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CHALLENGES ASSOCIATED WITH IMPROVING THE NUTRITIONAL QUALITY OF FOODS AVAILABLE IN SCHOOLS: THE CASE OF SAN FRANCISCO UNIFIED SCHOOL DISTRICT

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1 Abstract

This thesis examines school meal programs as a governmental intervention to improve food security among children. Further, it will examine how the global nutrition transition is affecting school meal programs and what challenges schools have met in their attempts to improve the nutritional components in meals served in schools. This thesis uses the case of San Francisco Unified School District (SFUSD) located in California, United States of America, as an opportunity to investigate the key challenges in the process of improving the nutritional components of their meal plans, and how they overcame this challenges. The thesis begins with a historical perspective on the nutrition transition and how the phenomenon has developed and affected the human population in general. Then, the thesis will start focusing on school meal programs worldwide, and in SFUSD in California in particular. The thesis draws principally from a close review of SFUSD documents and interview of key actors both from the school district, the school board and other related agencies familiar with the school meal program. I first give an overview of the changes made by SFUSD to improve the nutritional components of foods available in schools from 1999 until today. Then the thesis discusses what challenges the school district has faced throughout the process of improving the nutritional components of foods available in schools, and how the challenges has been overcome. The challenges include funding, making healthy foods that school children would like to eat, and overcome stigma related to consuming school lunch. I conclude with a discussion of the lessons learned from this case and how they may be applicable to other school districts.

2 List of Acronyms

BMI	Body Mass Index
HHFKA	Healthy, Hungry-Free Kids Act
NSLP	National School Lunch Program
SBP	School Breakfast Program
SFUSD	San Francisco Unified School District
SNS	Student Nutrition Department
UN	United Nations
USDA	United States Department of Agriculture
WFP	World Food Program
WHO	World Health Organization

3 Introduction

Overweight and obesity are featured by the World Health Organization (WHO) as the worlds most neglected public health problems (WHO, n.d.). Numbers from WHO shows that the worldwide obesity rate has doubled since 1980, and that the majority of the world's population live in countries where obesity and overweight are killing more people than underweight and starvation (WHO, 2016).

The economic growth the world has experienced during the past decades has significantly influenced the rise of overweight and obesity as health issues, especially in the western parts of the world. Jobs have gone from mainly consisting of manual labor to become primarily office related, which has led to an overall reduction in the adult physical activity pattern. Among children the physical activity level has decreased and kids are increasingly being identified as at-risk when it comes to living a sedentary lifestyle (McDermott, 2007).

With a growing economy, peoples' food consummation patter has also changed. Home cooked meals have been replaced with *processed and packaged food* from fast food restaurants, which tend to be low in both vegetables and fruit (Harper, 2006), and high in energy and sodium. Processed and packaged food is food changed from its original appearance that tend to be energy dense with a high level of fat, sodium, and/or added sugar. The same shift can be found in school lunchrooms, where the school increasingly draws from food distributors who provide processed and packaged foods for students' lunches. Diseases such as type 2 diabetes, high blood pressure and abnormal cholesterol are all food related disease that all are known to be a consequence of poor eating habits related to the consumption of these foods (WHO, 2016). A decreasing activity pattern in combination with a higher consumption of energy dense food, have been recognized as the primary risk factor of obesity (O'Dea & Piers, 2002).

Processed and packaged food is today found on a worldwide basis due to the globalization. Corinna Hawkes, a Professor at City University of London and Director of the Center for Food Policy, states in her book, *Globalization and the Nutrition Transition*, that the "nutrition transition is deeply rooted in the process of globalization" (Hawkes, 2007, p. 1). Further, she writes that globalization has changed many aspects of the food supply chain and has led to a greater availability of food on a worldwide basis because of transnational actors and trade. The quantity of food available has become greater due to increased production, which has affected both the cost of food and trade agreements between nation states. Key factors driving the nutrition transition are the liberalization of international food trade and foreign direct investment, global food advertisement and promotion, emergence of global agribusiness and transnational food companies, and retail restructuring (Hawkes, 2007).

3.1 Nutrition Transition

All the above-mentioned factors have led to the success of different transnational corporations, providing foods to grocery stores and/or restaurants worldwide. Some of the corporations have specialized in food advertisements targeting children and have found schools to be a great marketing place. The goal of marketing aimed at children is to create brand awareness and loyalty in an early age (Story & French, 2004).

Foods advertised to children are often high in sugar, salt and fat, and tend to fall into the category of processed and packaged foods. These products are relatively new to the human being and has increasingly been introduced to the human diet since the start of the industrial revolution. According to Barry M. Popkin, a food science researcher and a Professor in Nutrition at the University of North Carolina at Chapel Hill School of Public Health nutritional, processed and

packaged foods are a part of the nutrition transition. Popkin defines the nutrition transition as a shift in the dietary pattern from a limited number of high-carbohydrate staples to a more diverse diet that becomes available to a greater number of people (Popkin B. M., 2002).

In the book *The Nutrition Transition: Diet and Diseases in the Developing World,* Popkin writes that nutrition transition has five stages. The first is the *age of collecting food*, which was the period when humans obtained food by either hunt or gather what they consumed (Popkin B., 2002). Stage two, according to Popkin, is the *age of famine*. This era began when humans started to produce food, also known as agriculture. Stage three, the *age of receding famine,* occurred during the second agricultural revolution, which is dated back to 18th and 19th centuries when modern technology was applied to the agriculture (Popkin B. M., 2002).

Stage four, according to Popkin, is the *age of degenerative diseases*. This stage began at the same time as the rapid growth in animal husbandry, urbanization, and economic change – it was these factors combined that "creat[ed] the basis for a major shift toward a lower nutrient density diet which was excessively high in sutured fat and refined sugar." (Popkin B., 2002). The diet that occurred in stage four is associated with industrialization and modernization, and is what many researchers today blame for the worldwide increasing obesity numbers and diet-related chronic diseases (Hawkes, 2007).

Stage five, according to Popkin, is the *age of behavioral change to revise diet to reduce degenerative diseases and prolong health*. This stage is where the focus on famine and infectious diseases is replaced by a greater focus on the relationship between diet and diseases, and the importance of preventing degenerative illnesses. These factors have triggered behavioral changes in diet associated with a push towards a diet high in fiber and low in fat (Popkin B., 2002). As

we will see later in the thesis, food available in Popkin's stage four and five of nutrition transition have been and are present schools.

The nutrition transition is operating differently in different parts of the world due to factors such as economic resources, demographic patterns, and culture (Popkin B. M., 2002). The economic growth spread with the globalization, and allowed people with an increasing income level to have a more diverse diet with products including but not limited to vegetable, fresh fruit, fish, egg, milk, and cheese (Popkin B. M. , 2002). Changes in the edible oil production created, for example, cheap vegetable oil that facilitated higher energy consumption among middle- and low-level income countries around the globe (Popkin B. M., 2012). In Asia, for example, the nutrition transition has led to an increased amount of edible oils in the diet. In India and South Asia, the consumption of dairy products and added sugar has increased (Popkin B., 2001).

Obesity and overweight are both caused by an accumulation of fat in varying degrees in the human body due to an imbalance between energy intake and output (Martorell, 2002). Common health consequences of overweight and obesity includes cardiovascular diseases such as stroke and heart diseases, diabetes (type 2), musculoskeletal disorders, and cancers in colon, kidney, gallbladder, liver, prostate, ovarian, breast and endometrial (WHO, 2016). Both overweight and obesity among children is found to be an important predicator of adult obesity and is therefore viewed as a problem (Serdula *et al.*, 1993: IN Martorell, 2002).

In the Unites States, for example, obesity rates have tripled among children between the ages of 6-19 from the 1980s to 2000 (Martorell, 2002). In urban China, the obesity rates among children in the age between 2 and 6 was 1.5% in 1989, by 1997 the number had increased to be 12.6% (Luo & Hu, 2002). Also England has seen a similar pattern. The obesity among children

in the age between 7 and 11 was less than 10% in the mid 1970s, by the year of 1998 the percentage of obese children had exceeded 20% among girls and 15% among boys (Lobstein, James, & Cole, 2003). In 2014, about 41 million children under the age of 5 were overweight or obese on a worldwide basis (WHO, 2016). WHO writes at their website that "If immediate action [against overweight and obesity] is not taken, millions will suffer from an array of serious health disorders." (WHO, n.d.).

In high income countries, people from lower socioeconomic status (SES) are often the most exposed to *junk food*, which is energy dense food high in fat, sugar and salt, and low in nutrients (Hawkes, 2007). "Poor quality-diets, obesity, and diet-related chronic diseases tend to be higher among groups with lower SES" (Hawkes, 2007, p. 11). The main reason for why junk food is cheaper than nutritious rich food is because it is heavily processed and contains cheap or subsidized inputs (Institute of Medicine, 2010), such as oils and trans fat (Hawkes, 2007). Obesity has long been viewed as a matter of individual choice, but social, economical, and environmental factors also play a big role in decisions that are being taken (Whitacre & Burns, 2010). One area of growing concern are public schools, where often times the food being serves to students is known to be among the leading causes of obesity. Just as a low-income family choosing fast-food over home cooked meals out of both economy and time considerations, school districts have been known to make the same decision. I will return to schools and fast-food food providers below.

In U.S., which is a developed country with an increasing number of people falling in under the category of lower socioeconomic status, the leading causes of death in 2016 is chronic diseases such as coronary heart disease, cancer, diabetes, stroke, and liver cirrhosis (National Center for Health Statistic, 2016), all associated with excessive intake of food high in sugar, salt

and fat (Nestle, 2007, p. 31). According to the Center for Disease Control and Prevention, 70.7% of the American population was either overweight or obese in the years 2013-2014 (CDC, n.d. C). During the same period, obesity prevalence among adolescent in the age 12-19 years was 20.6%, children age 6-11 years was 17.4%, and toddler age 2-5 years was 9.4% (CDC, n.d. C). At the same time, numbers from United States Department of Agriculture (USDA) shows that 42.2 million Americans, among them 13.1 million children, in the year of 2015 lived in food-insecure households, which means that the household for some reason was not able to acquire enough food (Coleman-Jensen, Matthew, Gregory, & Singh, 2016, pp. 6-9). The 1st of January 2016, the U.S. population was estimated to be 322 million people (Consensus, n.d.).

3.2 Government Interventions and Transnational Food Companies

A high consummation of processed and packaged food is known to cause dietary related diseases, which again increases healthcare expenses. Governments around the world try to influence the citizens' choice of food, but lack both policies and budgets to develop ways to have a greater influence and control over the food market (Yach, Hawkes, Gould, & Hofman, 2004: IN Hawkes, 2007). The government interventions can come in form of nutritional education programs, nutrition labeling, social marketing, and restrictions on certain kind of commercial advertising. Policies to change the market environment include food standards in order to secure a minimum nutrient content of foods, taxes, subsidies on healthy foods, regulation of the foods available in school or workplace canteens, and make healthy foods more available to low-income households (Traill, 2012). A problem is that the food industry tends to strongly oppose initiatives and policy suggestions from the government (Nixon, 2015), including policy suggestions aiming to improve child health. The food industry often uses trade associations, advertisements, and

non-profit organizations to advocate on their behalf in order to influence decision taking and policy making (Nixon, 2015), which is exactly what the people of San Francisco experienced before the November 2016 elections when two interest groups, for and against the implementation of a soda tax in San Francisco, sponsored advertisements trying to influence peoples votes.

Also the food industry has launched self-regulatory programs. This mostly includes new product series advertised as a *healthier option* due to reduced amounts of sugar, fat or sodium, and often occurs when as the demand for these products increases. Research suggest, however, that the initiatives from the food industry have done little or nothing to the unhealthy food environment in the U.S. (Nixon, 2015).

3.3 History of School Meal Programs

A primary way the national governments and international development agencies attempt to influence the relationship between health, hunger and school performance is via school meal programs. School meal programs can be dated back to 1790 and started as a combined program of teaching and feeding hungry people in Munich, Germany. In 1791, similar programs spread to countries such as Scotland, France, Switzerland, and England. Towards the end of the 1800s both European countries and the U.S. began to feed children during school hours (Gunderson, 1971). In the beginning, most of the programs were driven by non-profit organizations in the local community. However, at the turn of the 20th century, nation states took over these programs and developed them into what are today known as school meal programs. The policy goals carried out in the national school lunch programs in most nation states included a more balanced

agricultural surplus, a reduction of malnutrition, improvement a country's development process, and/or improvement in the national security (Rutledge, 2016).

In developing countries today, organizations such as the World Food Program (WFP), which is a branch of United Nations (UN), alone provides school meals to more than 20 million children every year. In some developing countries, parents need their children to participate in providing an income to provide them food and therefore cannot afford to send children to school. When lunch is being served in school, this is equal to one less mouth to feed, and therefore many families send their children to school. In this way, school lunch programs are increasingly used as a tool to encourage school attendance among children and at the same time combat malnutrition (Rutledge, 2016). According to WFP, school lunch programs increase both enrollment and attendance in schools, and decrease dropout rates (WFP, n.d.). School meals are in some countries the only regular and nutritious meal a child receives during a day, and this meal is recognized as a tool for growth and development of children, communities, and the society as a whole, as the food often is purchased locally (WFP, n.d.).

In 2016, a total of 368 million children in 151 countries received either free of subsidized school lunches (Rutledge, 2016). School lunch programs in some countries still receive surplus agricultural goods, where in both Europe and the U.S., surplus food tend to be heavily subsidized by the government – and subsidized agricultural goods, are not usually associated with health and wellbeing (Morgan & Sonnino, 2010).

In the U.S., as in many other countries, school meals are used as a way of helping children out of food-insecurity. Children living in low socioeconomic families are eligible for reduced price or free school meals. A concern the past decade is that school meals have developed in the same rhythm as the nutrition transition and therefore to some extent lack

nutrition and is high in fat, sodium and sugar. If a child in the US consume both the National School Lunch Program (NSLP) and the School Breakfast Program (SBP), these two meals provide close to all the calories a child needs during a day to support their health, growth, and development (Stallings, Suitor, & Taylor, 2010). A child attending all the school food programs including breakfast, lunch, the snack program, and the supper program will have a higher caloric intake than what is recommended. In combination with lack of physical activity, this pattern in most cases leads to overweight and obesity.

Julie Paradis, the Administrator of United States Department of Agriculture's (USDA) Food and Nutrition Services, focuses on school meals as a way to improve childrens' diet (Institute of Medicine, 2010, p. 3). One of the challenges, she says, is the fact that what students consume often go beyond what is served in the school lunch- and breakfast program. Students often have access to food sold from vending machines, à la carte cafeterias items, snack bars, and nearby shops and restaurants (Institute of Medicine, 2010, pp. 3-4). School food is important to establish a pattern among children that leads to health beneficial food choice. Research has shown that it is harder to influence the home food environment than it is to influence the school food market (Lytle, et al., 2006).

3.4 Nutrition in the California and San Francisco schools

The state of California has a strong history of prioritizing the health and nutrition of children through programs and initiatives in schools, among others (Larsen, et al., 2014, p. 24). Through the California Childhood Obesity Prevention act of 2003, the state of California eliminated the sale of soda at all elementary and middle schools. All school districts within the state have to follow both the federal and the states' policies regarding foods served in schools.

The individual school districts can also come up with their own nutritional guidelines, complying and/or exciding federal and state policies (Wojcicki & Heyman, 2006, p. 1542).

One of the school districts in California that stands out in its work in addressing both childhood obesity and food-insecurity is San Francisco Unified School District (SFUSD). According to Frey (2012), School Health Program Department (2007), and Lappé (2016), SFUSD has been a national leader in coordinating school health programs and improving the nutritional value of foods available to students in school." (Frey, 2012). The school district started to work towards better school food in the school year 2002-2003 with a pilot study that implemented a new nutritional standard for school lunchrooms in Aptos middle school (Wojcicki J. M., 2006). This turned out to be a success, so SFUSD decided to expand the project. Already in the school year of 2003-2004, the district changed SFUSD's nutrition standards. The new standard eliminated the sale of unhealthy foods, beverages, and snacks from all lunch lines, vending machines and snack bars (SFUSD, 2003). Numbers from San Francisco shows that the percentage of overweight and obesity among children in the age range 10-17 in 2001 was 22.6%, by the year of 2009 the number had decreased to 20.8% (Wolstein, Babey, & Diamant, 2015). Whether this decrease in obesity rates among school-aged children is directly related to changes in SFUSD school food nutrition composition is not known.

3.5 Research Focus

I investigate school meal programs as a governmental intervention and look at what challenges school districts have faced in improving the nutritional components of foods available in school venues. I will do this by looking at SFUSD, as the school district is among the national leaders in improving the nutritional value of the food it available to students. Specifically, I

examine the challenges associated with improving the nutritional quality of foods available in SFUSD and how those challenges were overcome.

4 Literature Review

The literature review has two sections and begins with giving a historical context of the American school lunch program that briefly summarizes the development of US National School Lunch Program. I then review examples of programs that have influenced and to some extent facilitated the implementation of policies securing a greater nutrition components in food avilible in US school. The second section reviews existing research on the topic of challenges schools and school districts face to improve the nutritional components of food available in school venues.

4.1 The Development of United States National School Lunch Program (NSLP)

School food programs in the United States have been dated back to the 19th century, where meals were served to children to fight hunger and malnutrition. The food was at that time served mainly in big cities by volunteer groups or by schools (Morgan & Sonnino, 2010, p. 44). Today, the United States NSLP is the world's largest in terms of the amount of children receiving free or reduced priced meals during a school day (Rutledge, 2016, p. 60).

The NSLP was permanent founded in 1946 and was, and still is, administrated on a national level from Washington by the USDA (Levine, 2008, p. 5). From the start of, the programs nutrition recommendations were rooted in the belief that malnourished children were underweight and needed more calories to grow. The food served in the NSLP were high-calorie diets based on whole milk, rich puddings, and cream-based sauces (Levine, 2008, p. 5).

When the program started, federal subsidies only covered a small fraction of the cost of children's lunches. From 1947 to 1950, the state had to contribute with $1 for each $1 they received from the Federal funds. From 1951 to 1955, the States had to provide $1.50 for every $1

from the Federal funds. And from 1956 and thereafter, the States had to give $3 for every $1 Federal founding the school meal program received (Gunderson, 1971, p. 19). To cover the cost of free and reduced-priced lunch, the states began to use the income from paying children's school lunches to make up for the differences between the federal subsidies and the actual cost of the meal (Levine, 2008, p. 154).

Throughout the 1970s and 1980s, the school lunch program transformed into a major poverty program as President Richard Nixon in the late 1960s promised to provide all poor children a free school lunch. The program's budget increased with almost 30% by the year of 1980 (Levine, 2008, p. 154). As the federal founding only covered free and reduced priced meals, not the labor, equipment and operating expenses (Levine, 2008, p. 3), schools had to raise the cost of full price meals (Levine, 2008, p. 154). Raised prices led to a drop the amount of paying children attending the school lunch program, which again led school lunchrooms across the United States into financial crisis. To maintain the viability of free and reduced-price meal programs, both liberal reforms and school administrators began to look towards the private food service industry (Levine, 2008, pp. 151-152).

4.1.1 Private Sector and Junk Food

In 1969, a new set of regulation allowed school districts to contract with private companies to run and manage school lunchrooms (Levine, 2008, p. 2). In 1970, the government modified the school meal nutrition standards for it to allow the introduction of fast food, snacks, vending machines, and á la carte products (Johnson D. , 2011). In 1979, the rules and regulations were loosened even more and allowed sale of food of minimum nutritional value in school

lunchrooms (Johnson D. , 2011, p. 57), which took away all restrictions the food's continence of sodium, sugar, and fat (Martorell, 2002, p. 159).

Throughout the 1990s, high schools offered an increasing variety of foods high in fat, sodium, and sugar, such as pizza and burgers, through the á la carte option. The best selling items at high schools at that time were high-fat cookies, potato chips, french fries, and nachos (Story, 1999, p. 48). Some of the reason to sell such foods in schools was because of the high revenue high-energy and low-nutrient-value gave the school cafeterias (Rabin, 2011). In the period between 1980 and 2000, the obesity rate among children in the age between 6-19 tripled in the U.S. (Martorell, 2002, p. 159).

Looking back at the privatization of school meal plans, some people are asking how the government could prioritize the private sectors need over children's nutritional needs. Tim Lang, a Professor of Food Policy at the City University in London, writes in his article; Food Industrialization and Food Power: Implications for Food Governance, that "The state is caught on the horns of a policy dilemma: on the one hand, actively promoting the development of efficient modern food supply chains; on the other hand, having to develop processes of food governance which can respond to retain public trust in food" (Lang, 2004).

In 1995, the Dietary Guidelines for Americans called for that no more than 30% of calories in a meal could come from fat, and that no more than 10% can come from saturated fat (Johnson D. , 2011, p. 57), this was also applicable for meal served in schools. Meals were recommended to contain at least one-third of the daily-recommended allowance of protein, vitamin A and C, iron and calcium (Johnson D. , 2011, p. 57). The 1995 requirement led many fast food distributors within the school meal market to change their recipes. Lunch providers such as Taco Bell tried to reformulate their products sold in schools, but still after the

reformulation more than 35% of the calories in some of Taco Bells school meals came from fat (Levine, 2008, p. 184).

4.1.2. Community Involvement

In the beginning of the 2000s, parents, educators, and health professionals began to campaign against the sale of candy, soda, and junk food in schools. They also wanted to band all sales from vending machines (Levine, 2008, p. 189). The lowering of the expectations to nutritional values that happened the late 1970s and early 1980s had led to what was seen as the major obstacles to nutrition education and good eating habits in the early 2000s (Levine, 2008, p. 189).

Social networks such as *Two Angry Moms* have been pushing towards a change in the way lunchrooms are operating. On the movements website, angrymoms.org, under the *About: The Movement* section it is written that the: "Former Texas Agricultural Secretary Susan Combs said that it will take 2 million angry moms to change school food. This gave Amy an idea…. Build from 2 to 2 million angry moms." (Two Angry Moms, n.d). In October 2007, a food documentary called "Two Angry Moms" was released. Four years later, in 2011, the book *Lunch Wars: How to Start a School Food Revolution and Win the Battle for Our Children's Health*, was published.

A study published in 2006, showed that parents did right in being concerned about what children consumed. According to the study, the diet of American children failed to meet the national nutritional guidelines and that the youth did not got the recommended level of daily physical activity (Story, Kaphings, & French, 2006, p. 131). The same research recommended a solution where policymakers, advocates, parents and communities worked together to create an

environment where children eat healthfully, become physically fit, and develop lifelong habits contributing to wellness (Story, Kaphings, & French, 2006, p. 131).

Another study published in 2015, regarding on the role of family and community involvement in the development and implementation of school nutrition and physical activity policies, showed that "…family and community involvement have the potential to have a positive influence on school nutrition and physical activity policies and practices…" (Kehm, Davey, & Nanney, 2015, p. 90). The result also showed that the involvement of family and community remains low in schools, and that "Increased efforts are needed to encourage collaboration among schools, families, and communities to ensure the highest health standards for all students." (Kehm, Davey, & Nanney, 2015, p. 90).

4.1.3. Wellness Policy

By the school year 2006-2007, all schools participating in the National School Lunch Program were required to establish a local school wellness policy through the Child Nutrition and Special Supplemental Nutrition Program for Women, Infants and Children Reauthorization Act (USDA, 2016 C). The policy is supposed to prevent and reduce childhood obesity by providing assurance that school meal nutrition guidelines meet the minimum federal school meal standard (USDA, 2016 C). As a result of the wellness policy, foods available in schools now have a higher nutritional continence than before and the policy has also had an overall positive influence on schools physical education (Longley & Sneed, 2009, p. 101).

A study examining school food policies and food preparation before and after local wellness policies were implemented in High School throughout Indiana, found that "Although significant improvement was made in reducing unhealthy foods available at schools, such as

chocolate candy, non low-fat cookies or crackers, soda pop, and non- low-fat salty snacks, no significant increase was observed in the number of schools that offered fruit, vegetable salads, 100% fruit or vegetable juice, and 1% or skim milk." (Dong-Chul, 2009, p. 172). The study was conducted through surveying students before the wellness policy was implemented in 2006, and after it had been implemented in 2007. After the wellness policy had been implemented Dong-Chul found that some of the Indiana High Schools had "almost empty wellness policies" at the same time as others had "stepped up to the level beyond what was required by the law" (Dong-Chul, 2009, p. 172).

4.1.4 Healthy, Hunger-Free Kids Act

In 2010, The Healthy, Hunger-Free Kids Act (HHFKA) was championed by the First Lady at the time, Michelle Obama, as a part of her Let's Move campaign. HHFKA included improved nutritional guidelines for both school meals and competitive foods, and required available water free of charge in school lunchrooms during meal service (Department of Agriculture, 2012). The level of sodium and sutured fat in school meals had to bee reduced and meet school children's nutrition needs, and no food could contain trans fat (Department of Agriculture, 2012, p. 4088). Once school districts meet with the new meal requirements, they would receive an additional $0.06 per lunch (USDA, n.d. A), which was the first real increase in school lunch founding in 30 years (USDA, 2015 B). The School Nutrition Association requested already in 2010 a federal reimbursement of 35 cents per meal, as school districts experienced rising costs in preparing school meals. The request was rejected (School Nutrition Association, 2015). By the start of the school year 2012-2013, a revised standard was implemented and

included a greater availability of fruit, vegetables, and whole grain, and specified weekly requirements of beans, pies, and other vegetables (Johnson, Podrabsky, Rocha, & Otten, 2016).

A comparative study conducted before and after the implementation of HHFKA shows that there were an overall reduction in the amount of calories, sugar, and sodium in school meals sold in the school districts after the HHFKA was implemented (Cummings, et al., 2014, pp. 23-24).

Another study, studied the effect of the HHFKA in 3 middle schools and 3 high schools in a large urban U.S. school district from January 2011 through January 2014. The study's findings "provide further evidence that the new US Department of Agriculture meal standards are addressing key nutritional concerns among adolescents, especially the need for increased consumption of the nutrients in fruits and vegetables and a reduction in ED." (Johnson, Podrabsky, Rocha, & Otten, 2016)**.** The study also shows significant improvement in school food nutrition, without negatively affecting meal participation (Johnson, Podrabsky, Rocha, & Otten, 2016).

4.1.5 Vending Machines and Smart Snacks

In the year of 2013, USDA introduced *smart snack*, a snack that followed the nutritional standards sat by the HHFKA. That means that smart snack either have to contain; whole grain-rich grain products, or; have a fruit, vegetable, dairy product or protein food as the first ingredients, or; be a combination of food that contains at least ¼ cup of fruit and/or vegetable, or; contain 10% of the daily value of one of the nutrients of public health concern in the 2010 Dietary Guidelines for Americans (calcium, potassium, vitamin D, or dietary fiber) (USDA, n.d. B). The smart snack must also meet the following nutritional requirements; a snack cannot have

more than 200 calories and 200 mg sodium, and an entrée cannot have more than 250 calories and 480 mg sodium. All smart snack products must also have no more than 35% calories from fat, 10% calories from sutured fat, and cannot contain any trans-fat. The sugar limit is sat to be 35% of the snack's total weight (USDA, n.d. B). The American Heart Association recommends no more than 6 teaspoons or 26 grams of added sugar a day (American Heart Assosiation News, 2016).

4.1.6 Private Sector

As nutrition requirements have been sharpened in American schools, soft drink and snack-food companies are to some extent embracing the idea of healthy school eating (Kanemasu, 2007, p. 14, IN Morgan & Sonnino, 2008, p. 49). At the same time, "large sector of the soda and junk-food industry continues to resort to neo-liberal values of 'freedom' and 'choice' to justify its presence in the schools." (Morgan & Sonnino, 2010, p. 49). An example is the legal battle is back to the 1970s, when the sale of competetive foods started years of legal battles and public outrage against sale of competative foods started. This resulted in a regulation of the sale of soda water, water ices, chewing gums and certain candies were introduced. Not long after, the National Soft Drink Assosiation filed a lawsuit against the new regulation and they won (Morgan & Sonnino, 2010, p. 47). Competetive foods are still sold today, but have to comply with the different institutions nurtition recuriements written in the wellness policy.

4.2 Nutritional enhancement polices and challenges to their implementation.

4.2.1 Barriers to Healthy Eating and Free and Reduced-Priced Meals

One of the greatest challenges for schools and school district today is funding directed to the NSLP. A study shows that most legislators, administrators, and parents agree that NSLP is underfunded and that the underfunding force food providers to some extent serve cheap and low quality foods (Eng, 2010). The same study concludes that "One of the central obstacles to serving healthy food is the fact that the system discourages experimentation, any drop in lunch participation results in financial penalties for the caterer" (Eng, 2010).

Another study, involving teacher and parent focus groups, showed what factors parents and teachers sees as a barrier to healthy eating. Five of the six teacher focus groups stated that the quality of the school meals was a barrier to healthy eating among students. They stated that the students would have their milk and their fruit, but not eat the lunch. In the parent focus groups, three out of six groups came to a similar conclusion (Gray, Byrd, Fountain, Rader, & Frugé, 2015).

Another barrier that came up among the teachers in the same study was the negative feedback they sometimes received from the school nutrition staff when helping children making healthy food choices. Some teachers believed "the school nutrition staff do not want to lose sales of 'extra' foods, and so did not want teachers to influence children's purchases." (Gray, Byrd, Fountain, Rader, & Frugé, 2015). All the six teacher focus groups concluded that the junk food available in schools distracts healthy eating. Both the teacher and parent focus group agreed on that when students are given the choice between healthy foods or junk, they are more likely to choose the junk food. The parent focus groups also perceived that junk food in school is a barrier to healthy eating (Gray, Byrd, Fountain, Rader, & Frugé, 2015).

Another study evaluating the overall contribution of food offerings and participation in school lunch program on children's overall eating behavior found that although "Schools can positively impact children's eating behavior by increasing the availability of healthy food such as fruit, vegetables, whole grains, and low-fat dairy products." (Bevans, Sanchez, Teneralli, & Forrest, 2011). At the same time, the availability of unhealthy foods offered in competition with the federal NSLP undermines the positive effects of school nutrition programs (Bevans, Sanchez, Teneralli, & Forrest, 2011).

4.2.2 *Let's Go!*

Many schools and school district find it hard to implement many of the policies that are being implemented both at federal level and state level. The Barbara Bush Children's Hospital at Maine Medical Center created a community based childhood obesity prevention program called *Let's Go!*. The program was launched in 2006 and is an approach used by community organizations. In 2007, Let's Go! invited school nutrition directors from the Portland region to be a part of Greater Portland Workgroup. A total of 11 directors, representing 71 schools, joined the workgroup where the goal was to learn more about the directors' and schools' needs in improving school meals and also support the ongoing effort (Kessler, Vine, & Rogers, 2015).

The first year, Greater Portland Workgroup attended monthly meeting facilitated by Let's Go!. The meetings established "a collaborative partnership promoting peer-to-peer learning, acknowledged the skills and assets of participants, and involved equitable decision making. Nutrition directors were expected to participate fully in meetings and be willing to examine challenging questions. The focus of Let's Go! gradually expanded from a relatively narrow set of nutrition outcomes—increasing fruits and vegetables and limiting fried foods—to include

broader priorities such as networking, relationship building, and collaboration among participants." (Kessler, Vine, & Rogers, 2015, p. 279).

All the schools represented at the meetings met both state and federal regulations for the NSLP, and all school nutrition programs were already installing salad bars and offering whole grain products. At the same time, many of the school still sold unhealthy a la carte items like potato chips, french fries, and different desserts. The participating nutritional directors saw a need for improvements. Together, they identified key barriers in implementing healthy changes, which included a general negative perception of school meals, competition from with off-site food sources, potential loss of revenue, and a lack of resources. Promoting or communicating the health-based improvements that had been done to the meal plan, was one of the solutions that came up. In partnership, they implemented a plan to market school success through sending out parent newsletters, educational handouts, newspaper editorials, and school board presentations.

The workgroup also implemented *Smart Lunchroom* in their cafeterias and shared successes and barriers. Smart Lunchrooms is a movement that was started in 2010 by the Cornell Center for Behavioral Economics in Child Nutrition Program. It is a cafeteria movement where the lunchroom workers nudge kids towards nutritious foods, and can be done by simple "changes to food presentation and cafeteria layout can naturally guide students towards healthier selections while preserving freedom of choice." (Kessler, Vine, & Rogers, 2015).

Three main indicators were used to measure the success of the Let's Go! program: Smarter Lunchrooms, the Healthy, Hunger-Free Kids Act, and the HUSSC. The outcome of the over all participants in the program, is that 18 of 21 eligible school nutrition directors in May 2012 had completed surveys capturing the implementation of the Smarter Lunchrooms providing evidence of achievements in 130 schools (Kessler, Vine, & Rogers, 2015). And by the end of the

school year 2012-2013, all the 46 school districts participating in a Let's Go! workgroup complied with the requirements in the final rule published in January 2012 as a part of the Healthy, Hunger-Free Kids Act (Kessler, Vine, & Rogers, 2015).

The report on the Let's Go! programs by Kessler, Vine, and Rogers (2015), show the value of using a regional approach and establishing workgroups that supports changes in the process of improving the nutritional quality of school meals.

4.2.3 Challenges in California

A study investigating the challenges California School Food Authorities is facing in implementing their updated meal standards, shows that many of the states schools and school districts have not been investing in school kitchen, cafeteria equipment, and infrastructure. Over time, this has created a challenge when it comes to make and serve children healthy meals (Larsen, et al., 2014, p. 1).

Key findings from the study show that 95% of California school districts meet the current nutrition standards. To serve health meals, 93% reposted that they needed "at least one piece of kitchen equipment to help them better produce, store, prepare, and serve these healthy meals." (Larsen, et al., 2014). Only 25% of the school district within the state of California reported to have equipment replacement and an upgrade plan. The study shows that 70% of the districts need infrastructure changes at one or more schools in order to successfully serve healthy lunches. When it comes to school nutrition staff, 68% of the school districts are reporting that their nutrition staff needs additional training to fully implement the current nutritional requirements (Larsen, et al., 2014).

The recommendation provided by the study is additional funds in order to assist California's school districts. The study recommends that the found should come from the local government, the state, and the federal, and all founds should go to upgrade school kitchen equipment. The study also recommends that non-profit and other organizations take initiative to improve children's health, education, and school infrastructure by enhancing infrastructure and acquiring the necessary equipment (Larsen, et al., 2014).

The last recommendation is that "Students' nutritional needs should be considered in the master plans developed by district leadership that guide capital improvements. School socials and local policymakers should work collaboratively with school food service directors, parents, and community members to identify and implement strategies that meet kitchen equipment, infrastructure, and training needs." (Larsen, et al., 2014) .

All over, the most frequently reported challenge both nationally and in California, was both the cost and the availability of healthy foods. In California, 74% reported that they had challenges with purchasing appropriate foods (Larsen, et al., 2014, p. 7).

The study shows that most the school food authority in California reported the reason for why there has been no equipment upgrade and a lack of training among nutritional staff is an inadequate budged. There is a need of more investment in school foods, an the study conclude that "California and its school districts must work collaboratively with each other and local communities to prioritize and address these needs for the sake of healthy schoolchildren throughout the state." (Larsen, et al., 2014, p. 24).

4.2.4 Food in Schools

For some schools and school district, changing the content in vending machines and in a la carte program has been a challenge first of all because of schools financial interest in vending programs, but also because of contracts that have been written with companies as for example some schools poring-rights with Coca Cola or Pepsi. In 1997, U.S. schools generated about $750 million to the vending machine service industry (Vail, 1999). A study conducted in 2009 shows that when school districts first decided to replace all current products with healthier alternatives, the distributors did not always have information about alternative and healthier items (Gillis, et al., 2009, p. 32).

Food available to children at school often goes beyond what is being served in the cafeteria. Both on fundraisers, classroom parties, and celebrations are all settings where food, candy, and soda are being brought to the school and to the children. Although the school or the school district have rules for what food are allowed to bring to schools and not, a study show that both teachers and school administrators find it challenging to maintain and bring the policy into force (Gillis, et al., 2009, p. 32) – due to the fact that most of the time, it is the children's parents that are bringing foods and treats that to not comply with the policy.

4.3 Lack of Literature

There is little research conducted in the field of challenges schools and school districts are facing when improving the nutritional components of foods available in schools. Through peer-reviewed academic articles focusing on topics such as policy implementation, children's food choices, school nutrition work groups, and other school nutrition related campaigns I have

been able to find information regarding challenges school districts are facing and how some of the challenges have been overcome.

In the search of peer-reviewed academic articles, I also reached out to people with knowledge about American nutrition such as scholarly communities and Professor Marion Nestle. None of them, unfortunately, seemed to know of any research conducted on challenges school districts are facing when improving the nutritional components in food available in schools.

5 Research Methods

5.1 Data Collection

This thesis is based on secondary data and semi-structured interviews. The data is mostly from peer-reviewed literature posted in academic journals. Some of the central groups of literature are the U.S. School Lunch Program, challenges with programmatic changes, and implementation of nutrition policies and requirements. Another significant part of the research has been gathering and analyzing reports regarding SFUSD. Most of the reports have been written by the school district and posted on their webpage, but there have also been used reports and blog posts from local non-profit organizations addressing problems, challenges and issues with the school district.

I conducted semi-structured interviews of key stakeholders of actors with deep knowledge of SFUSD's food reforms. I interviewed multiple people from different departments in SFUSD including the Student Nutrition Services (SNS), a representative from SFUSD's Board of Education, a representative from the current food supplier Revolution Foods, and a researcher from U.C. Berkley's Nutrition Policy Institute.

I found the interviewees by reaching out to the email address provided on the *Contact Us* page on the following institutions websites: SFUSD, a non-profit organization, and Revolution Foods. In the email I asked to get in touch with someone within the institution knowledgeable about the process of improving the nutritional components in school meal plans. The person receiving the email, provided contact information to one person each. When I reached out to them, all three replied positively. At the end of each interview, I used the *snowball sampling method* by asking the interviewee for contact information of two people they know who also have knowledge regarding the topic.

All the interviews were conducted over phone and lasted between 15 and 30 minutes. During the interviews I asked all or some of the following questions, depending on the interviewees background:

1) Can you tell me about San Francisco Unified School district's school meal plan?
2) Is SFUSD school meal plan different from other school districts' meal plans? If yes, what are the major differences?
3) At SFUSD homepage there is a document called "School Meal Milestones" that contains an overview of milestones achieved by SFUSD from June 1999 to the fall of 2012. What has allowed these changes to be realized?
4) Do you know of any challenges SFUSD has met in the attempt to improve the meal plan?
5) If there have been any challenges, how have these been overcome?
6) Who has been most instrumental in bringing about these changes?
7) What remains to be done?
8) Would you suggest two people I could get in touch with to talk about these meal plan changes?

I also asked additional questions and followed up on topics that had been brought up during the interview. The new questions all were within the existing categories on challenges school districts meet, how to overcome the challenges, and who has been most instrumental in bringing about different changes.

During the interviews I took handwritten notes, and immediately after the interview, I transcribed them into a Microsoft Word document. All handwritten notes have been scanned and saved in the word document on my personal password protected computer. All interviews were

given a number. The number belonging to each interview was written in a separate document, and saved on my personal password protected computer.

After conducting all the interviews, I compared the transcriptions in search of common themes and ended up coding the interviews after the questions listed up above. The interviews were coded in a Microsoft Word Excel document by putting each theme in a separate horizontal excel box (1B, 1C, 1D, etc.). The interview numbers were listed in a separate vertical excel box (A2, A3, A4, etc.). All common answers were listed on the same horizontal row in the Excel document.

5.2 Broader Impact and Limitations

I believe my thesis will fill a gap in the literature on what challenges schools and school districts are meeting when improving the nutritional components of the food served at school. The outcome of this thesis can help to better understand some of the challenges related to an altered meal plan for greater nutritional value and show potential ways to overcome those challenges. This will perhaps be most relevant for other US school districts, but also potentially relevant to school districts in other countries.

The greatest limitation of this thesis is its focus on one case, that of SFUSD. By only looking at one school district, this thesis will be able to go deeper into what challenges this school district both has overcome and is facing today, and what has been done to overcome the challenges. Looking at only one case is limiting, as the US is a big country consisting of many states following the same federal policies, but different state policies and therefore might face different challenges. With more time, I could have investigated what challenges school districts are facing in several school districts located in different states in order to compare and give a

better overall picture. This would have made the study more reliable in generalizing the outcome of the research.

Another challenge is the fact that there is not done a lot of research on what challenges schools and school districts are facing when implementing foods with more nutrition rich components.

Limitations with this specific study, is that one of the first objects of interview was not helpful in providing information, nor pointing towards other people that had knowledge about challenges SFUSD had been facing and is facing due to stricter requirements to ingredients in food available in the school district. The same interviewee did not allow me to talk to anyone else than her from her institution, and was also close to make an interviewee from another institution cancel an interview.

6 Discussion

The discussion part is divided into two sections. The first part gives a short overview of SFUSD and takes a closer look at food related policies that the school district has implemented since 1999. The second part discusses the challenges SFUSD faced in the process of improving the nutritional value of the foods available in the school district and how these challenges have been overcome.

6.1 San Francisco Unified School District

SFUSD educates more than 57,000 students on a yearly basis and is the seventh largest school district in California. The school district consists of 64 elementary schools, 8 alternatively configures schools, 13 middle schools, 19 high schools, 16 transitional kindergartens schools, and 13 active charter schools authorized (SFUSD, n.d. A).

The school district has a strong focus on healthy diets and express through their website that; "A healthy diet is essential for success in school and in life. For school meals we offer freshly prepared nutrient-rich foods that promote healthy growth and development. Breakfast is available every day and, at many schools, students can grab food on their way to their first class or even eat in the classroom. Included with each lunch is a family-style vegetable option, similar to a salad bar, that students can serve themselves." (SFUSD, n.d. A).

To get an overview of SFUSD development, see figure 1 on the next page .

San Francisco Unified School District's path to more nutritious foods.

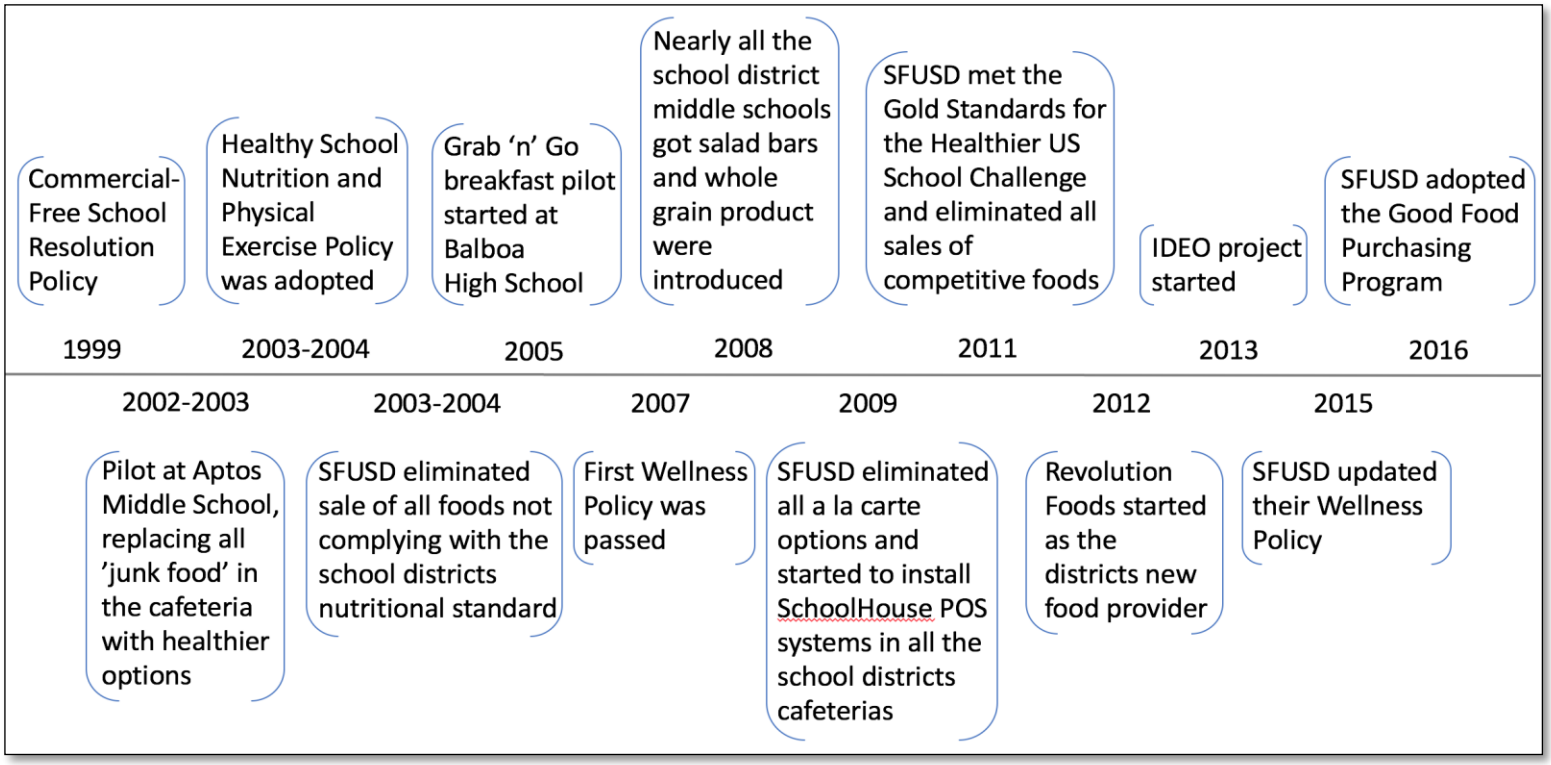

Figure 1. Timeline, nutritional development San Francisco Unified School District

6.1.1 SFUSD's Policies, Achievements, and Food Provider

SFUSD started to focus on student health early compared to other U.S. school districts, and the federal government. Already in June 1999, SFUSD's Board of Education passed a

resolution declaring all schools within the school district to be commercial and tobacco-free settings. This resolution prohibited SFUSD from entering vendor contracts for sport drinks and snack foods, and required an incensement in healthy snacks and drink options (SFUSD, 2012 C). This resolution made sure that the school district could not, for example, sign an agreement regarding 'pouring rights' with companies like Coca-Cola or Pepsi. Pouring rights is an agreement between a school district and a soft drink company, where the school district agree to exclusively sell products from one particular soft drink company. In return, the school district will receive money from the soft drink company (Nestle, 2000). The first federal policy

regulating the sale of soda in public schools came in 2010 with the Healthy, Hunger-Free Kids Act.

6.1.2 Parental Influence

In the school year 2002-2003, a pilot program initiated by a group of concerned parents at Aptos Middle School, taking away all junk food in the cafeteria in Aptos Middle School and replacing it with healthier options (Wojcicki & Heyman, 2006). They reached out to SFUSD's superintendent who approved a pilot program. The main goal with the pilot was to track revenue to see if selling healthier food was economically sustainable for the cafeteria (Woldow, 2013). The pilot was a success and later influenced the development of the *Healthy School Nutrition and Physical Exercise Policy*. SFUSD started working on the policy in January 2003, and adopted it about a year later in 2004. The policy was created to improve the nutritional quality of snack, lunches, breakfast and beverages served in all the school district's schools. Canned fruit were, for example, replaced with fresh fruit on most days and fried food was eliminated (SFUSD, 2012 C). The policy can be compared to wellness policies that did not become a federal requirement before the school year of 2006-2007 (FNS, 2016).

Throughout the school year of 2003-2004, SFUSD eliminated all sales of on-campus foods and beverages that did not meet the new nutritional standard found in the School Nutrition and Physical Activity Policy, which included removing items from the vending machines, modifying school breakfast and lunch menu recipes, and altering food approved for sale in snack bars (Wojcicki & Heyman, 2006). The school district also started a *Farm-to-School Feasibility Study*. In collaboration with both city and community partners, the school district assessed opportunities and barriers of the introduction of a farm-to-school salad bar (SFUSD, 2012 C).

Already a year after the study started, in 2004, the first salad bar was offered in a pilot at Harvey Milk Civil Rights Academy. The salad bar was offered as a reimbursable meal twice per day consisting of two or three fruits and four to six vegetables (SFUSD, 2012 C).

SFUSD has a great focus on the importance of a healthy diet and how essential nutritious foods are for success in both school and in life. The school district wanted to increase the attendance in the school breakfast program and started its first Grab 'n' Go Breakfast Program Pilot at Balboa High School already in 2005. The Grab 'n' Go breakfast is an easy accessed pre-bagged breakfast distributed at different locations throughout the schools. The breakfast is served until 5 minutes before class starts at 8:20, and can be eaten during the 10 first minutes of class. The Grab 'n' Go Breakfast, give students both a greater access to breakfast and the freedom of choice when it comes to where to eat. It also, to some extent, eliminates parts of stigma related to that students eating school breakfast are those receiving free or reduced priced meals. According to the school district, the number of students eating school breakfast doubled throughout the first year (SFUSD, 2012 C), and tripled in the second year of operation (Jill Whynns, n.d.).

The following year, in 2006, another pilot involving installation of SchoolHouse POS system in one of the cafeteria lines was tried out in both Balboa High School and Galileo High School. This allowed students to pay for their meals using identical meal cards. The use of cards instead of cash was supposed to make the lines go faster, and provide anonymity to students receiving government-paid meals (SFUSD, 2012 C).

6.1.3 Wellness Policy

In 2007, the school district passed a Wellness Policy according to the federal requirements. The policy included a detailed minimum nutritional standard for both school foods

and vending machines, restrictions on outside food sales, enhanced nutritional education, and a minimum standard for increased physical activity (SFUSD, 2012 C). The same year, an additional 25 schools within the school district got salad bars (SFUSD, 2012 C), and the San Francisco Board of Supervisors passed a resolution "to keep food vending trucks at least 1,500 feet from the perimeter of public middle schools and high schools." (SFUSD, 2012 A).

SFUSD was in 2008 able to set up salad bars in nearly all middle schools and high schools. Whole grain products such as brown rice and whole wheat pasta were introduced, and all breakfast cereals served within the school district was limited to contain no more than 6 grams of sugar per serving (SFUSD, 2012 A). A year later, in 2009, the then head of the SNS, Ed Wilkins, decided to eliminate all a la carte option (Frey, 2012, p. 5), and started to offer the same meals to both paying students and students receiving free and reduced-priced meals. That according to the school district increased the number of students eating school lunch (SFUSD, 2012 C). SFUSD also worked on installing the SchoolHouse POS system in order to allow all students within the school district to pay with identical cards (Frey, 2012, p. 5) By June 2010, all schools had gotten the system installed (SFUSD, 2012 C).

The San Francisco Board of Education passed the *Feeding Every Hungry Child Resolution* in March 2009. Through this resolution, SFUSD committed to feed all children a full meal regardless of the child's ability to pay. This has led to a great amount of unpaid meal charges, a point I will return to below.

After more than 10 years of constantly trying to improve the nutritional value of the food they served to children, SFUSD in 2010, removed high fructose corn syrup in chocolate milk sold at SFUSD's institution and replaced it with natural sugar. By 2011, the school district made sure that the sugar level in chocolate milk was reduced to 19 grams, where of 13 gram is

naturally occurring sugar (SFUSD, 2012 C). The same year, school lunch program met the Gold Standards for the Healthier US School Challenge, which is a voluntary initiative recognizing schools that have created a healthier school environment through promoting nutrition and physical activity (USDA, 2016 A). SFUSD achieved the Gold Standard by replacing juice with fruit in school breakfast and replacing white potato with sweet potato in elementary and almost all high schools (SFUSD, 2012 C). The school district also eliminated competitive meals from all cafeterias in the school district, which led to a 27% incensement in the number of meals served associated with the National School Lunch Program (SFUSD, 2012 C).

To increase the access to healthy food in schools, SFUSD started a pilot in 2011, setting up vending machines containing healthy foods at Lincoln High School. After the healthy vending machines were introduced, the number of students eating school lunch increased by 17% (SFUSD, 2012 C). Throughout 2012, the Grab 'n' Go Breakfast was rolled out to nine additional high schools and ten middle schools.

6.1.4 Revolution Foods

In December 2012, SFUSD received a board approval on the school districts change of food provider. From the 7th of January 2013, Revolution Foods started to provide school meals to 114 of schools within the school district. "Under the new approximately $9M annual contract more than 55,000 students will have access to healthier school meal options that meet or exceed USDA nutrition requirements fueling academic excellence by providing safe, nutritious meals and promoting student wellness." (SFUSD, 2012 A).

One of the influential factors that made the SFUSD Board of Education vote to change food provider from Preferred Meal Systems to Revolution Foods, were as the Superintendent of

Schools in December 2012; Richard A. Carranza, said after the Board of Education had voted: "To strengthen academic performance we must not only promote good eating habits, but provide students with access to high quality, nutritious meals that support their well-being and academic performance," (SFUSD, 2012 A). When Revolution Foods took over as food provider, 61% of the children enrolled in the school district qualified for free or reduced-priced meals. On an every day basis, there served more than 33,000 meals and snacks throughout school districts lunchrooms (SFUSD, 2012 A).

SFUSD old food provider, Preferred Meals Systems cooked their food in the Midwest, froze it, and shipped it to San Francisco where it was reheated and served in the school districts lunchrooms (Billings, 2013). Revolution Foods makes fresh food every morning and delivers it within a few hours to school cafeterias, where it is reheated (San Francisco Magazine, 2015). There are vegetarian and dairy-free options, all meals meet or exceed USDA child nutrition standard. Revolution Foods use no artificial colors, flavors, or sweeteners in their meals, and the foods contain high quality ingredients like whole muscle meats, rBST free milk, unbleached flour, and fresh fruit (Revolution Foods, 2016).

Although the school district went for the lowest bidder when choosing to contract with Revolution Foods, the cost per, for example, elementary lunch increased from $1.79 to $1.95. Adding up all meal costs, SFUSD had with Preferred Meal Systems the first semester, fall 2012, and comparing it to the total costs the school district had the second semester, spring 2013, with Revolution Foods, the annual costs of meals had grown with $1.4 million, equal to 17% (SFUSD , 2013 B, p. 8). As providing healthy and nutritious foods to children is by SFUSD seen as central in order to establish a good learning environment, the school district is using funds from the general fund in order to cover lunch related expenses.

6.1.5 IDEO

In spring of 2013, SFUSD started a five-month collaboration with IDEO, a design-consulting firm with a human-centered approach to all its designs. In the collaboration with SFUSD this approach helped focusing more on the student's psychical needs, than on the healthiness of the lunches served to the kids – which had been the main focus until the start of the collaboration. The initiative was founded by a grant from the Williams Foundation (SFUSD, 2014), who also hired IDEO.

IDEO used about 21 weeks on the project where they among other, gathered a work group consisting of 1,300 students, parents, union leaders, nutrition staff, board commissioners, principals, and teachers (Luebkeman, 2014). One of the main findings was that students lack an "eating experience" (Luebkeman, 2014), which leads students to choose other activities over eating school lunch. The finding led to what today is known as *SFUSD's Future Dining Experience*. A project, redesigning school lunchrooms to match the mental needs of the different student groups, so the lunchroom inventory such as tables and chairs is varying depending on the age of the students using the lunchroom (FoodManagement, 2015, pp. 16-17).

IDEO also came up with suggestions for how to structure the lunchroom. Elementary school students should for example try communal eating as they use long time to decide what to eat. Older students do not necessarily have to go to the lunchroom to eat. IDEO suggested a greater use of healthy vending machines and mobile carts located where the students spend their lunch break. All payment and participation would go through a POS device (FoodManagement, 2015, pp. 16-17). "Ultimately the goal is to make the experience of eating a school lunch an enjoyable one that gets kids off the lunch line, encourages socialization and actually eating

lunch, whether that's at a communal table in an elementary school, a cafe table in a middle school or lounging anywhere on campus in a high school." (FoodManagement, 2015, pp. 16-17).

6.1.6 Updated Wellness Policy

SFUSD updated their wellness policy again in April 2015. The policy meet all the provisions of the Healthy, Hunger-Free Kids Act of 2010, and describes the minimum standard of food quality, the amount of fat, sodium, calories, and other nutrients that food and beverage sold throughout the SFUSD campus and administrative buildings can contain (SFUSD , 2015 A). The guidelines also include a detailed description on what standard products such as meat and poultry must have in order to be served. Turkey, poultry chicken, and beef, for example, can only be served if the meat have been given the grade standard A from USDA, and pork is not to be served at all (SFUSD , 2015 A, p. 3). Fried food and artificial trans fats are not permitted, and all processed food cannot contain more sodium, fat, and sugar than what is absolutely necessary for the food preservation (SFUSD , 2015 A, p. 4). The school district also has prohibited beverages such as soda, sports and energy drinks, fruit drinks and punches, artificial sweetener, and added sugars, including high fructose corn syrup, from sale at any time on any school districts property (SFUSD , 2015 A, p. 7).

Earlier this year, in May 2016, the Good Food Purchasing Program was adopted by SFUSD through a unanimously vote by the San Francisco Board of Education (SFUSD, 2016 B). The program is a set of tools and a metric-based framework that is going to guide the school district to direct their buying power towards suppliers. The program includes five inter-connected values: local economics, environmental sustainability, valued workforce, animal welfare, and nutrition (SFUSD, 2016 B).

6.2 Greatest Challenges and How They Have Been Overcome

6.2.1 Lunchrooms - From Junk Food to Revenue

One of SFUSD's challenges was to profit out of the sales made in the school districts cafeterias. A myth has long been that children do not like and therefore do not buy healthy foods. When the community surrounding Aptos Middle School suggested to remove junk food from the cafeteria and replace it with healthier options, there was an overall concern that children would not buy healthy food and that the cafeteria therefore would not break even.

A pilot proposal suggested by the Aptos community was accepted by SFUSD's Superintendent the fall 2002. The Aptos community included the school's new principal, the new head of the physical education department, and dedicated parents and teacher volunteers (USDA Food and Nutrition Service, 2005, p. 83). One of the members of the Aptos community, Dana Woldow, writes in the article *The Greatest School Lunch Superhero You Never Heard Of*, about some of the challenges the Aptos community faced in the start of the pilot. Among other happenings, she writes about Aptos community's initial planning meeting regarding the pilot. According to Woldow, the at the time head of the SFUSD SNS had heard about the pilot and the meeting and sent Ed Wilkins, the at the time supervisor of SFUSD, to was sent to meeting with orders from the head of the SNS to "torpedo it" (Woldow D., 2013). Wilkins, which later become the head of SFUSD SNS, had no intention of set a stopper for the pilot project and saw the pilot as his chance to put the kids' health first (Woldow D., 2013).

Some said that the head of the SNS, at the time of the Aptos pilot, to some extent slowed down the process of implementing more food with higher nutrition components in the school district for unknown reasons. The pilot shows that having an allied director in the Student

Nutritional Services is not crucial as long as at least on person in the Board of Education is supporting the initiative taken.

Together with the children, the Aptos community chose what to replace the junk food with through a survey where children could let the Aptos community know what kind of healthy foods they wanted to be offered in the cafeteria. As a result, the cafeteria started to serve sushi, fresh soup, sandwiches, baked chicken with rice, individual fruit cups, fresh fruit, yogurt, salads, water, and 100% fruit juice (Woldow D., 2013).

In June 2003, six months out in the pilot project, Aptos was one of only two schools within the SFUSD that ended the school year with profit (Woldow D., 2013). By ending the school year with profit, the Aptos community showed the rest of the school district that children do buy and eat healthy foods. Although the pilot was challenges is the start, it worked so well that all high-calorie, low-nutrient food and beverage were removed from all SFUSD's vending machines and a la carte offerings in the whole school district (SFUSD, 2012 C). As the junk food was replaced with healthier alternatives, the cafeteria revenues all over the district started to rise. The pilot was a success and the school district decided to include another 40 middle- and high schools in the new nutritional standards the following year (Wojcicki J. M., 2006).

Although the Aptos community to some extent experienced resistance from the school district's administration, they conducted a pilot that successful that SFUSD decided to take away 'junk food' from all the school district's cafeterias. Most of the interviewees in this study mentioned leadership and administration as one of the greatest challenges in improving the nutritional value of school food. To develop effective school programs for prevention and treatment of obesity it requires a supportive and committed administration, both at school site and on a school district level.

6.2.2 How to Make Them Eat More?

Since the start of SFUSD nutritional evolution, the school district has had a great focus on making meals served in their schools healthier. A study shows that if students choose to eat school lunch, it is often based more on what is on the menu than on hunger alone (Stallings, Suitor, & Taylor, 2010, p. 195), meaning that the school meals should be appealing to the students in order for students to eat.

To make more children choose to eat school lunch, SFUSD has gradually improved the nutritional components of the food served in their school cafeterias, at the same time as the school district's cafeterias have stopped serving unhealthy 'junk food'. The focus on healthy and fresh foods, led the school district to choose Revolution Foods as their new food provider in 2013. The food provider and SFUSD have worked together and invited students and their parents to taste and review the food, to come up with a best possible menu for the school district's children and cultural preferences. School children have also could wish for different meals to be served.

In an interview with San Francisco Magazine in 2015, then director of SFUSD SNS, Zetta Reicker, said that what made the partnership between the school district and Revolution Foods so successful is that the company tests their food on students and adjusts their recipes based on feedback from students (San Francisco Magazine, 2015). Reicker gave an example from the elementary level where the SNS wanted more salad on the menu meanwhile the students themselves wanted more pizza. As a solution, Revolution Foods invited the *Chicken Pizza Party Salad,* which was a combination of mozzarella cheese, croutons, chicken, and a pizza sauce-flavored dressing (San Francisco Magazine, 2015).

Although the school district has taken a variety of initiatives in order to increase the participation in meal programs, the number of students eating school lunch remain low. Interviewees point out that many of the children in SFUSD are not used to the texture and the taste of the healthy foods served in the school districts lunchrooms. As many of the children eating school lunch qualify for free or reduced priced meals through NSLP, some of the children have never had brown rice, whole-wheat pasta, or sweet potatoes before eating lunch at school - and therefore, to some extent, do not find the food served at school appealing. Some of the interviewees pointed to that the new tastes and textures make less students eat school lunch.

SFUSD has experiences a drop in the attendance in the school lunch program. In the school year 2010-2011, SFUSD served an average of 22,162 lunches every school day (Student Nutrition Services, 2012). The following school year, 2011-2012, 61% of SFUSD's 52,900 enrolled students qualified for free or reduced priced meals (SFUSD, n.d. F), and an average of 21,500 served school meals per day (Student Nutrition Services, 2012). The following school year, 2014-2015 the number of served lunches declined to 21,000 (Board of Education, 2015, p. 60) so did the number of students qualifying for free or reduced-priced meals that was 54%, meanwhile the number of enrolled students increased to 53,227 (SFUSD, 2015 B). In the school year of 2015-2016, the number of served school meals per day dropped once more to an average of 19,508 (Board of Education, 2016, p. 47), meanwhile the number of enrolled students in the school district increased to 55,320 and the number of students qualifying for free and reduced-priced school meals was 54% (SFUSD, n.d. E). The numbers above show that the amount of enrolled students has increased throughout the last years, meanwhile the amount of students qualifying for free and reduces-priced meals has decreased together with average number of consumed school meals. This means that the reason for why the number of students eating school

meals has not declined because of the number of enrolled students, nor the number of students qualifying for free or reduces-priced meals.

After the school district contracted with Revolution Foods, the participation in the meal programs increased with 10-12% throughout the first semester (SFUSD , 2013 B). The following school year, the numbers of students having school lunch went back to around where it was before Revolution Foods arrived the school district (Woldow (B), 2013).

Not long after Revolution Foods contracted with SFUSD, the school district strated a new poject with IDEO. As mentioned earlier, this project was founded by the Williams Foundation – who also hired IDEO to work with the school district (Woldow (B), 2013). When the IDEO project started, it demanded a lot of time from SFUSD SNS, which according to Woldow led to the SNS "leaving the current school meal program to languish." (Woldow (B), 2013).

6.2.3 Was the IDOE project the right way to go?

Before the IDEO project started, the school district and SNS worked on making the meals served within the school district healthier and more nutritious. After contracting with Revolution Foods, one of the remaining goals was to inform students and parents about how nutritious the new school meals were and how beneficial this is to children's health. The outreach would focus on parents and hopefully make them tell their children to buy lunch at school rather than making them packed lunches. The marketing of the new meals was also a part of the contract SFUSD had with Revolution Foods (Woldow (B), 2013). In an interview, Tim Brown, the CEO and President of IDEO, expressed that when they started to work with SFUSD "There was a clear case of systemic dissatisfaction with the quality of the food, and even after Revolutionary Foods […] was brought in, the children still chose not to eat at school" (Luebkeman, 2014). With

IDEO's findings, the focus changed from making school meals better and healthier, to initially be all about what the lunchrooms should looked like and the students eating experience. Currently, SFUSD has started to redesign school lunch rooms throughout the school district. A interviewee told that the students at one of the schools that have gotten their lunchrooms re-designed – love the new lunchroom. The students were proud of their lunchroom and enjoyed the new furniture. But has the lunchroom redesign increased the attendance in the school lunch program? Michelle Fort and Katie Karsh (2016) conducted a comparative study at Martin Luther King Jr. Middle School in SFUSD, and found that although the lunchroom had been redesigned the food attendance had not improved much (Fort & Karsh, 2016). They identified five root causes to the low meal participation at the school: 1) Current SNS effort focus on physical redesign, 2) Engagement by school stakeholders is low, 3) Students are not sufficiently informed about nutrition, 4) Food is unappealing and unfamiliar to students, 5) Eating is not students' top priority during a finite lunch time (Fort & Karsh, 2016). Through the research, they also found that both students and teachers at Martin Luther King Jr. Middle School had a lack of knowledge regarding the lunchroom re-construction.

The study also found that most of the teachers agreed that the food quality has improved since the switch to Revolution Foods, but that meals that students do not want to eat are still being served. The study also suggests that children find the current food unappealing due to the food being individually wrapped so students cannot see or smell it when deciding what to eat (Fort & Karsh, 2016). According to Largen &Bence (2009), the sent or odor of food create memories that affect food choices. When students are served school lunches that are wrapped in plastic, the school lunch do not stimulate the children's senses in form of seeing the food and

smelling it. When a school lunch do not appeal to a child's memory, the child might be less likely to choose to eat the meal.

A solution to the challenge mentioned above, is the IDEO project suggestion about *family style* meals for the younger students. IDEO suggested that students are divided into smaller groups sitting around a table with an adult. Food will be placed on each table and students will be able to serve themselves with help and supervision from the adult. By making the food available for students to both smell and see the food, IDEO suggest that more students will eat school lunch.

6.2.4 Lunch Stigma

Another challenge that came up throughout interview was the stigma related to having school lunch. A study regarding competitive foods, discrimination and participation in NSLP, found that "eliminating competitive a` la carte offerings may increase NSLP participation among qualified low-income students and that this effect may be mediated in part by reductions in stigma." (Bhatia, Jones, & Reicker, 2011). An article posted in The New York Times back in 2008, writes about stigma affiliated with the NSLP at Balboa High School in SFUSD. "Lunchtime "is the best time to impress your peers," said Lewis Geist, a senior at Balboa and its student body president. Being seen with a subsidized meal, he said, "lowers your status" (Pogash, 2008). At the time of the article posted in The New York Times in 2008, the a la carte foods, where children had to pay, were served in one room and the NSLP free and reduce-priced lunch was served in another. This created an extra stigma, dividing students of families from different socioeconomic backgrounds (Pogash, 2008). Since 2008, SFUSD has eliminated the a la carte lunch options and

served the NSLP lunches to all its students. Together with the card payment, this has eliminated the visibility of who is qualifying for free and reduced-priced meals and not.

When the meal cards were implemented, students that did not qualify for free or reduced-priced meals paid for their meals through an account that their parents had to remember to put money on. Although student's parents forgot to put money on the account, no student was denied school food (SFUSD, 2012 C), after the Feeding Every Hungry Child resolution passed by the Board of Education in 2009 (Woldow D. , 2011). The resolution secures food for all hungry children, although they are not on the reduced-price and free meal program. Throughout the US, some school districts and schools are denying children with unpaid school meals food to make the children's parents pay the school meal bill. SFUSD solves the payment issue between the school district and the legal guardian/parent. According to, SFUSD "Hunger is such an extreme impediment to academic achievement that no student shall be denied a school meal because of an inability to pay. Because the cost of feeding students whose families do not qualify for government sponsored meals and cannot afford to pay for their own meals reduces the amount of money available to pay for other education related expenses, SNS shall create detailed administrative regulations that outline the steps families, schools, and SNS will take to minimize the financial implications of feeding all students regardless of ability to pay." (Gamut Online, 2015).

Unpaid meal charges have been a challenge for the school district. From 2009 to 2011, the unpaid meal charges decreased from $652,330 a year to $354,009 a year. When Revolution Foods took over as food provider, the unpaid meal charges only from January 2013 to April 2013 were on a total of $416,304 (SFUSD , 2013 B, p. 9). This steep increase is likely to have been driven by children's excitement of having a new food providing serving healthier foods, and the

increased cost per meal that occurred when Revolution Foods started as a food provider. SFUSD estimated that 71% of the unpaid meal charges between January 2013 and April 2013 were for families who are ineligible for free and reduced-priced lunches, and the remaining 29% were from families who were identified as eligible for free and reduces-priced lunches after the school year started (SFUSD , 2013 B, p. 9).

Although SFUSD found that 71% of the unpaid meal charges came from families that did not qualify for free and reduced-priced school meals, the threshold to qualify for free and reduced-price meal program does not reflect the cost of living in San Francisco. The federal guideline state that a family of two must have an income on less than $28,694 a year to qualify for free or reduces-prices meals (SFUSD , 2013 B, p. 9). According to an article posted in Business Insider in September last year, the cost of living in San Francisco is 62.6% higher than the US average cost of living and the median rent of a one bedroom apartment was $3.460 a month (Elkins, 2015).

SFUSD expresses through a document titled *The Future of School Meals in San Francisco Unified School District* that one of the greatest challenges the school district is fazing is the significant gap between the federal poverty measurement and the income that is actually required to live in San Francisco. As a result, there are thousands of San Franciscans that do not qualify for federal nutrition programs, yet need food assistance such as free or reduced priced school lunch (SFUSD, 2012 B, p. 3). According to Dana Woldow (2011), the "Feeding Every Hungry Child policy has been used to justify meal charges that it was never intended to cover. Some principals at high poverty schools send every child through the meal line to take a free lunch, even those whose families never filled out the meal application (and for whom no government payment will be available.) Some send children with bag lunches from home

through the line to take a “free” milk each day, disregarding the fact that milk alone does not qualify for government payment even if a child qualifies for free meals; payment is received only if qualified children take the full meal, not just milk.” (Woldow D. , 2011). Through an interview, I was told that although the schools are supposed to collect the money students owe for unpaid meals, many parents are not able to pay, and the school district ends up with extra school meal expenses.

6.2.5 Funding

The school district has a handful of different school meal related expenses, which adds up to be way more than what SFUSD receives in funding. Throughout the research I have found funding to school meal programs to be one of the greatest barriers for school districts all over the US. Especially after the implementation of the Wellness Policy, the Healthy, Hungry-Free Kids Act of 2010, as school districts experienced a rising costs in preparing school meals because of stricter nutritional requirements and stricter requirement to the food quality. Considering the fact that many school district have been using private food providers that to some extent have been providing the school district with junk food, and school kitchens have only been used to re-heating – there is an over-all lack of knowledge among school kitchen staff when it came to production of healthy foods and if the school has a kitchen, the equipment is often not up to date.

Although different school districts have different needs due to differences in the cost of labour and transportation of goods, school lunch funding is the same in all US states with exception of Hawaii, Puerto Rico, and Alaska where the founding is higher (USDA, n.d. C). Throughout the school year of 2016-2017, the USDA fund US states, apart from Hawaii, Puerto

Rico, and Alaska, a maximum rate of $0.38 for a paid school lunch, $2.93 for a reduced-price school lunch, and $3.33 for a free school lunch (USDA, n.d. C).

According to SFUSD (2012b), there has been a historic and structural lack of funding from federal, state, and local sources. The funding to the student nutrition departments has all been used to cover meal expenses and labor. School kitchens have therefore not been renewed and are insufficiently equipped given today's standards and student population numbers (SFUSD, 2012 B, p. 3). As schools built after 1950 tend to have been built without kitchen facilities, the school lunch staff has nowhere to cook for the students. Due to the lack of kitchen facilities, SFUSD has used the option of buying food from a meal provider. In order for the school district to have such a healthy meal provider as Revolution Foods, the school district must use money from the general fund to cover some of the meal costs. This is money that if not used on improving the nutritional quality could have gone to raise teacher's salaries, reconstruction and maintenance of schools, or other school-related expenditures.

Most of the interviewees stressed the fact that the school district and the Board of Directors are seeing child nutrition as an important part of the learning process and that children are less likely to absorb knowledge if they are hungry. According to interviewees, students were less hyper after lunch after the SFUSD banned 'junk foods' and replaced it with healthier options. As there is a great gap between rich and poor in San Francisco, interviewees said that SFUSD and the Board of Education sees it as their job to make sure that hungry students are consuming nutritious and good quality foods, that will lead to better learning.

To continue to provide heathy foods to students SFUSD are looking at the option of central kitchens spread around in the school district, providing all the school district schools with meals. The final proposal from the IDEO project also suggests that SFUSD could save money if

they cook school meals themselves. The key assumption is that "SFUSD produced per-meal food costs are estimated to decrease from $1.00 to $0.82 based on 10% savings from direct-to-supplier sourcing and 10% savings from improved inventory management." (SFUSD & IDEO, 2013, p. 143). The saving associated with the school district producing meals themselves, is because SFUSD will be able to use federal subsidized food that they buy cheep or only pay for the transportation.

San Francisco Board of Education voted to place a school facility bond on the November 2016 ballot. $20 million is designated SNS and the renovation of existing kitchens around the cities so-called *regional kitchens*, which will lead to more scratch cooked food for the school in the area. "The District may modernize or construct kitchen, including any necessary or incidental infrastructure, equipment, and/or site improvements to improve school meals, including, but not limited to, the creation of regional cooking kitchen to serve all District schools, food service line upgrades, and cafeteria and dining space modernization at any current and future District site San Francisco Unified School" (SFUSD, 2016 B).

Critiques have been asking if it will be possible for SFUSD to employ experienced chefs in the school districts central kitchens due to San Francisco being a competitive market for good chefs and the salary the school district will be able to offer. Considering what has been achieved in Oakland Unified School District, where the school district has a total of 30 on-site working kitchens making fresh food for the entire school district (Duggan, 2016), central kitchens are likely possible in SFUSD with the right focus from the SNS and the Board of Education.

7 Conclusion

Throughout the process of improving the nutritional composition of foods served in SFUSD, the school district has faced several challenges including preparing of meals on budget and according to the Wellness Policy and HHFKA, funding of school meals, and stigma related to NSLP.

One of the school districts greatest challenge is to make school lunches according to the districts Wellness Policy and HHFKA, and at the same time make the meals appealing and appetizing to the students – in order to have a high number of students participating in the program. It is challenging for the food provider to find foods of good enough quality to a price that fits the school districts budget, which again regulates what the food provider can offer. Another factor is that many of the children qualifying for NSLP's free and reduced-priced meals are from a food insecure background and have never been exposed to the kind of food served in the SFUSD's NSLP. This might lead students not to eat the food. These factors combined with that warm lunches offered in SFUSD currently are being served in a sealed lunch containers, making students unable to both see and smell the food, is another factor that might be influential in however a students chooses to eat the school lunch available at school or not. The school district and Revolution Foods have together tried to increase the school meal participation though student taste panels including students, and also giving students the option to wish for what kind of food they would like to be served. The school district is still looking for a solution on how to increase the school lunch participation. SFUSD would like to, in a close future, establish central kitchen in order to provide foods to their own schools. Due to low federal funding, the school district has not been able to keep their school kitchen up to date and is therefore, at this point, not able to cook lunches for their students.

The federal funding directed to NSLP in SFUSD is also a challenge, as it does not cover the whole cost of the school lunches offered in the school district lunchrooms. In order to cover the cost of serving healthy foods, the school district is using money from the general fund. The low federal founding makes the SFUSD more welcoming towards funding from private sources. In the case of the funds given by the Williamson foundation, which paid for the IDEO project, this new project can have been a great distraction to the promotion of the new and healthier foods that was brought to the school district through Revolution Foods. Interviewees working on improving the nutrition level in foods served in SFUSD before the IDEO project started expressed that a greater dialogue between SFUSD and students, parents, and teachers regarding the food served by Revolution Foods and its health promoting benefits could have led to an increase in the number of students attending the NSLP. Instead, a great amount of SFUSD's SNS focus seems to have gone to the IDEO project and initially lunchroom redesign.

When it comes to the stigma related to consuming school lunch, SFUSD has been able to eliminate some of the stigma by offering the same food to all students and implementing a payment system where all students are using identical meal cards.

There is a long way to go from serving 'junk foods' to take it away and replace it with healthier options. As the case of SFUSD shows, for a school district to change someone have to take initiative and push for a change. In the case of SFUSD it was the Board of Education that first passed the resolution declaring all schools within the school district to be commercial and tobacco-free settings. The next step was taken by the Aptos community where parents and school personal together initiated the pilot replacing all 'junk food' with healthier options, which today apply to all schools the whole school district. Once SFUSD got a SNS director that had the

opinion that healthier school meals were important, things started to change and foods available in the school districts school started to get healthier and more nutritious.

The, maybe, greatest challenges school districts are likely to meet in improving the nutritional components of school lunches and other foods available in schools has in this study shown to be cost related. Fresh vegetables, lean meat, and whole wheat and whole grain products is in today's market are costlier than processed and packaged foods. If a school district does not have access to their own kitchen facilities with up to date equipment, the school district has to hire a company to cook for them. In the case of SFUSD, the school district contracted with Revolution Foods to secure student's healthy meals. To cover school meal related expenses, SFUSD are using both federal and state funds, and money from the general fund.

As in the case of SFUSD, other school districts might also experience a drop in the school lunch participation as school lunches are getting healthier and contain more vegetables and whole grain products. Through studying SFUSD, this study did not find any concrete solution on how to increase the school lunch participation that has been tested out and proven to work.

There is a great need of more research within the field of challenges school districts are facing in implementing a more nutritious school meals.

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