Lunch Time at School Project

UW School of Public Health
Nutritional Sciences Program 2015 Public Health Nutrition Course
Outline

Background
Purpose
Methods
Results
Findings
Recommendations
Limitations
Conclusions
BACKGROUND
Food Intake at Schools

11 million students eat school breakfast + 31 million students eat school lunch = 30-50% of daily caloric intake from school meals

Hellmich, 2011
Current Recommendations

- 20 minutes of seat time
- Scheduled between 11am and 1pm
- Come after Recess
- Not scheduled during other activities

GAO, 1995; General USS, 2001; Activity, 2005; Education, 2015; Turner et al. 2014
Consequences of a Short Lunch Time

- Malnutrition
  - Obesity
  - Undernutrition
  - Poor academic performance
- Food Waste
  - $$$$
Drivers Impacting Seat Time

- Short Lunch Period
- Efficacy of food service
- Recess after lunch
- Early lunch

PURPOSE
Lunch Time at School Project

Why
- Provide information to inform recommendations to Seattle Public Schools administration, nutrition services, and other stakeholders

What
- To decipher current elementary school lunch timing patterns for evaluation

Who
- Seattle Public School districts may not have enough time to eat their lunch

How
- Evaluate current factors that influence school lunch time
METHODS
Cafeteria Assessments

Purpose:
Assess current lunchroom conditions

Two Exploratory Evaluations:
1. Seat time
2. Plate waste
Seat Time

Observed:

- 7 Schools
- 3 Lunch periods per school
- Approx. 5 observers per school
- Sample size = 210 students

<table>
<thead>
<tr>
<th>Event</th>
<th>Time ↓ 00:00 hr/min</th>
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</thead>
<tbody>
<tr>
<td>Lunch start time (bell rings)</td>
<td>A</td>
</tr>
<tr>
<td>Enters lunch line</td>
<td>B</td>
</tr>
<tr>
<td>Arrives at Cash Register</td>
<td>C</td>
</tr>
<tr>
<td>Leaves Cash Register With Lunch</td>
<td>D</td>
</tr>
<tr>
<td>Sits Down to Eat</td>
<td>E</td>
</tr>
<tr>
<td>Announcement made to begin cleaning up table</td>
<td>F</td>
</tr>
<tr>
<td>Leaves Table</td>
<td>G</td>
</tr>
<tr>
<td>Bell rings-end of lunch</td>
<td>H</td>
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<td>A</td>
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<td>H</td>
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Summary Data

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<tr>
<th>Event</th>
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<th>Student #2</th>
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<tbody>
<tr>
<td>Time between start of lunch and entering lunch line (B-A)</td>
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<td>min</td>
</tr>
<tr>
<td>Total time in lunch line (D-B)</td>
<td>min</td>
<td>min</td>
</tr>
<tr>
<td>Time at cashier (D-C)</td>
<td>min</td>
<td>min</td>
</tr>
<tr>
<td>Seated Time (G-E)</td>
<td>min</td>
<td>min</td>
</tr>
<tr>
<td>Time between sitting down and announcement made to clean up (F-E)</td>
<td>min</td>
<td>min</td>
</tr>
<tr>
<td>Time between sitting down to eat and bell ring/end of lunch (H-E)</td>
<td>min</td>
<td>min</td>
</tr>
<tr>
<td>Approximate amount of main entree consumed</td>
<td>¼ ½ ¾ all ¼ ½ ¾ all</td>
<td>¼ ½ ¾ all ¼ ½ ¾ all</td>
</tr>
<tr>
<td>Approximate amount of fruit and/or vegetables consumed</td>
<td>yes/no (circle one)</td>
<td>yes/no</td>
</tr>
</tbody>
</table>

Figure 1: School Cafeteria Observation Form
Plate Waste

Observed:
- 4 Schools
- 3 Lunch periods per school
- 8 observers per school
- Sample size = 452 students

Figure 2: Plate Waste Form
Kitchen Manager Surveys

Purpose: Collect professional opinions of kitchen managers

Collected:
- 63 Kitchen managers
- 12 question survey

Focus:
- Do students have enough time for lunch?
- How much time do students have to eat?
School Principals Interviews

Purpose:
Collect professional opinions of school administrators

Contacted:
● 8 Principals
● Approximately 20 minutes

Focus:
● Feedback on existing lunch time structure
● Proposals to help increase seat-time
Prinicipal Policy Knowledge

School Board Adopted Procedure H61.01

Provides guidance for principals on structuring school lunch, such as the amount of time students are provided for meals, the timing of meal periods, and encouraging recess before lunch.
RESULTS
RESULTS

Cafeteria Assessments
Figure 4: School Lunch Timing
Breakdown of Official Lunch Time

On Average:

- **Official** lunch time average = 20.71 minutes
- **Observed** lunch time average = 16.23 minutes
- **Time waiting** in line average = 3.54 minutes
- **Seated time** average = 12.69 minutes
Plate Consumption Results

49.4% of Meal Consumed
- 80% of starches
- 50% of fruits
- 16% of vegetables

Figure 5: Overall Consumption Rates by Food Group Across All Schools
Does Seat Time Influence Eating?

Figure 6: Fruit/vegetable Consumption Rate vs Seat Time
Figure 7: All Food Wasted by School with Seat Times
RESULTS
Kitchen Manager Surveys
Do Students Have Enough Time to Eat Lunch?

Figure 8: Kitchen Manager Survey: Overall Lunch Time Perception
Perceived Time to Eat Once Seated

Figure 9: Kitchen Manager Survey: Perceived Eat/Seat Time
RESULTS

Principal Interviews
Interview Responses

Is 20 Minutes Enough Time?
- In general, yes--nice to give at least 20 minutes for lunch
- Potential issues with lengthening current lunch time
  - Daily schedule demands
  - Possible student disciplinary issues

Equitability in Time Across Student Body
- Younger students require more time in the lunchroom
- These students are the most likely to be negatively impacted by time constrictions
Decision Making Factors on Lunch Schedule

- Available Staff
- Unions
- Available Space
- Class Size
- Teacher’s Contracts (PCP)
- State Law Compliance
- Instructional Time
- Enrollment
- Parental Concern
FINDINGS
1. Short Seat Time

- On average, students are given **20.71 minutes of official lunch time**.
  - 3.54 minutes spent in line
  - 4 minutes spent walking to cafeteria*
- In reality, students only sit for **12.69 minutes to eat**.

*calculated using official posted lunch times
2. Non-Compliance of Official School Lunch Times

- Collectively, all 7 schools are out of compliance with district lunch time policy.

- Individually, 3 schools may be in compliance for certain lunch periods.
  - None of their students had recorded seating times of 20 minutes.
3. Possible Barriers to a Lunch Period Extension

- Teacher contracts
- After-school programs
- Time for instruction
- Bus schedule
- Union constraints
- Budget
4. Time Constraints and Nutrient Consumption

- Students with longer seat-time consumed more overall and more fruits and vegetables (FV).
- Consistent with previous literature:
  - Students with longer lunch periods consumed more food and nutrients
  - Students with limited time to eat tended to consume what they like most (e.g. starches)
- Implications:
  - Undernourishment can affect students’ growth and school performance

<table>
<thead>
<tr>
<th></th>
<th>Concord Elementary</th>
<th>Hawthorne Elementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat time</td>
<td>18 minutes</td>
<td>8 minutes</td>
</tr>
<tr>
<td>Overall consumption</td>
<td>67.8%</td>
<td>38.7%</td>
</tr>
<tr>
<td>FV consumption</td>
<td>37.7%</td>
<td>16.5%</td>
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</tbody>
</table>
5. Impact of Supervision on Eating Behaviors

- Lunchroom supervisor behavior may impact student eating habits
- At Concord, supervisors positively engaged with students
  - Also has longest seated time, highest FV consumption, lowest plate waste
- Implications:
  - Possible opportunity to provide further supervisor training that encourages better eating habits

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6. Implication of Recess Timing

- 44% of Seattle Public Schools do not have recess before lunch
- Manager Survey’s revealed that recess prior to lunch would increase seat time
- Principals see recess before lunch as a way to encourage students to consume their lunch

Restrictions: School space, supervisor requirements

7. Lunch Scheduling and Food Consumption

Early Lunch Periods

- Highest waste
- Decreased overall consumption
Summary of Findings

1. Short seat time
2. Non-compliance of official school lunch times
3. Possible barriers to lunch period extension
4. Time constraints and effects on nutrient consumption
5. Impact of supervision on eating behaviors
6. Implications of recess timing
7. Lunch scheduling and food composition
RECOMMENDATIONS
Recommendations

1. Continued evaluation of lunchtime and school compliance

2. Increase collaboration between school administrators and nutrition service staff

3. Share the importance of school lunch with stakeholders (principals, teachers, and nutrition services staff)

4. Advocate for lunchtime scheduling
5. Schedule recess prior to lunch

6. Utilize more discrete recess cues

7. Train lunchroom supervisors to encourage positive eating behaviors in students

8. Include adequate time to get to the cafeteria
LIMITATIONS
Limitations

1. Complexity of analyzing factors impacting seat time
2. Generalizability of the sample
3. Internal validity
CONCLUSIONS
Conclusions

1. Every student deserves **adequate time** to eat and play

2. Increased **cross-sectoral conversations** to ensure compliance

3. **Support** a healthy and responsive school environment

4. Address the aforementioned within the context of the **unique culture** of each school
Objectives

1. Assess current lunchroom conditions (Observational study)
2. Assess drivers of seat time (Observational study)
3. Collect professional opinions of kitchen managers (Manager surveys)
4. Collect professional opinions of school administrators (Principal interviews)
5. Inform future policy recommendations (Final presentation and final report)
Does Seat Time Influence Eating?

Overall consumption rate v.s. Seat time
What Factors Influence Eating?

- Patterns of plate waste are similar in boys and girls.
- Girls generally waste slightly more food than boys (similar trend found in literature), but in this population, boys wasted slightly more vegetables than girls.
What Factors Influence Eating?

- In the four schools, lunch period is a general proxy for *age*
  - In general, younger students eat in earlier lunch periods and older students eat in later lunch periods
- Lunch period #3 had overall highest consumption rates across all schools
## Does Seat Time Influence Eating?

<table>
<thead>
<tr>
<th>School</th>
<th>Plain Milk</th>
<th>Chocolate Milk</th>
<th>Grain</th>
<th>Starches</th>
<th>Protein</th>
<th>Fruit</th>
<th>Vegetables</th>
<th>Seated Time</th>
<th>% FRL</th>
<th>Seating Capacity</th>
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<tr>
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Percent Wasted Food Groups

% Total Food Group Wasted - All Schools

% Wasted

- Dairy
- Grains
- Starches
- Protein
- Fruits
- Vegetables
Suggested Changes

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<tr>
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</tr>
<tr>
<td>Add line or cashier</td>
<td>0</td>
</tr>
<tr>
<td>Reduce delays</td>
<td>5</td>
</tr>
</tbody>
</table>
Proposal 1: Adding time to the school day
- Nice idea but far too many hindering factors make this impossible

Proposal 2: Adding another lunch period
- This could work for the kids but very difficult to arrange appropriate staff

Proposal 3: Reconfiguring cafeteria layout (adding lines)
- Deemed difficult for students and staff in already limited spaces

Proposal 4: Adding more monitors
- This would be helpful if budget allowed and staff were trained properly