

Design Project Study Proposal  
Situative Perspective

Nutritional Choices in Middle School

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## **Learning Context**

The National Center for Education Statistics reports that 99% of all elementary schools offer nutrition education. By the time students enter middle school, they have received an average of over 50 hours of nutrition education. Despite the efforts of classroom instruction, the number of obese children in the United States has tripled in the last 20 years and currently one in five children are overweight.

Weight gain in children is generally caused by unhealthy eating patterns, a lack of physical activity, or a combination of both. If the majority of children receive nutrition education in elementary school, why is there such marked increase in childhood obesity?

We must examine the kinds of nutrition instruction currently being offered in elementary schools nationwide. While there is no standardized nutrition curriculum for grades K-6, 96% of nutrition education in elementary school is concentrated on three main components:

- 1) Information from the Food Guide Pyramid, produced by the United States Department of Agriculture. The Food Pyramid includes information on food groups and serving sizes, and is meant to encourage a balanced diet.
- 2) How various nutrients, such as calcium, iron and vitamins, are essential to a healthy body. Also discussed within this component are the food sources of different nutrients.
- 3) The relationship between diet and health, whereby students are educated about the positive impact that a healthy diet can have on the human body.

## **Learning problem**

The emphasis of nutrition education is giving students factual knowledge. There is little attention paid to motivating students to make healthful choices, or to help them understand how social and environmental pressures may play a role in their decision-making.

## **Learning Goal**

The aim of our study is to examine 1) the social interactions and 2) the affordances and constraints in the context of the cafeteria environment to gain a better understanding of the role these factors play in food choices.

## **Study Specifics**

### **Cafeteria**

We have chosen a school with a lunchtime philosophy that allows students to make choices about the food they eat and how they spend their lunch period. Students who do not bring their lunches to school may select from two types of menus. The first type, Lunch A, allows the student to choose one entrée, two side dishes, and one dessert from a selection of entrees, side dishes, and desserts that include both nutritious and non-nutritious food. (See Appendix A, menu A for a sample of Lunch A). The second type, Lunch B, is an a la carte lunch. Students purchase items individually to complete their lunch. (See Appendix A, menu B for a sample of Lunch B).

Students are given a 40-minute lunch period every day. When finished eating, the students are free to spend the rest of the time as they see fit. Many students do not spend the entire lunch period in the cafeteria. Instead, they eat as quickly as possible so they may engage in other activities such as socializing with friends, playing sports, or participating in school clubs and events.

The cafeteria itself is structured so that students who purchase Lunch A proceed through a lunch line relaying to each server which option they chose for their entrée, side dish, and dessert. The food items are displayed in order, entree through dessert. There are multiple servers, one for each category of food.

Students who choose Lunch B receive their lunch from an A la Carte menu. The food choices are made known to student before they proceed through the line. While lunch monitors roam the cafeteria to make sure students follow the school's guidelines for behavior, no teachers or monitors are involved the students' menu decisions. The cafeteria has no assigned seating so students are free to chose where they sit and with whom. The cafeteria environment is free from television and non-school based advertising.

### **Participants**

We will focus our study on one middle school, observing the social interactions within the environment of the school cafeteria at lunchtime. This is a "typical" public school with a diverse student body, split evenly between genders. The student population comes from varying socio-economic background with the majority being middle class. The participants in our study are 7<sup>th</sup> grade students, with an age range of 12 to 13.

To study the dietary practices of the student population we will focus on three types of sources of nutrition: cafeteria, home, or a combination.

## **Design Principles**

There are two main situative principles presented by Greeno, et al. that are particularly helpful in structuring the design of our proposal. The first principle states, “learning environments can be organized to support the development of students’ personal identities as capable and confident learners and knowers.” This idea supposes that students learn to make choices from the social learning environment that surrounds them at lunchtime, namely, their group of friends. The second key concept that informs our approach suggests that knowing, “involves attunements to constraints and affordances of activity systems.” This view focused our attention on the physical and social constraints that govern the students’ food choice such as the impact of time pressure and the sequence of events during the lunch hour.

## **Methods**

### **Types of methods employed**

We will be using 4 types of data gathering methods:

#### **1. Video recording**

The cameras will be positioned in the cafeteria and the surrounding eating areas. We will collect data twice a week (on random days) in order to determine the emerging dynamics.

#### **2. On-site researchers**

We will place direct observers within particular groups to gather more detailed information on the same days as videotaping. The observer will also have conversations with students in order to support their observations, gain student perspective, and help shape the study. Since the study is happening over a long expanse of time, a full school year, students will become accustomed to the observers being there.

#### **3. Food server**

Observation will occur bi-monthly, in random intervals throughout the school year. As the food server, the researcher will become a natural part of the environment observing students while they proceed through the food line. In this position the researcher will be able to more closely observe social interactions at the moment the food choices are made.

#### **4. Pre and post interviews.**

In order to understand the impact of group interaction on a student’s nutritional choices during the school year, we would conduct video interviews during the first and last week of 7<sup>th</sup> grade. Our sample size would be 25% of the entering class. The interviews held in the first week of school would aim to understand the practices that the student has entered with. The interviews held during the last week of 7<sup>th</sup> grade would be geared towards understanding why the student has developed certain practices.

## **Studying Design Principle 1: How does the cafeteria environment influence the development of students' personal identities?**

Students enter middle school with certain dietary practices that have been influenced by classroom education, practices at home, and their social circle. Common eating patterns are structured around groups and we assume that these groups evolve over the school year. We suspect that the individual student's food choice is dictated by their peers. To better understand how the group's identity shapes the individual's identity, we would like to see what patterns exist within a group. Specifically, we are interested in what the group "says" and what the group "does" with respect to food choice. What the group "says" may range from friendly conversation about food to hurtful teasing. What the group "does" may range from what foods they select from the cafeteria to what food is actually consumed.

### **Methodologies**

#### **Pre- and Post- school year video interviews to assess the changes in perceived individual identity over the school year.**

##### Sample questions during Interview #1

1. What types of food did you eat for lunch in 6<sup>th</sup> grade?
  - a. Categories: dessert, snacks, fruit, drinks
  - b. 'Popular' foods
2. Did you buy the food at school or was it packed from home?
3. What type of food was offered at your elementary school?
4. What group did you eat lunch with? Was it the same group everyday? Describe your group.
5. What types of food were eaten at the table you sat at?

##### Sample questions during Interview #2

1. What types of food have you eaten this year?
  - a. Categories: dessert, snacks, fruit, drinks
  - b. 'Popular' foods
2. *Why have your eating habits changed?*
3. Did you buy the food at school or was it packed from home?
4. *Do you prefer food from home or the cafeteria? Why?*
5. What group did you eat lunch with? Was it the same group everyday? Describe your group.
6. *Why did the group change from 6<sup>th</sup> grade? How has this change impacted your food choices?*

### **Concealed observation through video and audio recordings to gain a general understanding of group patterns.**

What defines a group? Identify the different groups based on where students sit and who they talk to while eating lunch. Look for other characteristics that may define a group.

- How do groups change during the year?
- Do students go through the lunch line in certain groups? Do students make suggestions to one another about what they should eat?

### **Unconcealed observation through on-site researchers to gain an understanding of specific group dynamics.**

- Listen in on what a particular group says. Do students ever talk about their favorite foods? What kind of response do they get from the other members? Pay special attention to signs of approval or rejection.
- Keep track of what students choose to put on their plates. Try to correlate what is said about food choices with what students choose. If there are certain foods which are deemed “popular”, do students choose them more often?
- Observe how food is shared within the group. Are any items shared more frequently than others? Can these foods be used to distinguish one group from another?
- Take note of not only what food students have in front of them, but also what actually consume. For example, do students always finish their desserts, but rarely their sandwiches?

### **Studying Design Principle 2: How does the students’ attunement to the affordances and constraints of the cafeteria environment influence their food choices?**

Based on our second design principle we want to study 1) how giving students the freedom to choose how they spend their lunch period influences their food choices and 2) how the constraints and affordances of the cafeteria activity system influence how these choices are manifested.

To gather this information we will observe students while they proceed through the lunch line and when they sit down to eat. We will use a combination of concealed and unconcealed observation such as video/audio recordings and on-site researchers. The video and audio recordings will be used to gain a general understanding of the self-imposed time limits students place on eating. The researchers will observe the students to gain an understanding of how time influences their individual choices. Another researcher will work as a food server

becoming concealed observer to gain a more focused understanding of how environmental factors influence food choices.

## **Environment Methodology**

### **Concealed observation through video and audio recordings to gain a general understanding of the self-imposed time limits students place on eating.**

- i. Observe how the overall student population uses the time period. What percentages of students have finished eating after 10, 20, 30, and 40 minutes of the lunch period have passed?
- ii. Observe how much time is spent eating by individual groups.

### **Unconcealed observation through on-site researchers to gain more focused understanding on how time influences individual choices.**

- Observe a student from the time he/she entered the lunchroom to when he/she has left.
- Record
  - Origin of food - lunch line, bag lunch, and trading with friends.
  - How much time was a student spent eating?
  - What was eaten and portion size?
- Survey interviews would occur randomly to gain students perspectives on how they see time affecting their food choices. Observers would be allowed to conduct interviews if they saw changes in a particular student's activities.

### **Unconcealed observation through on-site food servers to gain more focused understanding on how environmental factors influence food choices.**

- Observe students making choices as they walk through the food line
- Record important information on:
  - Students' comments on their peer's food choice
  - Students' non-verbal reactions to food choices such as pointing or physically poking?
  - Size of portions and consistency in size
- Observe student interactions with food servers

## **Design Solutions**

We propose to design an updated nutrition curriculum that fosters the student's identity as part of a larger community of healthy eaters. The curriculum will serve to help define the student's identity as informed decision-makers. It will also provide authentic learning by making students aware of how social pressures may influence their decisions by engaging them in project-based real-world

situations. The updated curriculum will enable students to assess their own eating choices and that of their peers.

## **Appendix A**

### **Menu A**

#### **Entrée**

*Choose one of the following:*

- Chicken Patti Ham & Cheese Hero
- Taco Turkey & Cheese Hero
- Pizza or Combo & Cheese Hero
- Cheeseburger Salami & Cheese Hero
- Hot Pockets Tuna Hero

#### **Side Dish**

*Choose two of the following:*

- Pasta Mashed Potato French Fries
- Salad Vegetable

#### **Dessert**

*Choose one of the following:*

- Fresh Pudding
- Canned Fruit

### **Menu B**

#### **Daily**

- Bagels with Cream Cheese or Butter
- French Fries
- Spicy Fries
- Fresh Baked Cookies
- Assorted Chips and Snacks
- Apples, Oranges or Bananas

#### **Assorted Beverages**

- Milk-Chocolate, Strawberry, Low-Fat White
- Snapple-Assorted Flavors
- Gatorade-Assorted Flavors
- Flavored or plain water