Appendix A

Sample Collective Leadership Survey Items by Condition

All responses are based on a 5-point scale (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

**Shared vision and strategy:**
Collective leadership is the work of teachers and administrators toward shared goals. To what extent do you agree or disagree with the following statement? "There is a shared vision, between teachers and administrators, of the goals for my school."

**Supportive administration:**
The principal is comfortable expanding the power of teachers.

**Resources:**
There are adequate financial resources to support our school's goals.

There are adequate human resources to support our school's goals.

**Work design:**
There is adequate time available for leadership work.

There are regular opportunities for teachers to observe each other’s teaching.

**Supportive norms and working relationships:**
I have good working relationships with teachers in my school.

I have good working relationships with administrators in my school.

**Shared influence:**
I have a great deal of influence on teachers in my school.

Administrators in my school.

**Orientation toward improvement:**
At my school, risk-taking informed by reflection is encouraged.

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Appendix B

Focus Group Protocol

“Your participation is completely voluntary. If you are willing to participate and include you email address on the sign in sheet, we will send you a $50 Amazon gift card. Our goal is to better understand what has made STEM education successful at your school. With your permission, I will be recording this to ensure the accuracy of your comments. Our findings from your school and four others will become the basis of a report from the National Network of State Teachers of the Year. Thanks for taking the time to talk to us.”

Conditions:
1) How have you designed teachers’ and administrators’ work to advance shared STEM goals?
2) How are you developing capacity of teachers and administrators to lead STEM learning?
3) What autonomy do teachers have to lead STEM learning?

Barriers:
4) What barriers have teachers and/or administrators had to overcome to develop exemplary STEM learning?
   a. Time?
   b. Work structures (e.g., PLCs, co-teaching, peer observation, hybrid roles)?
   c. Curriculum?
   d. District disconnects?
   e. Attitudes/politics?

Collective Leadership – defined as the work of teachers and administrators toward shared goals (probe on attitudes toward collective leadership where possible):

5) On a scale of 0-10 – how much of the exemplary STEM work has been led by teachers (10 being total control, 0 being no control)?
6) On a scale of 0-10 – how much of the exemplary STEM work has been led by administrators (10 being total control, 0 being no control)?

7) What are effective ways that teachers and administrators have led together? How has that improved student outcomes?

8) What else should we know about your school as it relates to STEM?