Summer 2019

The Implementation Of Plant-Based Diets In Lower-Income Public Schools

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THE IMPLEMENTATION OF PLANT-BASED DIETS IN LOWER-INCOME PUBLIC SCHOOLS

by

Jesse Rock

A capstone submitted in partial fulfillment of the requirements for the degree of Master of Arts in Education: Natural Science and Environmental Education.

Hamline University

Saint Paul, Minnesota

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Capstone Project Facilitator: Melissa Erickson
Content Expert: Joe Burk
Peer Reviewer: Amanda Tate
Introduction

This capstone project explored the question: What are the problems and solutions of adopting a plant-based diet into lower-income (as defined by Title 1) public schools (grades K-12)? The purpose of this project was to propose a plant-based initiative to district leadership to begin the process of implementing more plant-based dietary meal options for students (K-12) in an urban school district for the 2020-21 academic year. The goal of this project is not to turn every public school vegan. Rather, the goal is to incorporate more plant-based meal options into lower-income public schools, promoting more opportunities for children to consume more fruits, vegetables, nuts, whole grains, and legumes.

The project was comprised of a PowerPoint presentation and a formal proposal to begin a plant-based initiative, which was to be presented to district leadership of an urban, lower-income school. The first section of the proposal was a project description, which highlighted the specific health benefits of a plant-based diet, while addressing the negative impact the Western diet has on ecosystems. Next, the proposal clearly defined one plant-based meal substitution that should be made across the whole district. The final section of the proposal included an estimated cost-analysis of the recommended changes.

The second aspect of my project was a PowerPoint presentation. The presentation began with the goals and objectives of the plant-based initiative. Next, a summary of the scientific studies that evaluate the effect a plant-based diet has on personal health was given. The presentation outlined the research that addresses the influence a Western diet has on earth and its resources, and how a district-wide adoption of a plant-based diet could alleviate cities’ overall carbon footprint. A variety of plant-based schools from around the world were evaluated to show
the audience there are different options when beginning a plant-based initiative. This also
informed the audience there are many school districts that have already made significant changes
to more sustainable, healthier eating. Schools are realizing the impact plant-based diets can have
on their students and this is why so many schools are switching over to plant-based diets.
Schools in California, New York, and Brazil have initiated the process of implementing more
plant-based dietary meal options within their schools. The purpose of this capstone project is to
begin a similar process in the state of Minnesota. The presentation concluded with an appraisal
of district-wide dietary changes, in order to determine the feasibility of the plant-based initiative.

Setting and Audience

The intended audience for my project was my district leadership, which entails principals
of the respective schools, the superintendent, and school board members. The reason why I chose
this audience was because they have the greatest influence in determining the implementation of
district-wide changes.

The setting for this project was an urban, lower-income school district, where I currently
teach. The schools (one secondary, and two elementary buildings) reside in a small urban city,
with a population of over 20,000 people (City-data, 2018). All schools within the district are
considered lower-income as more than 30% of the student population receives free and reduced
lunch (FSA, n.d.). The proposal and presentation for plant-based dietary changes will be held at
the school district’s office.

Project Format

The two deliverable mediums I selected for this project are a formal proposal in the form
of a Word document and a visual PowerPoint presentation. The proposal is to be printed off so
every member who attends the presentation will have his or her own copy. The reason why I chose to use a Word document is because I wanted the information to be straightforward and neatly presented. My audience will be comprised of district leadership, and they are constantly inundated with questions and requests. Because of this, I want to be sure my objective is clear, and they know the exact benefits and costs associated with my proposal.

The visual PowerPoint presentation was intended to corroborate the claims and recommendations made in my proposal. I will integrate the presentation principles created by Knowles (1992) in order to engage adult learners within the audience. My presentation will begin with the goals and objectives of the project and lead into an outline of the main topics that will be covered. These two strategies will orient the learning for my audience and will contextualize my proposal (Palis & Quiros, 2014). I chose a PowerPoint presentation because it easily allows me to display graphs and data from scientific studies. Through PowerPoint, I will also be able to show images of the plant-based meals served in other school districts, which will help my audience envision future meals for our students.
Plant-Based Initiative Proposal

**Plant-Based Diet** - a diet that consists of all minimally processed fruits, vegetables, whole grains, legumes, nuts and seeds, herbs, and spices and excludes all animal products, including red meat, poultry, fish, eggs, and dairy products.

**Goal** - To begin the process of implementing more plant-based dietary meal options for students (K-12) at South Saint Paul

**Better For Your Personal Health**
Plant-Based Diets have been proven to prevent:
- Heart Disease
- Prostate and Colorectal Cancers
- Diabetes

**Better for the Environment**
Plant-Based Diets are more sustainable:
- Require less resources
- Emit less greenhouse gases
- Mitigate agricultural deforestation

**Objectives:**
- Have discussion about the feasibility of implementing plant-based dietary changes
- Change 1 meat-based meal option to a plant-based meal option
- Create plan for continual gradual change in SSP food services to become a more plant-based school district

**Initial Recommendation:**
Substituting the hard shell beef taco option for Black Bean Empanadas

**Beef Hard Shell Taco Costs**
- Fruits and vegetables: $0.20
- Carton of milk: $0.15
- Ingredients for item: $0.85
- Total Cost per meal: $1.20

**Black Bean Empanada Costs**
- Fruits and vegetables: $0.20
- Carton of milk: $0.15
- Ingredients for item: $0.55
- Condiments for item: $0.10
- Total Cost per meal: $1.00
THE IMPLEMENTATION OF PLANT-BASED DIETS INTO THE SOUTH SAINT PAUL SCHOOL DISTRICT

By Jesse Rock

Introduction

My name is Jesse Rock and I have taught 10th and 12th grade Biology @ SSP for the past 5 years

- Personal experience with plant-based diets
- The inception of this presentation stemmed from my Capstone Project completed through Hamline’s NSEE Masters Program
Goal: To begin the process of implementing more plant-based dietary meal options for students (K-12) at South Saint Paul

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**Western American Diet**

Western American Diet - high intake of red meat, junk food, saturated fats, eggs, and sugar, while lacking fresh fruits, vegetables and whole grains

- 60.1% of dietary intake comes from refined sugar
- 25% comes from animal product
- 11% of the average american diet comes from whole grains, nuts beans, fruits and vegetables

A recent report analyzed Federal Dietary recommendation against and sample population and found

- 1% reached the whole grain requirement
- 2% met the requirements for orange vegetable consumption
- 4% ate the recommended amount of greens
Plant-Based Diets

Plant-based diets - diet that consists of all minimally processed fruits, vegetables, whole grains, legumes, nuts and seeds, herbs, and spices and excludes all animal products, including red meat, poultry, fish, eggs, and dairy products.

- Specifically not using the term “Vegan”
- Plant-based diets benefit our personal health
- Plant-based diets are more sustainable
- To be viewed as continuum

Google An Ideal Model!

- Google is educating their employees on the positive impacts of a plant-based diet
- They are slowly introducing their employees, at their corporate headquarters, to meals that are independent of meat.
- They didn’t begin with an all out conversion of plant-based but rather a gradual transition
- Google has stated that their end goal is to be completely plant-based

THE EATER CONTINUUM

TRUE OMNIVORE
“I eat a wide variety of foods”

SOMETHAT VEGETARIAN
“I eat a wide variety of foods but trying to eat LESS meat, dairy, pork, etc.”

MOSTLY VEGETARIAN
“I eat mostly vegetarian but occasionally eat meat, dairy, pork, etc.”

VEGETARIAN
“I don’t eat meat; pork, chicken, etc.”

VEGAN
“I don’t eat any animal products”
**Personal Health and Heart Disease**

Heart disease is the leading cause of death in the U.S. and claims 630,000 lives annually.

Heart disease is caused by the buildup of cholesterol within the arteries (atherosclerosis) and high blood pressure (hypertension).

Plant-based diets have been proven to:

- Reduce cholesterol
- Lower blood pressure
- Decrease the risk of heart disease

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**Other Prominent Diseases Alleviated by Plant-Based Diets**

**Plant-based diets have been proven to:**

- Decrease the incidences of colorectal cancers
  - 4th leading cancer and an estimated 145,600 estimated new cases in 2019
- Mitigate the risk of prostate cancer
  - 1st leading cause of cancer amongst men and responsible for 29,430 deaths in 2018
- Prevent and Treat Type II diabetes
  - 7th leading cause of death in U.S.
Ecological Health And Agricultural Systems

Natural Resource Requirement

Plant-based diets require less land, fertilizer, energy and irrigation water

Although, meats are more resource intensive, beef is by the far the least sustainable source of animal protein
**Greenhouse Gas Emissions**

[World map showing greenhouse gas emissions by region.]

**Deforestation and Reduction in Biodiversity**

Deforestation, along with other human activities, has put the earth in its 6th mass extinction

- Over 75,000 square kilometers of the Amazon Rainforest has been destroyed since 1978.
- 80% of that has been converted to pasture land for cattle,
- Making livestock industry the number one cause of deforestation occurring in the Amazon.

This deforestation reduces biodiversity, which leads to mass extinction

- This is problematic because tropical rainforests cover less than 10% of earth’s land surface and yet support 65% of earth’s biodiversity.
- Experts predict that every year we are losing up to 55,000 species.
Lower Income Schools and Communities Especially Need a Plant-Based Initiative

Lower income communities have higher rates of obesity, diabetes and other diet related diseases.\

Experts believe this is because:

- Those living in poverty have less access fresh food and produce.
- While simultaneously having greater access to unhealthy food, such as fast food.

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Lower Income Schools and Communities

The health risk of poverty turns out to be a huge effect, the biggest risk factor there is in all of behavioral medicine—in other words, if you have a bunch of people of the same gender, age, and ethnicity and you want to make some predictions about who is going to live how long, the single most useful fact to know is each person’s SES. If you want to increase the odds of living a long and healthy life, don’t be poor. Poverty is associated with increased risks of cardiovascular disease, respiratory disease, ulcers, rheumatoid disorders, psychiatric diseases, and a number of types of cancer, just to name a few. It is associated with higher rates of people judging themselves to be of poor health, of infant mortality, and of mortality due to all causes.

Models of Plant-Based School Districts

1. Santa Barbara Unified School District - 50% of menu (as of 2018) is vegan, they still offer meat and dairy options at every meal.  

2. Los Angeles Unified School District - initiated a pilot program in 2017-18 school year, where they offered one plan-based meal in seven of the schools in their district.  
   *It was so successful they increased it to two plant-based meals a day.*

Models of Plant-Based School Districts

Principal Bob Groff has been a catalyst for change in the Active Learning Elementary school in New York City. "There is a strong correlation between academic achievement and student health and nutrition," said Groff. "I wanted to prove that better nutrition could make a difference to students' lives."

3. Active Learning Elementary school in New York City has made a gradual change over to a 100% vegetarian menu since 2008.  
   * Since converting the school has observed
     - increased test scores
     - Improved attendance
     - Less food waste
Models of Plant-Based School Districts

4. New York City Public Schools - As of 2017, 1,200 public schools in New York are adding a vegan option to their menu.31

5. “Escola Sustentável (Sustainable School),” is a project that is moving 4 major cities (Serrinha, Barroca, Teofilândia and Biritinga) in Bahia, Brazil to an all vegan lunch menu by 2019.32

What SSP is Doing Well in Regards to Nutrition

Second Chance Breakfast - 22,846 breakfasts being served to our students within the 2017-2018 academic year.33

Second Harvest Heartland - a food program that collects food from local grocery stores, brings it to our school and offers it to the community for free. This program has provided food access (specifically produce) to our lower income families.34
What SSP Could Improve in Regards to Nutrition

Providing more plant-based meals for our SSP students, offering more fruits, vegetables, whole grains, nuts and legumes

Plant Based Initiative Goal - To begin the process of implementing more plant-based dietary meal options for students (K-12) at South Saint Paul

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Initial Recommendation - Starting Small

<table>
<thead>
<tr>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
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**BREAKFAST**

- Mini Maple Pancakes

**LUNCH**

- Mini Corn Dogs or Chicken Tenders w/ Dinner Roll or Ham & Turkey Sub With Romaine & Spinach Salad, Pasta Salad, Garden Patch Varieties or Sesame Salad Lunch

- Cereal Bar & Cheese

- Ham & Turkey Sub or Beef Softshell Tacos with Tator Tots Sub & Taco Fixings

- Beef Hard Shell Tacos with Macaroni & Cheese Seasoned Peas Garden Patch Varieties or Southwest Chicken Salad Lunch

- Shrimp Poppers or Chicken Nuggets or Turkey Sandwich with Italian Sub with Mashed Potatoes Dinner Roll Glazed Carrots Garden Patch Varieties or Chicken Caesar Salad Lunch

- Mini Cinni

- Banana Bread Slice

- Sloppy Joe or Chicken Patty Sandwich or PBJ & String Cheese with Salad Garden Patch Varieties or Chicken Caesar Salad Lunch
“If we’re going to close the achievement gap in our country, we need to close the nutrition gap.”

—Arne Duncan, U.S. Secretary of Education

The Lunch Box is designed specifically to support school district food service teams as they transition their food programs from processed foods to scratch cooking with fresh ingredients.36

**The Lunch Box provides:**

- USDA Compliant vegetarian recipes
- Menu Cycles
- Financial Calculators
- Implementation Strategies
- Marketing Materials

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**Initial Recommendation - Starting Small**

Our food service department strives for food cost percentage of 40%

40% - Goes toward the meal

goes to (labor, payroll taxes and benefits, utilities, ect.)

60% - Goes to (labor, payroll taxes and benefits, utilities, ect.)

$3.50 is used to the revenue number for each meal

meaning that their budget for each meal is $1.40
**Initial Recommendation - Starting Small**

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Based off of these estimations, the plant-based meal would actually be 20 cents cheaper than the beef hard shell taco meal.

*Numbers and cost estimation were provided by Glen Ritter, Director of Food services*
Steps from here

1. Allow time for questions and processing
2. Schedule a follow-up meeting to discuss pros and cons
3. Determine if a plant-based initiative is something that our district wants to begin

If we decide to move forward?

4. Question: What are the healthiest, most sustainable plant-based options that our district is reasonably able to afford?
5. Explore Chef Ann’s Lunch Box to evaluate effective meal substitutions
6. Decide what plant-based meal will be replacing the meat-based one for the academic year of 2020-2021
7. SSP cooks may need education from food services about new meal prep
8. A 1, 2, and 5 year plan should be created to continue the implementation of plant-based diets

*Plan should include:

- Education for students
- Education for parents and community
- Create implementation strategy for plant-based meal substitution
Summary

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QUESTIONS?
References


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REFERENCES


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