

Appendix A: Full Codebook Used in Experiments

Greeting

The initial interaction between the tutor and student, often at the beginning or end of the session. Anytime a salutation or farewell is exchanged.

Examples:

- "Hello."
- "Cheers."
- "I'll see you in a couple of days."
- "Enjoy the rest of your day."
- "Bye."

Instruction

Specific instructions or directions posed by the tutor throughout the lesson.

Examples:

- "So, we're going to test it out. I'm going to have you guys work on this do now right here."
- "So factor these equations using our grouping method."
- "Go ahead and fill that out."
- "We need to put a capital Z here for this point."

Guiding Feedback

Guided practice through a math problem by the tutor. Feedback on the student's work or response and clarification or explanation of a concept or instruction.

Examples:

- "Not quite. I'm not sure why you have these X's."
- "No, not quite one x because you divided the negative three by three but did you divide the x by x?"
- "Look for factor pairs."

Aligning to Prior Knowledge

Instances when the tutor brings attention to a previous math concept that a student knows or has discussed in a session. Tutor aligns the student to previous knowledge using the word "remember".

Examples:

- "Remember [NAME], what does factor mean?"
- "Okay, so you should remember this from last time."
- "But remember, what's in your parentheses should be the same if you did it right."

Understanding / Engagement (Tutor)

Tutor questioning: The tutor presents checks for understanding as questions to students.

Examples:

- "How do you figure out what's halfway?"
- "Why do you think we might have done that?"
- "All right, so what would you multiply on both sides?"

Technical or Logistics

Tutor comments related to the technical aspects or logistics of the lesson.

Examples:

- "Your camera's looking at the ceiling."
- "You're on mute."
- "Did you lose connection?"
- "Can you hear me okay?"

Encouragement

Affirmative statements from the tutor recognizing the student's efforts, answers, or performance. Anytime the tutor provides a positive acknowledgment or praise.

Examples:

- "Perfect."
- "Good job."
- "Great."
- "You're getting it, man."

Time Management

Statements regarding the duration left, the need to move on, or how much has been covered. Any mention of time, pacing, or the order of topics.

Examples:

- “We have about 5 minutes.”
- “So, that’s the end of our time together.”
- “Two more minutes.”
- “Class is almost halfway over.”
- “This should go fairly quickly so we can finish the lesson today.”