, and places that exist within the greater school community.

Reflection and Call to Action

> [T]he obesity epidemic will not be stopped by teaching people only one thing, or by telling people only one thing, or by preaching about TV or by preaching about food only. We do a comprehensive intervention. You have to be really active in fighting this.
> --America Bracho, M. D.

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Does low-income status increase the likelihood of obesity, and/or do structural and systemic deficits of an under-resourced community contribute to obesity among its residents? As we consider the confounding possible causes of obesity among low-income populations posed by this question, it is evident that policy decisions around obesity intervention, community assets, and socio-economic factors are highly interrelated. However, one thing is very clear: Despite the dearth of resources in low-income communities, every community has schools. And we need to leverage schools as centers and promoters of health information in the fight against obesity, especially among low-income families. The epidemic of obesity is having profound effects not only on the health, welfare, and economic potential of American adults, but also America's youth. We know that in over the past two decades, the number of students enrolled in physical education classes has declined significantly (Centers for Disease Control and Prevention, 2011). Due largely to reductions in funding, this trend is continuing, especially as schools are reallocating financial resources to support core and traditional academic subjects as defined by

the No Child Left Behind Act (Schaub & Marian, 2011). With fewer resources and increased pressure to devote school time to meeting high stakes test metrics, schools must draw upon the cultural capital of its students and families to create, implement, and sustain contextually relevant, community-based solutions to the national crisis of childhood obesity.

Moreover, schools must be supported by social and economic policies that allow them to develop models of health education that acknowledge the constraints of low income and minority families, including immigration status and acculturation level, English language proficiency, and access to health services, child care and transportation.

In Chapter One, I identified the need for schools to increase the efficacy of their health plans to adequately address this crisis. Presently, many schools are struggling with how to accomplish this, given the competing demands of high-stakes accountability environment and economic pressure of a shrinking public education budget. "Just how do you expect us to fund all of these programs and teach all of that 'extra' stuff?" a teacher in an impacted urban district might very well ask. As a Title I school administrator myself, I understand how this charge could be perceived as overwhelming given the demands to increase academic performance, especially for minority and English learner students, and the pressure of a declining state budget that has established "doing more with less" as the new normal. However, it is precisely from this vantage point that I urge my Title I colleagues across the country to understand that our schools have the potential to make an enormous and indelible impact on the health outcomes for our students. Just as genomic sequencing has enabled physicians to create custom chemotherapy cocktails, we must identify and implement targeted strategies that will be most effective for our low-income communities and the various ethnic populations within them. As a teacher designs differentiated instruction to best reach each of her students, policy makers, civic leaders, and

educational leaders must all recognize that a one-size-fits-all health plan must be tailored and made relevant to the local socioeconomic and socioecological context of the students and families it is intended to enrich and serve.

Appendices

Table 8: Health-related key words and phrases

Word/Key Phrase	# unique references in the School's charter		
	Charter	Student and Parent Handbook	Professional Development Agenda
Health/healthy	35	1	6
Wellness	16	0	0
Nutrition/diet	11	1	1
Physical education	3	1	0
Obesity, weight	0	0	0

Table 9: Professional development to support the school's health program

Health education	August 9, 2010: 1-hour teacher visit to farm August 13, 2010—45 min teacher to visit school farm and review "farm schedule and planning documents" August 20, 2010: Teachers participated in a 45-min demonstration lesson on preparing healthy snacks led by a Whole Foods market representative August 16, 2011—Planning time for teachers to write curriculum maps, with specific reminder to include physical education and farm activities. August 20, 2012— Teachers participated in a 45-min demonstration lesson on preparing healthy snacks led by a Whole Foods market representative.
Physical education	No evidence.
Nutrition services	March 31, 2012: Cafeteria staff is trained in safe food handling and service procedures.
Psychological and counseling services	August 17, 2010 and August 16, 2011: Teachers participate in 2-hour training on "Communication & Guidance"
Parent and community involvement	August 2010: 1-hour teacher training on conducting visits to student's homes August 2011: 1.5 hour teacher training on " home visits as a way to build relationships with families/parents"
Safe school environment	August 24, 2010: 1-hour teacher training on lockdown procedures and emergency drills March 4, 2011, May 13, 2011, October 12, 2012: 30 minute meetings to review fire drills and emergency preparedness August 22, 2011: 5-hour CPR & First Aid training for faculty and staff August 25, 2011—8 hour training by Crisis Prevention Institute. Staff trained by certified facilitator in "strategies to help de-escalate student behavior and safe strategies for managing escalated behavior."
Health promotion for staff	August 24, 2010: Health insurance orientation August 24, 2011: Health insurance orientation

Figure 3: Protocol for photographs (English)

New City Photo Scavenger hunt

Thank you for agreeing to participate in this scavenger hunt. Your camera has 27 exposures. We would like you to take 9 different pictures from each of the three main categories. Keep track of the photos you take by checking off the boxes on the list.

Food	**People**	**Places and Things**
TAKE 9 PHOTOS FROM THIS CATEGORY	**TAKE 9 PHOTOS FROM THIS CATEGORY**	**TAKE 9 PHOTOS FROM THIS CATEGORY**
Food and Meals ☐ Breakfast ☐ Lunch ☐ Dinner ☐ Dessert or Snacks ☐ Drinks ☐ Fruits and vegetables **Your Kitchen** ☐ Inside of your refrigerator ☐ Inside of your pantry / space where you store food **Things you might use to prepare food** ☐ Pots, pans, baking dishes, cookie sheets ☐ Mortar and pestle or spice grinder ☐ Grill or griddle ☐ Large appliances—stove, oven, barbeque/hibachi, microwave, ☐ Small kitchen appliances—coffee maker, juicer, blender, toaster, slow cooker, deep fryer	**Your Family and Other Childcare Providers** ☐ The people that live with you in your home. ☐ Other relatives that do not live with you in your home. (You can take a picture of an existing photograph) ☐ Your family during meal time on a weekday (Monday – Friday) ☐ Your family during meal time on a weekend (Saturday or Sunday) ☐ Your child/ren during free time ☐ One or more family members playing sports, exercising or participating in any type of physical activity. ☐ Babysitter, childcare provider or afterschool teacher	**Places in your community** ☐ Restaurant ☐ Grocery store ☐ Bakery ☐ Garden or farm ☐ Liquor store ☐ Park or recreation center ☐ Doctor's office, hospital or clinic **Places in your school** ☐ Playground ☐ Classroom ☐ Library ☐ Lunch room / lunch table area **Things you might use during free time** ☐ Sports equipment, shoes or uniform ☐ Video games / television ☐ iPod / radio / stereo ☐ Books / magazines / newspapers ☐ Computer / iPad ☐ Cell phone ☐ Other_____

Figure 4: Protocol for Photographs (Spanish)

Búsqueda del Tesoro de New City

Gracias por aceptar participar en esta búsqueda del tesoro. La cámara cuenta con 27 exposiciones. Nos gustaría que tomar 9 fotos diferentes de cada una de las tres categorías principales. Mantenga un registro de las fotos que tome marcando las casillas de la lista.

Comida	Personas	Lugares y Cosas
TOME 9 FOTOS DE ESTA CATEGORÍA	**TOME 9 FOTOS DE ESTA CATEGORÍA**	**TOME 9 FOTOS DE ESTA CATEGORÍA**
Alimentos y Comidas ☐ El desayuno ☐ El almuerzo ☐ La Cena ☐ Postre o aperitivos ☐ Bebidas ☐ Las frutas y verduras **Su Cocina** ☐ En el interior de su refrigerador ☐ En el interior de su despensa / espacio donde se almacenan los alimentos ☐ Cosas que usted puede utilizar para preparar los alimentos (Por ejemplo--ollas, sartenes, platos para hornear, moldes para galletas) ☐ Mortero o molinillo de especias ☐ Parrilla o plancha ☐ Electrodomésticos grandes (Por ejemplo--estufa, horno, barbacoa / hibachi, microondas) ☐ Pequeños utensilios de cocina (Por ejemplo--cafetera, licuadora, batidora, tostadora, olla de cocción lenta, freidora)	**Su familia y otros proveedores de guardería** ☐ Las personas que viven con usted en su casa. ☐ Otros parientes que no viven con usted en su casa. (Ud. puede tomar una imagen de una fotografía existente) ☐ Su familia durante las comidas en un día laborable (lunes - viernes) ☐ Su familia durante el tiempo de comida en un fin de semana (sábado o domingo) ☐ Su hijo / s en el tiempo libre ☐ Uno o más miembros de la familia que practican deportes, hacer ejercicio o participar en cualquier tipo de actividad física. ☐ Niñera, proveedor de cuidado de niño después de la escuela o el maestro del programa después de la escuela	**Lugares en su comunidad.** ☐ Restaurante ☐ tienda de comestibles ☐ panadería ☐ Jardín o la granja ☐ tienda de licor ☐ Parque o centro de recreación ☐ Consultorio médico, hospital o clínica **Lugares en la escuela** ☐ Patio de recreo ☐ Aula ☐ biblioteca ☐ Sala de almuerzo / área de las mesas de almuerzo **Cosas que usted puede utilizar durante el tiempo libre** ☐ Equipos deportivos, zapatos atléticos, uniforme ☐ Los videojuegos o la televisión ☐ iPod / radio / estéreo ☐ Libros / periódicos / revistas ☐ Computadora/ iPad ☐ Teléfono móvil / celular ☐ Otro_____

Figure 5: Focus Group Prompts

THEMES FROM THE FAMILIES THAT PARTICIPATED IN THE PHOTO PROJECT

What do you think about these themes? How can the school do a better job of communicating with Latino families with regard to health?

What influences what families eat and where they shop for groceries?

1. Family budget
2. Willing to pay more for more nutritious or higher quality food

Families want their children to be healthy

1. Parents report that their children's health is a priority, and that healthy eating is an investment in their child's future.

Obtaining information about food and nutrition

1. Some mothers reported that they learned more detailed information about food and nutrition from their female relatives—for example mother in law, sisters.

2. Some families reported that their children talk about the school's Farm and what they learned about food and the environment

Communication with the school-- challenges

1. Some mothers said that they would participate in parent workshops if they had a better idea of the purpose of the workshop. Some mothers said they know they should go, but do not.

2. Not all families have cell phones or internet access

Figure 6: Local grocery chain



Figure 7: National supermarket chain



Figure 8: Discount market



Figure 9: Home pantry



Figure 10: Fruits and vegetables served as snack



Figure 11: Fruits available at home



Figure 12: Boys exercising at park



Figure 13: Girls' athletic clothes



Figure 14: School lunch area



Figure 15: Medical office plaza



References

Adams, E. J., Grummer-Strawn, L., & Chavez, G. (2003). Food insecurity is associated with increased risk of obesity in California women. *Journal of Nutrition* (133), 1070–1074.

Agron, P., Berends, V., Cole, N., Gooley, J., Hawksworth, K., Martinez, N. (2008). Engaging parents and stakeholders in school wellness: Formative research report. Sacramento, CA: California Project LEAN.

Alaimo, K., Olson, C. M., & Frongillo, E. A. (2001). Food insuficiency and American school-aged children's cognitive, academic, and psychological development. *Pediatrics, 108*, 44–53.

Allen, M. L., Elliott, M. N., Morales, L. S., Diamant, A. L., Hambarsoomian, K., & Schuster, M. A. (2007). Adolescent participation in preventive health behaviors, physical activity, and nutrition: Differences across immigrant generations for Asians and Latinos compared with Whites. *American Journal of Public Health, 97*, 337–343.

Allensworth, D. D., & Kolbe, L. J. (1987). The comprehensive school health program: Exploring an expanded concept. *Journal of School Health, 57*(10), 409–412.

American Medical Association. (2000). Partnership in health: Improving the patient-physician relationship through health literacy. Chicago: Author.

Anderson, M. G. (1994). Perceptions about behavioral disorders inAfrican American cultures and communties. In R. L. Peterson & S. I Jordan (Eds.), *Multicultural issues in the eudcation of students with behavioral disorders* (pp.93-104). Cambridge, MA: Brookline.

Antecol, H., & Bedard, K. (2006). Unhealthy Assimilation: Why do immigrants converge to American health status levels? *Demography, 43*(2), 337–360.

Ascher, C., & Fruchter, N. (2001). Teacher quality and student performance in New York City's low-performing schools. *Journal of Education for Students Placed at Risk, 6*(3), 199–214.

Ayers, W. (2001). *To teach: The journey of a teacher*. New York, NY: Teachers College Press.

Baker, E. A., Bouldin, N., Durham, M. Lowell, M. E. Gonzalez, M. Jodaitis, N., Cruz, L. N., Torres, I., Torres, M., and Adams, S. T. (1997). The Latino Health Advocacy Program: A collaborative lay heath advisory approach. *Health Education Behavior,* 24. 495.

Bakhtin, M. M. (1981). *The dialogic imagination*. Austin: University of Texas Press.

Bazzano, L. (2006) The high cost of not consuming fruits and vegetables. *Journal of American Dietetic Association*, 106, 1364–1368.

Bickel, G., Nord, M., Price, C., Hamilton, W., & and Cook, J. (2000). Guide to measuring household food security. In Office of Analysis and Evaluation (Ed.), *Measuring food security in the United States: Reports of the Federal Interagency Food Security Measurement Project*. Alexandria, VA: USDA Food and Nutrition Service.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*. New York, NY: Greenwood Press.

Braddon, F. E. M., Rodgers, B., & Wadworth, M. E. J. (1986). Onset of obesity in a 36-year birth cohort study. *British Medical Journal, 293*, 299–303.

Bradshaw, R. (2001). School children's travel. *Geography, 86*(1), 77–78.

Burmudez, A. B., & Marquez, J. A. (1996). An examination of a four-way collaborative to increase parental involvement in the schools. *The Journal of Educational Issues of Langauge Minority Students*. Boise, ID: Boise State University.

California Department of Education. (2008). Health education content standards for California public schools: Kindergarten through grade twelve.

California Department of Public Health. (2003). *California Dietary Practices Survey 2003* [data file). Retrieved from http://www.cdph.ca.gov/programs/cpns/Documents/Network-REU-CDPS-2003.pdf

California Education Code § 51210.

California Education Code § 49423.

California Education Code § 49426.

California Education Code § 49450.

California Education Code § 51222.

California Health Interview Survey. (2005). Los Angeles, CA: UCLA Center for Health Policy Research.

California Health Interview Survey. (2009). Los Angeles, CA: UCLA Center for Health Policy Research.

Calzada, E. J. (2010). Bringing culture into parent training with Latinos. *Cognitive and Behavioral Practice, 17*(2010), 167–175.

Capps, R., Horowitz, A., Fortuny, K., Bronte-Tinkew, J., & Zaslow, M. (2009). Young children in immigrant families face higher risk of food insecurity. *Child Trends* (February 2009), 1–7.

Caprio, S., Daniels, S. R., Drewnowski, A., Kaufman, F. R., Palinkas, L. A., Rosenbloom, A. L. , & Schwimmer, J. B. (2008). Influence of race, ethnicity, and culture on childhood obesity: Implications for prevention and treatment. *Diabetes Care, 31*(11), 2566-2577.

Casey, P. H., Simpson, P. M., & Gossett, J. M., Bogle, M. L., Champagne, C. M., Connell, D. H, …Weber, J. (2006). The association of child and household food insecurity with childhood overweight status. *Pediatrics, 118*(5), e1406-e1413. doi: 10.1542/peds.2006-0097

Cassity, J., & Harris, S. (2000). Parents of ESL students: A study of parental involvement. *NASSP Bulletin, 84*, 55–62.

Catalani, C., & Minkler, M. (2010). Photovoice: A review of the literature in health and public health. *Health Education & Behavior, 37*(3), 424–451. doi: 10.1177/1090198109342084

Centers for Disease Control and Prevention. (2011). CDC-Youth Online-High School YRBS: home page. http://apps.need.cde.gov/youthonline. Accessed January 18, 2011.

Centers for Disease Control and Prevention. (2012). *Health United States, 2011. Table 74*. Retrieved from http://www.cdc.gov/nchs/data/hus/hus11.pdf

Center for Health Care Strategies Inc. (2000). *What is health literacy?* (Fact sheet.) Lawrenceville, NJ: Author. Retrieved from http://www.chcs.org/usr_doc/Health_Literacy_Fact_Sheets.pdf

Chrispeels, J., & Gonz, M. (2004). *Do educational programs increase parents' practices at home?: Factors influencing Latino parent involvement*. (Family Involvement Research Digest). Cambridge, MA: Harvard Family Research Project. Retrieved from http://www.hfrp.org/publications-resources/publications-series/family-involvement-

research-digests/do-educational-programs-increase-parents-practices-at-home-factors-influencing-latino-parent-involvement

Chung, P. F., Lee, T. C., Morrison, J. L., & Schuster, M. (2006). Preventive care for children in the United States: Quality and barriers. *Annual Review of Public Health* (27), 491–515.

Contento, I. R., Basch, C., Shea, S., Gutin, B., Zybert, P., Michela, J. L., & Rips, J. (Summer 1993). Relationship of mothers' food choice criteria to food intake of preschool children: Identification of family subgroups. *Health Education Quarterly, 20*(2), 243–259.

Cook, B. A., Schaller, K., & Krischner, J. P. (1985). School absence among children with chronic illness. *Journal of School Health, 55*, 25–26.

Cotton, K. W. K. R. (1989). Parent involvement in education. *School Improvement Research Series (SIRS)*: Northwest Regional Educational Library.

Crampon, W. J., Humphrey, J. W. & Norman, A. J. (2011). Body Mass Index within Long Beach Public Schools: A longitudinal study. Retrieved from ReThinking Long Beach, http://www.rethinklongbeach.org/resources/Body+Mass+Index+Within+LBUSD.pdf

Daniels, S. R., Arnett, D. K., Eckel, R. H., Gidding, S. S., Hayman, L. L., & Kumanyika, S. K, Robinson, T. N. et al. (2005). Overweight in children and adolescents: Pathophysiology, consequences, prevention, and treatment. *Circulation, 111*, 1999–2021.

Davis, J. N., Ventura, E. E., Cook, L. T. Gyllenhammer, L. E. & Gatto, N. M. (2011). LA Sprouts: A gardening, nutrition, and cooking intervention for Latino youth improves diet and reduces obesity. Journal of the American Dietetic Association *111*(8), 1223-1230Day, J., & Newburger, E. C. (2002). The big payoff: Educational attainment and synthetic estimates of work-life earnings (P23–21). Washington, DC: U.S. Census Bureau.

de Silva-Sanigorski, A. M., & Economos, C. (2010). Evidence of multi-setting approaches for obesity prevention: translation to best practice. In E. Waters, J. C. Seidell, B. A. Swinburn, & R. Uauy (Eds.), *Preventing Childhood Obesity* (pp. 57–63). Hoboken, NJ: Blackwell.

Deaton, A. (2002). Policy implications of the gradient of health and wealth. *Health Affairs, 21*(2), 13–30. doi: 10.1377/hlthaff.21.2.13

Delva, J., O'Malley, P. M., & Johnston, L. D. (2007). Availability of more-healthy and less-healthy food choices in American schools: A national study of grade, racial/ethnic, and socioeconomic differences. *American Journal of Preventative Medicine, 33*(4:1), S226-S239.

Dietz, W. (2001). Focus group data pertinent to the prevention of obesity in African Americans. *American Journal of the Medical Sciences, 322*(5), 275–278.

Doak, C. M., Visscher, T. L. S., Renders, C. M., & Seidell, J. C. (2006). The prevention of overweight and obesity in children and adolescents: a review of interventions and programmes. *Obesity Reviews, 7*, 111–136.

Drewnowski, A., & Specter, S. E. (2004). Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition, 79*, 6–16.

Dubay, L., & Kenney, G. M. (2001). Health care access and use among low-income children: who fares best? Health Affairs, 20(1), 112–121.

Duerksen, S.C, Elder, J. P., Arredondo, E. M., Ayala, G. X., Sylmen, D. J. Campbell, N. R. & Baquero, B. (2007). Family restaurant choices are associated with child and adult overweight status in Mexican-American families. *Journal of the American Dietetic Association. 107*(5), 849-53.

Duffey, K. J., & Popkin, B. M. (2007). Shifts in patterns and consumption of beverages between 1965 and 2002. *Obesity (Silver Spring), 15*, 2739–2747.

Egger, G., & Swinburn, B. (1997). An "ecological" approach to the obesity pandemic. *British Medical Journal, 315*, 477–480.

Epstein, J. L., Sanders, M. G., Simon, B. S., Salinas, K. C. Jansorn, N. R., & Van Voorhis, F. L. (2002). *School, family and community partnerships: Your handbook for action* (2nd ed.). Thousand Oaks, CA: Corwin.

Etzioni, A. (1997). *The new golden rule: community and morality in a democratic society*. London: Profile Books.

Federal Interagency Forum on Child and Family Statistics. (2012). *America's children: Key national indicators of well-being. 2012. Table HEALTH7*. Retrieved from http://www.childstats.gov/americaschildren/tables/health7.asp

Fine, M. (1995). Children and families “at promise”: Deconstructing the discourse of risk. Albany, NY: SUNY Press.

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Curtin, L. R. (2008). Prevalence and trends in obesity among U.S. adults: 1999–2008. *Journal of the American Medical Association, 303*, 241.

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Curtin, L. R. (2010). Prevalence and trends in obesity among U.S. adults, 1999–2008. *Journal of the American Medical Association, 303*(3), 235–241.

Florence, M. D., Asbridge, M., & Veugelers, P. J. (2008). Diet quality and academic performance. *Journal of School Health, 78*, 209–215.

Flynn, M. A. T., McNeil, D. A., Maloff, B., Mutasingwa, D., Wu, M., Ford, C., & Tough, S. C. (2006). Reducing obesity and related chronic disease risk in children and youth: A synthesis of evidence with "best practice" recommendations. *Obesity Reviews, 7*, 7–66. doi: 10.1111/j.1467-789X.2006.00242.x

French, S. A. (2005). Public health strategies for dietary change: Schools and workplaces.*The Journal of Nutrition*, *135*, 910–912.

Fry, R. (2010). *Hispanics, high school dropouts and the GED*. Washington, DC: Pew Hispanic Center.

Garcia, J. G., & Marotta, S. (1997). Characterization of the Latino population. In J. C. Garcia & M. C. Zea (Eds.), *Psychological interventions and research with Latino populations*. Boston, MA: Allyn and Bacon.

Garcia-Dominic, O., Wray, L. A., Treviño, R. P., Hernandez, A. E., Yin, Z., & Ulbrecht, J. S. (2010). Identifying barriers that hinder onsite parental involvement in a school-based health promotion program. *Health Promotion Practice, 11*(5), 703–713. doi: 10.1177/1524839909331909

Gettinger, M., & Guetschow, K. W. (1998). Parental involvement in schools: Parent and teacher perceptions of roles, efficacy, and opportunities. *Journal of Research and Development in Education, 32*(1), 38–52.

Glass, T. A., McAtee, M. J. (2006). Behavioral science at the crossroads in public health: Extending horizons, envisioning the future. *Social Science & Medicine, 62*(7), 1650–1671.

Gordon, A., Fox, M. K., Clark, M., Nogales, R., Condon, E., Gleason, P., & Sarin, A. (2007). *School nutrition dietary assessment study-III*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research, Nutrition and Analysis.

Gordon, N. P., & Iribarren, C. (2008). Health-related characteristics and preferred methods of receiving health education according to dominant language among Latinos aged 25 to 64 in a large Northern California health plan. *BMC Public Health, 8*(302). doi: 10.1186/1471-2458-8-305

Gordon-Larsen, P., Harris, K. M., & Ward, D. S. (2003). Acculturation and overweight-related behaviors among Hispanic immigrants to the United States: The national longitudinal study of adolescent health. *Social Science & Medicine, 57*, 2023–2034.

Gortmaker, S. L., Must, A., Perrin, J. M., Sobol, A. M., & Dietz, W. H. (1993). Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine, 39*, 1008–1012.

Guarnaccia, P. J. & Rodriguez, O. (1996). Concepts of culture and their role in the devleopment of culturally competent mental health services. *Hispanic Journal of Behavioral Sciences*(18): *419*

Greves, H. M., & F. P. Rivara, F. P. (2006). Report card on school snack food policies among the United States' largest school districts in 2004–2005: room for improvement. *International Journal of Behavioral Nutrition and Physical Activity, 3*(1).

Hakim, R. B., & Bye, B. V. (2001). Effectiveness of compliance with pediatric preventive care guidelines among Medicaid beneficiaries. *Pediatrics*(108), 90–97.

Hakim, R. B., & Ronsaville, D. S. (2002). Effect of compliance with health supervision guidelines among US infants on emergency department visits. *Archives of Pediatric and Adolescent Medicine, 156*(10), 1015–1020.

Hammerschmidt, P., Tackett, W., Golzynski, M. and Golzynski, D. (2011). Barriers to and facilitators of healthful eating and physical activity in low-income schools. *Journal of Nutrition Education and Behavior, 43*, 63–68.

Harris, E. & Bronner, Y. (2001). *Food counts in the African American community: Chartbook*. Baltimore, MD: Morgan State University.

Harrison, R. A., Gemmell, I., & Heller, R. F. (2007). The population effect of crime and neighbourhood on physical activity: An analysis of 15,461 adults. *Journal of Epidemiology of Communnity Health, 61*(1), 34–39.

Harry, B. (1992). Restructuring the participation of African-American parents in special education. *Exceptional Children,* 59, 123-131.

Healthy Kids for the Year 2000: An Action Plan for Schools.

Henderson, A. T., & Mapp, K. L. (2002). *A new wave of evidence: The impact of school, family and community connections on student achievement*. Austin, TX: National Center for Family and Community Connections with Schools, Southwest Educational Development Laboratory.

House, J. S., Kessler, R. C., Herzog, A. R., Mero, R. P., Kinney, A. M., & Breslow, M. J. (1990). Age, socioeconomic status and health. *The Millbank Quarterly* (68), 383–441.

Huang, T. T., Drewnowski, A., Kumanyika, S. K., Glass, T. A. (2009). A systems-oriented multilevel framework for addressing obesity in the 21st century. *Prevention of Chronic Disease, 6*(3), 1–10.

Huerta-Macias, A. G., M. L, & Villamil Tinajero, J. (1998). *Educating Latino students: Guide to successful practice*. Lancaster, PA: Technomic Publishing.

Hurtig, J. (2008). Community writing, participatory research, and an anthropological sensibility. *Anthropology & Education Quarterly, 39(*1), 92–106.

Huston, S. L., Evenson, K. R., Bors, P., & Gizlice, Z. (2003). Neighborhood environment, access to places for activity, and leisure-time physical activity in a diverse North Carolina population. *American Journal of Health Promotion, 18*(1), 58–69.

Jeter, K. M., & Cassady, D. L. (2006). The availability and cost of healthier food alternatives. *American Journal of Preventative Medicine, 30*(1), 38–44.

Jones, S. E. (2008). A CDC review of school laws and policies concerning child and adolescent health. *Jounal of School Health, 78*(2), 69–128.

Juarbe, T. C. (1998). Risk factors for cardiovascular disease in Latina women. *Progress in Cardiovascular Nursing, 13*(2), 17–22.

Jyoti, D. F., Frongillo, E. A., & Jones, S. J. (2005). Food insecurity affects school children's academic performance, weight gain, and social skills. *The Journal of Nutrition, 135*, 2831–2839.

Kaiser, L. (2006). Chapter 16: Health and dietary issues affecting Latinos. In *California food guide: Fulfilling the dietary guidelines for Americans*. Retrieved from http://www.cafoodguide.ca.gov

Kaiser, L., Baumrind, N., & Dumbauld, S. (2007). Who is food-insecure in California? Findings from the California women's health survey, 2004. *Public Health Nutrition, 10*(6), 574–581.

Karther, D. E., & Lowden, F. Y. (1997). Fostering effective parental involvement. *Contemporary Education, 69*(1), 41–50.

Keefe, S. E. (1984). Real and ideal extended familism among Mexican Americans and Anglo Americans: On the meaning of "close" family ties. *Human Organization, 43*, 65–70.

Kitzman-Ulrich, H., Wilson, D. K., St. George, S. M., Lawman, H., Segal, M., & Fairchild, A. (2010). The integration of a family systems approach for understanding youth obesity, physical activity, and dietary programs. *Clinical Child and Family Psychology Review, 13*, 231–253.

Kleinman, R. E., Murphy, J. M., Little, M., Pagano, M., Wehler, C. A., Regal, K., & Jellinek, M. S. (1998). Hunger in children in the United States: potential behavioral and emotional correlates. *Pediatrics, 101*(3).

Kleinman, R. E., Pagano, M. E., Hall, S., Murphy, J. M., Green, H., Korzec-Ramirez, D., & Patton, K. (2002). Diet, breakfast, and academic performance in children. *Annals of Nutrition and Metabolism, 46*(Supplement 1), 34–30. doi: DOI: 10.1159/000066399

Koonce, D. A., & Harper, W. (2005). Engaging African American parents in the schools: A community-based consultation model. Journal of Educational and Psychological Consultation, 16(1–2), 55–74. doi: 10.1080/10474412.2005.9669527

Koplan, J. P., & Dietz, W. H. (1999). Caloric imbalance and public health policy. *Journal of the American Medical Association, 282*, 1579–1581.

Koskan, A., Friedman, D. B., & Hilfinger Messias, D. K. (2010). Health literacy among Hispanics: a systematic research review (1992–2008). *Hispanic Health Care International, 8*(2), 65–76.

Kratt, P., Reynolds, K. and Shewchuk, R. (2000). The role of availability as a moderator of family fruit and vegetable consumption. Health Education and behavior, 27, 471–482.

Kumanyika, S. K. (2008). Environmental influences on childhood obesity: Ethnic and cultural influences in context. *Physiology & Behavior,* 94(1), 61–70.

Kutner, M., Greenberg, E., Jin, Y., & Paulsen, C. (2006). The health literacy of America's adults: Results from the 2003 National Assessment of Adult Literacy. (NCES 2006483).

Life Sciences Research Office. (1990 November). Core indicators of nutritional state for difficult-to-sample populations. *Journal of Nutrition, 120*(11S).

Lott, B. (2001). Low-income parents and the public schools. *Journal of Social Issues, 57*(2), 247–259. doi: 10.1111/0022-4537.00211

Lugo Steidel, A. G., & Contreras, J. M. (2003). A new familism scale for use with Latino populations. *Hispanic Journal of Behavioral Sciences, 25*, 312–330.

MacQueen, K. M., McLellan, E., Metzger, S. K., Kegeles, D. S., Strauss, R. P., Scotti, R., … Trotter, R. T. (2001). What is community? An evidence-based definition for participatory public health. *American Journal of Public Health, 91*(12), 1929–1938. doi: 10.2105/AJPH.91.12.1929

McCaleb, S. P. (1994). Building a community of learners: A collaboration among teachers, students, families and community. Hillsdale, NJ: Lawrence Erlbaum.

Mei, Z., Scanlon, K. S., Grummer-Strawn, L. M., Freedman, D. S., Yip, R., & Trowbridge, F. L. (1998). Increasing prevalence of overweight among US low-income preschool children: The Centers for Disease Control and Prevention Pediatric Nutrition Surveillance, 1983 to 1995. *Pediatrics, 101*(1), e12. Retrieved from http://pediatrics.aappublications.org/content/101/1/e12.full.html

Mendoza, F. S. (1994). The health of Latino children in the United States. *Critical Health Issues for Children and Youth, 4*(3), 43–72.

Millimet, D. L., Tchernis, R., & Husain, M. (2008). *School nutrition programs and the incidence of childhood obesity*. Working paper 14297. National Bureau of Economic Research. Cambridge, MA.

Minkler, M. (2004). *Community organizing and community building for health*. New Brunswick, NJ: Rutgers.

Molla, M., Madans, J., Wagener, D. (2004). Differentials in adults mortality and activity limitation by years of education in the United States at the end of the 1990s. *Population and Development Review, 30*, 625–646.

Molnar, B. E., Gortmaker, S. L., Bull, F. C., & Buka, S. L. (2004). Unsafe to play? Neighborhood disorder and lack of safety predict reduced physical activity among urban children and adolescents. *American Journal of Health Promotion*(18), 378–386.

Murphy, J. M., Wehler, C. A., Pagano, M. E., Little, M., Kleinman, R. E., & Jellinek, M. S. (1998). Relationship between hunger and psychosocial functioning in low-income American children. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 163–170.

Must, A., & Strauss, R. S. (1999). Risks and consequences of childhood and adolescent obesity. *International Journal of Obesity, 23*(supplement 2), S2-S11.

National Center for Health Statistics. (2005). *Health, United States 2005, With chartbook on trends in the health of Americans*. Hyattsville, MD: U.S. Government Printing Office.

National Center for Health Statistics. (2011). *Health, United States*, 2011: *With special feature on socioeconomic status and health*. Hyattsville, MD. 2012.

National Center for Health Statistics. (2012). *Health, United States, 2011: With special feature on socioeconomic status and health*. Hyattsville, MD: U.S. Government Printing Office.

National Council of La Raza.(2010). Issue 1: Profiles of Latino Health: Child hunger and family food insecurity within the Latino community

National Health Interview Survey. (2010). Obesity.

National Institutes of Health. (2009). [Archived website.] Retrieved from http://wayback.archiveit.org/1175/20090923220547/http://win.niddk.nih.gov/notes/summerfall03notes/sisters.htm

National Research Council. (2006). Food marketing to children: Threat or opportunity? Washington, DC: National Academies Press

Nielsen, S. J., & Popkin, B. M. (2003). Patterns and trends in food portion sizes: 1977–1998. *Journal of the American Medical Association, 289*(450–453).

Nielsen, S. J., Siega-Riz, A. M., & Popkin, B. M. (2002). Trends in energy intake in U.S. between 1977 and 1996: similar shifts seen across age groups. *Obesity Research, 10,* 370–378. doi: 10.1038/oby.2002.51

Nord, M., Andrews, M., & Carlson, S. (2005). Household food security in the United States, 2004 (Vol. 2005). Washington, DC: Economic Research Service.

Nord, M., Andrews, M., & Carlson, S. (2007). Household food security in the United States, 2006 (2007 ed., Vol. 2007). Washington, D.C.: U.S. Department of Agriculture.

Nutbeam, D. (1998). Health promotion glossary. *Health Promotion International, 13*(4), 349–264.

O'Toole, T. P., Anderson, S., Miller, C., & Guthrie, J. (2007). Nutrition services and foods and beverages available at school: Results from the School Health Policies and Programs Study 2006. *Journal of School Health, 77*(8), 500–521.

Ogden, C., & Carroll, M. (2010, June). *Prevalence of obesity among children and adolescents: United States, trends 1963–1965 through 2007–2008*. National Center for Health Statistics. Retrieved from http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm

Parra-Cardona, J., Bulock, L., Imig, D., Villarruel, F., & Gold, S. J. (2006). ‘‘Trabajando duro todos los dias’’: Learning from the experiences of Mexican-origin migrant families. *Family Relations, 55*, 361–375. doi: 10.1111/j.1741-3729.2006.00409.x

Pbert, L. & Lemon, S.C. (2011, May). *The social context as a determinant of weight-related behaviors: Focus on social norms*. Clinical and Translational Science Research Retreat, Shrewsbury, MA.

Peña, D. C. (2000). Parent involvement: Influencing factors and implications. *The Journal of Educational Research, 94*, 42–54.

Peske, H. G., & Haycock, K. (2006). Teaching inequality: How poor and minority students are shortchanged on teacher quality. Washington, DC: Education Trust.

Pomerleau, J., Lock, K., Knai, C. and McKee, M. (2005) Interventions designed to increase adult fruit and vegetable Intake can be effective: a systematic review of the literature. The Journal of Nutrition, 135, 2486–2495.

Porter, R. E., & Samovar, L. A. (1991). Basic principles of intercultural communication. In L. A. Samovar & R. E. Porter (Eds.), *Intercultural communication: A reader* (6th ed., pp. 5–22). Belmont, CA: Wadsworth.

Puente, K. (2011, September 26). TV Chef's health drive, *Press-Telegram*.

Quezada, R. L., Diaz, D. M., & Sanchez, M. (2003, September/October). Involving Latino parents. *Leadership,* 32–38.

Rao, S. S. (2000). Perspectives of an African American mother on parent-professional relationships in special education. *Mental Retardation, 38*(6), 475-488.

Romero, A. J. (2005). Low-income neighborhood barriers and resources for adolescents' physical activity. *Journal of Adolescent Health, 36*(3), 253–259.

Romualdi, V., & Sandoval, J. (1995). Comprehensive school-linked services: Implications for school psychologists. *Psychology in the Schools, 32*, 306–317.

Roseman, M. G., Riddell, M. C., & Haynes, J. N. (2011). A content analysis of kindergarten–12th grade school-based nutrition interventions: Taking advantage of past learning. *Journal of Nutrition Education and Behavior, 43*, 2–18.

Sallis, J. F., & Owen, N. (2002). Ecological models of health behavior. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behavior and health education* (3rd ed., pp. 462–484). New York, NY: John Wiley.

Schaub, J., & Marian, M. (2011). Reading, writing, and obesity: America's failing grade in school nutrition and physical education. *Nutrition in Clinical Practice*, 26(5), 553–564

Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quallity of life of severly obese children and adolescents. *JAMA, 289*(14), 1813–1819. doi: 10.1001/jama/298.14.1813

Scribner, J. D., Young, M. D., & Pedroza, A. (1999). *Lessons from high performing Hispanic schools*. New York, NY: Teachers College Press.

Sharpe, P. A., Granner, M. L., Hutto, B., & Ainsworth, B. E. (2005). Association of environmental factors to meeting physical activity recommendations in two South Carolina counties. *American Journal of Health Promotion, 18*(3), 251–257.

Shepard, J., & Carlson, J. S. (2003). An empirical evaluation of school-based prevention programs that involve parents. *Psychology in the Schools, 40*(6). doi: 10.1002/pits.10126

Short, P. F., & Lefkowitz, D. C. (1992). Encouraging preventive services for low-income children: the effect of expanding Medicaid. *Medical Care, 30*(9), 766–780.

Serdula, M. K., Ivery, D., Coates, R. J., Freedman, D. S., Williamson, D. F. and Byers, T. (1993). Do obese children become obese adults? *Preventative Medicine*, 22. 167-177

Siega-Riz, A. and Popkin, B. (2001) Dietary trends among low socioeconomic status women of childbearing age in the United States from 1977 to 1996: a comparison among ethnic groups. Journal of the American Medical Women's Association, 56, 44–48, 72.

Siegrist, J. (2000). Place, social exchange and health: Proposed sociological framework. *Social Science and Medicine, 51*, 1283–1293.

Simoni, J. M., & Adelman, H. S. (1993). School-based mutual support groups for low-income parents. *Urban Review, 25*(335–350).

Smokowski, P. R., Rose, R., & Bacallao, M. L. (2008). Acculturation and Latino family processes: How cultural involvement, biculturalism, and acculturation gaps influence family dynamics. *Family Relations, 57*(3), 295–308.

Sobal, J. (1991). Obesity and socioeconomic status: A framework for examining relationships between physical and social variables. *Medical Anthropology, 13*, 231–247.

Sobal, J. (1994). Social and economic consequences of overweight in adolescence. *New England Journal of Medicine, 330*, 647.

Sobal, J., & Stunkard, A. J. (1989). Socioeconomic status and obesity: A review of the literature. *Psychology Bulletin, 105*, 260–274.

Stephen, E. H., Foote, K., Hendershot, G. E., & Schoeborn, C. A. (1994). Health of the foreign-born population. *Advance Data From Vital and Health Statistics* (241), 1–10.

Strauss, A., & Corbin, J. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage.

Strauss, R. S., & Knight, J. (1999). Influence of the home environment on the development of obesity in children. *Pediatrics, 103*(6) e85. Retrieved from http://pediatrics.aappublications.org/content/103/6/e85.full.html

Strong, W. B., Malina, R. M., Blimkie, C. J. R., Daniels, S. R., Dishman, R. K., Gutin, B., …Trudeau, F. (2005). Evidence-based physical activity for school-age youth. *Journal of Pediatrics, 146*, 732–737. Retrieved from http://www.jpeds.com/article/S0022-3476%2805%2900100-9/fulltext

Stunkard, A. J., & Sorensen, T. I. A. (1993). Obesity and socioeconomic status—a complex relation. *New England Journal of Medicine, 329*, 1036–1037.

Summerbell, C. D., Waters, E., Edmunds, L. Kelly, S. A. M., Brown, T., & Campbell, K. J. Interventions for preventing obesity in children. (2009). *Cochrane Database of Systematic Reviews, 2009*(1).

Sundquist, J., & Johansson, S. E. (1998). The influence of socioeconomic status, ethnicity and lifestyle on body mass index in a longitudinal study. *International Journal of Epidemiology, 27*, 57–63.

Taras, H. (2005). Nutrition and Student Performance at School. *Journal of School Health, 75*(6), 199–213.

Torres-Guzman, M. E. (Ed.). (1995). *Recasting frames: Latino parent involvement*. Philadelphia, PA: Multilingual Matters, Ltd.

Trotman, M. F. (2000). Involving the African American parents: Recommendations to increase the level of parent involvement within African American families. Journal of Negro Education, 70, 275-285.

U.S. Bureau of Labor Statistics. (2009). Hispanic or Latino origin of reference person: Sources of annual income. *Consumer Expenditure Survey*. Washington, DC: U.S. Government Printing Office.

U.S. Census Bureau. (1996). Current population reports, population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050. (P25–1130). Washington, DC: U.S. Government Printing Office.

U.S. Census Bureau. (2010). Retrieved from http://quickfacts.census.gov/qfd/meta/long_RHI725212.htm

U.S. Census Bureau. (2011a). *The Hispanic Population: 2010*. (C2010BR-0). Retrieved from http://2010.census.gov/2010census/data/

U.S. Census Bureau. (2011b). Statistical abstract of U.S. Table 225: Educational attainment by race and Hispanic origin.

U.S. Census Bureau. (2012x). Retrieved from http://quickfacts.census.gov/qfd/states/00000.html

U.S. Census Bureau. (2012y). Retrieved from http://quickfacts.census.gov/qfd/states/06000.html

U.S. Census Bureau. (2012z). Retrieved from http://www.census.gov/prod/2012pubs/p60-243.pdf page 13

U.S. Census Bureau. (2011) Retrieved from http://www.census.gov/hhes/www/poverty/about/overview/measure.html

U.S. Census Bureau. (xxxx). Current Population Survey, 1968 to 2012 Annual Social and Economic Supplements.

U.S. Census Bureau. (zzzz). Current Population Survey, 2011 and 2012 Annual Social and Economic Supplement.

U.S. Department of Agriculture. Retrieved from http://www.fns.usda.gov/cnd/Lunch/AboutLunch/NSLPFactSheet.pdf

U.S. Department of Education. (2002). Retrieved from http://www2.ed.gov/rschstat/eval/disadv/title1-factsheet.doc

U.S. Department of Education. (2003). Washington, DC: Institute of Education Sciences. Retrieved from http://nces.ed.gov/naal/

U.S. Department of Health and Human Services. (2000). *Healthy people 2010: Understanding and improving health*. Washington, DC: Retrieved from http://www.health.gov/healthypeople

U.S. Department of Health and Human Services. (2001). The Surgeon General's call to action to prevent and decrease overweight and obesity. Rockville, MD: Office of the Surgeon General.

U.S. Department of Health and Human Services. (2004). *Health literacy: A prescription to end confusion*. Washington DC: Author.

Unger, J. B., Reynolds, K., Shakib, S., Spruijt-Metz, D., Sun, P., & Johnson, C. A. (2004). Acculturation, physical activity, and fast-food consumption among Asian-American and Hispanic adolescents. *Journal of Community Health, 29*, 467–481.

Valenzuela, A. (1999). *Subtractive schooling: U.S.-Mexican youth and the politics of caring.* Albany: State University of New York.

Valera, P., Gallin, J. Schuk, D. & Davis, N. (2009). "Trying to Eat Healthy" : A Photovoice Study About Women's Access to Healthy Food in New York City. *Affilia, 24*(3), 300–314. doi: 10.1177/0886109909337378

Van Cleave, J., Gortmaker, S. L., & Perrin, J. M. (2010). Dynamics of obesity and chronic health conditions among children and youth. *JAMA, 303*(7), 623–630. doi: 10.1001/jama.2010.104

Vartanian, L. R., Schwartz, M. B., & Brownell, K. D. (2007). Effects of soft drink consumption on nutrition and health: A systematic review and meta-analysis. *American Journal of Public Health*(97), 667–675.

Vecchiarelli, S., Takayanagi, S., & Neumann, C. (2006). Students' perceptions of the impact of nutrition policies on dietary behaviors. *Journal of School Health, 76*(10), 525–531.

Vetiska, J., Glaab, L., Perlman, K., & Daneman, D. (2000). School attendance of children with type 1 diabetes. *Diabetes Care, 23*, 1706–1707.

Wang, C. C. (1999). Photovoice: A participatory action research strategy applied to women's health. *Journal of Women's Health, 8*(2), 185–192.

Wang, C. C., & Burris, M. (1994). Empowerment through photo novella: Portraits of participation. *Health Education Quarterly, 21*, 171–186.

Wang, C. C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior, 24*, 369–387.

Wang, C. C., & Pies, C. A. (2004). Family, maternal, and child health through Photovoice. *Maternal and Child Health Journal, 8*(2), 95–102.

Wang, C. C., Cash, J. L., & and Powers, L. S. (2000). Who knows the streets as well as the homeless? Promoting persional and community action through photovoice. *Health Promotion Practice, 1*, 81–89.

Wang, Y., & Tussing, L. (2001). Cross-national comparison of childhood obesity: The epidemic and the relationship between obesity and socioeconomic status. *International Journal of Epidemiology, 30*, 1129–1136.

Wang, Y., & Tussing, L. (2004). Culturally appropriate approaches are needed to reduce ethnic disparity in childhood obesity. *Journal of the American Dietetic Association, 104*, 1664–1666.

Wang, Y., Monteiro, C., & Popkin, B. M. (2002). Trends of obesity and underweight in older children and adolescents in the United States, Brazil, China, and Russia. *American Journal of Clinical Nutrition, 75*, 974–977.

Weitzman, M. (1986). School absence rates as outcome measures in studies of children with chronic illness. *Journal of Chronic Disease, 39*, 799–808.

Weitzman, M., Walker, D. K., & Gortmaker, S. (1986). Chronic illness, pyschosocial problems, and school absences: Results of a survey of one county. *Clinical Pediatrics, 25*, 137–141.

Wellman, B. Wortley, S. (1990). Different strokes from different folks: Community ties and social support. *American Journal of Sociology, 96*, 558.

Widome, R., Neumark-Sztainer, D., Hannan, P. J., Haines, J., & Story, M. (2009). Eating when there is not enough to eat: Eating Behaviors: Eating and perceptions of food among food-insecure youths. *American Journal of Public Health, 99*(5), 822–828.

Wilson, K. B. (2013). *Health care costs 101: Slow growth: A New trend?* Retrieved from California Health Care Foundation http://www.chcf.org/publications/2013/09/health-care-costs-101

Wilson, T. A., Adolph, A. L., & Butte, N. F. (2009). Nutrient adequacy and diet quality in non-overweight and overweight Hispanic children of low socioeconomic status—The VIVA LA FAMILIA Study. *Journal of the American Dietetic Association, 109*(6), 1012–1021.

Winkleby, M., Jatulis, D., Frank, E., & Fortmann, S. P. (1992). Socioeconomic status and occupation contribute to risk factors for cardiovascular disease. *Journal of American Public Health, 82*(6), 816–820.

Winkleby, M. A., Albright, C. L., Howardpitney, B., Lin, J. Y., Fortmann, S. P. (1994). Hispanic/White differences in dietary fat intake among low educated adults and children. *Preventive Medicine, 23,* 465–73.

Wolf, A. M., & Colditz, G. A. (1998). Current estimates of the economic cost of obesity in the United States. *Obesity Research, 6*(2), 97–106.

World Health Organization. (2003). Information sheet on obesity and overweight.

Yeh, M. C., Ickes, S. B., Lowenstein, L. M., Shuval, K., Ammerman, A. S., Farris, R., & Katz, D. L. (2008). Understanding barriers and facilitators of fruit and vegetable consumption among a diverse multi-ethnic population in the USA. *Health Promotion International, 23*(1), 42–51. doi: 10.1093/heapro/dam044

Yu, S. M., Bellamy, H. A., Kogan, M. D., Dunbar, J. L., Schwalberg, R. H., & Schuster, M. A. (2002). Factors that influence receipt of recommended preventive pediatric health and dental care. *Pediatrics, 110*(6), e73.

Zanoni, J., Rucinski, D. Flores, J. Perez, I., Gomez, G., Davis, R., and Jones, R. (2010). Latina/o Community Funds of Knowledge for Health and Curriculum. Journal of Latinos and Education, (10)1. 43-58

Zarate, M. E. & Conchas, G. Q. (2010). Contemporary and critical methodological shifts in research on Latino education. In E. G. Murillo, S. A. Villenas, R. T. Galvan, J. S. Muñoz, C. Martinez, & M. Machado-Casas (Eds.), *Handbook of Latinos and education: Theory, research, and practice* (99–109). New York: Routledge.