General Fidelity Checklist

This scheme was used to code videos for teachers in both the treatment and control conditions. The codes were designed to capture whether or not teachers used core instructional practices that were deemed integral to the use of our supplemental algebra materials. Assigned codes for each lesson (lesson-level coding).

Teacher:
Coder:
Video Name:

1a. Were students exposed to multiple strategies?	☐ Yes ☐ No
If yes,	
1b. Were the multiple strategies presented side-by-side?	☐ Yes ☐ No
1c. Did the teacher or students compare the multiple strategies for at least a 1.5-minute continuous block?	☐ Yes ☐ No
2. Did all students engage in partner or small group work focused on math content for at least a 1-minute continuous block?	☐ Yes ☐ No
3. Was there a whole-class discussion for at least a 1.5-minute continuous block?	☐ Yes ☐ No

*Please log start and stop time although precision is not key.

General Fidelity Checklist Companion

1a. Were students exposed to multiple strategies?

Check 'Yes' if:

More than one way for solving a given problem was present during a single class period. This includes instances where the text presents multiple strategies and the teacher describes what is in the text.

Check 'No' if:

More than one way for solving a given problem was not present during a single class period, or if an alternative strategy was only briefly (less than 10 seconds) mentioned. Simply mentioning that there is another strategy, without describing it in some detail (for at least 10 seconds), does not count. Note that if the response to this question is no, skip to question 2.

1b. Were the multiple strategies presented side-by-side?

Check 'Yes' if:

The strategies are visually shown to students side-by-side on a worksheet, board, or overhead, so that both strategies are visible to students at the same time.

Check 'No' if:

The multiple strategies are not shown side by side and are not visible to students at the same time.

1c. Did the teacher or students compare the multiple strategies for at least a 1.5-minute continuous block?

Check 'Yes' if:

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Regardless of whether the strategies are presented side-by-side, the teacher or student(s) engages the class in thinking about how the two strategies are similar or different for at least 1.5 minute continuous block. Comparison of strategies might include mention of when a strategy is useful or not useful as compared to another strategy, when a strategy might result in a more or less errors as compared to another strategy, when a strategy might be more or less applicable as compared to another strategy, and/or why both strategies work. The comparison can be implied (e.g., talking about one solution being better and why without explicitly talking about the other solution).

Check 'No' if:

Multiple strategies are considered, but not compared, even if the strategies are side-by-side. Or strategies are compared, but for less than 1.5 minutes at a time. Note that several short segments of comparison, added together, do not count. It must be a sustained comparison for at least 1.5 minutes.

2. Did <u>all</u> students engage in partner or small group work focused on math content for at least a 1-minute continuous block?

Check 'Yes' if:

Students work together on math content in a small group of 2 or more students for at least a 1-minute continuous block. Do not count time during which the **teacher** engages in off-task talk that disrupts small group work.

Check "No" if:

Small group work was optional, so only a subset of students worked in small groups, small group work focused on math content was brief, lasting less than a 1-minute continuous block, or small group work was not present.

3. Was there a whole-class discussion for at least a 1.5-minute continuous block?

Setting is the *whole class* (not a small group)

Check 'Yes' if:

For at least a 1.5-minute continuous block, *as least one* of these things was happening (a) teacher is asking <u>conceptual or open-ended questions</u> and more than one student is responding to the questions (multiple students do not have to answer the same question) and/or (b) teacher is redirecting conversation by following up on a student's response to ask another student to respond to the same question or to the previous student's idea. Teachers asking questions and explaining and elaborating on what students said is okay.

Conceptual questions (often why questions) include why an answer was correct or why/when a particular solution method might have been a good choice (e.g. "Why is her method better?; What made Alex's answer correct?"),

Open-ended questions do not have a predetermined answer and students can have different takeaway points from the same question, such as "What's another perspective?", "Why would you use a different method if the ordered pair changed to (-3000, 52)?", "Can you generate a new problem where Riley's method could not be used?", "Will Tim's method always work and why or why not?", "What is the big idea or takeaway?"

Reminder: If teacher is doing part b – redirecting conversation – then the questions may be focused on other things, such as how questions (e.g., "how did you get that?").

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Start time of discussion: Teacher asks a question of substance (open-ended question, conceptual question, when, why, etc) with intent that students will respond to that question.

End time of discussion: Teacher talks for 1 minute or more or activity of the class shifts, such as addressing a new problem, moving to individual work (e.g., homework, write big idea on sheet with no class discussion after). To determine exact end time, look back for when students stopped answering questions.

Do not count as questions: Level 1 questions or rhetorical questions (e.g., Everyone understand? Okay?).

Note that it is possible for lesson time to count towards fulfilling two different codes. Questions such as, "Why is her method better?" and "Why does this method work?" qualify as both comparison and discussion.

Check 'No' if:

Any discussion only happens in a small group setting, not a whole class setting.

Any whole-class discussion is brief, lasting for less than a 1.5-minute continuous block.

The discussion is not about mathematical content (e.g., about logistics).

The teacher asks questions, but does not wait for students to respond to the questions, sometimes answering the questions herself.

The segment involves minimal student participation, such as students only giving one word answers (e.g., yes, no, Alex, distributive property) or stating the solution or formula (e.g., $y = 2$, $7a + 5$, $y = mx + b$). The teacher's ideas drive the conversation.

The segment involved only one student responding to the teacher's questions.

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