# Addressing Challenges of Within-School Randomization 

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## Introduction/Purpose.

This study's purpose is to understand the nature and extent of of teacher collaboration in elementary and middle schools in order to
inform decisions about experimental randomization schemes. While inform decisions about experimental randomization schemes. While
randomized designs can provide unbiased estimates of the impact of
interventions, they must be sensitive to the way a program is interventions, they must be sensitive to the way a program is
implemented and the modes of teacher collaboration that may be in place in school settings. While teacher-level randomization is more efficient in terms of the overall size of the experiment than schoollevel randomization, the design may interfere with the common practice of teacher collaboration, which may be important for the
success of the intervention. This study investigated whether rancess of the it the level of the grade-level team might provide
randomite at ter greater efficiency than school-level randomization while minimizing
the negative impact on teacher collaboration by having teachers the negative impact on teacher collaboration by having t
within the same school in different experimental conditions.

## Research Questions.

. What is the nature and extent of teacher collaboration in these What is
schools?
a. How do elementary and middle school teachers compare in
the frequency of mathematics and science collaboration meetings?
b. Is there a difference between the numbers of organized group activities and/or meetings teachers attend for instruction What is the netrative purposes?
swapping" students for mathematics and instruction?
Is there a difference in the amount of teacher collaboration within grade-level teams compared to collaboration involving
teachers from other grade levels?

## Data Source/Survey Questions

 Five monthly surveys were deployed between January and May 2008 to approximately 600 elementary and middle stand science teachers. Survey questions addressed:
o Surveys 2-4: Frequency of collaboration meetings per month - Surveys 2 -4. Frequency of col
for mathematics and science
o Survey 5: Number of organized group activities or meetings focusing on administrative and instructional purposes Surveys 1 and 3 : Extent and nature of teachers teaching
students not on their official rosters (ie. "swapping") Survev 5: Percent of teacher collaboration (as defined as Survey 5 Percent of teacher collaboration as defined as
receiving providing input or anvicic from other teachers; participating in organized group activities or meetings involving orher teachers) within grade-level teams and percent involving teachers from other grade levels.
The first four web-based surveys had an overall response rate of $94 \%$ The fifth survey obtained a response rate of $64 \%$. Comparisons were tested using HLM analysis, with school at level 2.

Findings for Question 1. What is the nature and extent of teacher collaboration in these schools?



Findings for Question 2. Is there a difference between the percent of teacher collaboration within grade-level teams versus the percent involving teachers from other grade levels?



1b. Is there a difference between the numbers of organized group activities and/or meetings teachers atte
instructional versus administrative purposes?
Teachers reported collaborating more for instructional purposes $(\mathrm{m}=3.16)$
than for administrative purposes $(\mathrm{m}=2.23)$ at a statistically significant ( $p<.01$, effect size $=-0.29$ ).


Definitions for administrative and instructional collaboration
efinitions for administrative and instructional collaboration
Intrututional: Organized group activieies or meetings involving other teacher
that primaril focased on isces
 Adminintrative: Organized group activities or meetings involving other
teachers that primarily focused on a dmis is trative issus, such as schedules
upcoming events, and teacherers work assignments.

Summary of Findings.

- Elementary teachers had more collaboration meetings than middle school teacher
Instructional meetings outnumbered administrative meetings.
In elementary schools, $66 \%$ of teachers swapped students for mathematics and/or science
- Virtually all swapping was within grade

Formal and informal teacher interactions occured more often and levels.
Implications for Randomization Schemes For experiments on math or science programs, our observations interfere with teacher collaboration and potentially reduce the impact of the intervention. This was shown in the prevalence of meetings, informal advice/input, and in swapping students. Findings from this study suggest that randomization of grade-level teams will interfere less with formal and informal communication and will have little effect on the practice of swapping students. Grade-level team randomization offers
relatively efficient alternative to school-level randomization and potentially less intrusive alternative to teacher-level randomization.
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