Discussion notes

16:45 Ankur: This one is borderline between our two codings. Ankur is assisting Jeff in his explanation, but I perceive that Jeff is embodying the role of presenter, and that Ankur is actually presenting his ideas rather than building upon Jeff's.

Michael: This was a bit tricky, and you coded it well. Michael begins the segment presenting an idea, but he is actually clarifying upon Ankur's statement before this segment begins.

Romina: While several members of the group are guilty of passing around the responsibility of presenting, Romina's only interaction falls into this category. Discussing responsibilities and choosing presenters falls under the definition of administrative discussion.

18:00 Ankur: Agreement with an answer is typically coded as answer checking, even if the student's input seems generic.

Romina: For communication improvement, note the key descriptions "about an explanation... miscommuncation... argument resolution;" because there is no specific explanation being clarified, this does not seem to fit. You might say this is clarifying the problem because the students are restating and agreeing with the new problem, but I perceive this as verifying that they have not yet completed the researcher's question.

20:00 Jeff: While Jeff is building upon the explanation, he is really providing a brief piece of input about a formula. If his explanation had been longer, I may have coded it as communication improvement. His input seemed more like "correct this answer" (answer checking) than "this answer is wrong because..." (communication improvement).

20:20 Michael: After reviewing this, I see that Michael's actions are driven by a sense of "I don't understand," which falls under communication improvement. His actions seem generic, but he also credits someone for an idea, which falls under collaboration. I believe both codings should be considered "correct," and not count as a disagreement.

Romina: I would not code this as clarifying the problem because she is not restating the wording, checking terminology, or even questioning the current problem. Romina is discussing a previous solution, and attempting to cite its source for further discussion. Citing sources is coded as collaboration.

20:55 Ankur: It would be a faux pas to code Ankur's thoughts based upon his body language alone. This type of behavior is the reason the disengagement category was created: Ankur is not actively engaging, and we can only postulate his internal workings.

21:20 Ankur: Coding for emotions is always tricky. I see no body language or tone of voice to indicate this. His generic agreement with Jeff's work counts as answer checking.

Yellow text is in disagreement.

Uncolored text is either in split agreement, or not coded.

Tan text is in agreement.

PJC coding is in red.

EAB coding is in blue.

Our coding agreement before discussion: 23 / 33 = 70%

00:16:45 Ankur: Ankur guides Jeff to share his previous logic.

**Informal presentation Communication improvement**

Michael: Michael states each can be made into two different combinations, thus multiplication is used. “That’s why. Don’t ask us anymore.”

**Communication improvement Communication Improvement**

Jeff: Jeff calls over the researcher, who stays at her location, to explain. Jeff offers for Ankur to explain. Jeff begins writing, and almost sits down waiting for Ankur to explain.

**Informal presentation; Researcher guidance Researcher guidance; informal presentation**

Romina: Romina tells Jeff to explain.

**Administrative Communication improvement**

**Notes: The group could be argued to be displaying emotions here (related to presentation anxiety), but they are engaged in other means.**

00:18:00 Ankur: Agrees with Jeff and Romina. Researcher asks how this relates to towers and (a+b)^n.

**Answer checking; researcher guidance Researcher guidance; collaboration**

Michael: “You asked us why we multiplied.”

**Verifying completion (acknowledging have completed; yet to be completed) Communication improvement**

Jeff: Agrees with Ankur and Romina. Jeff finalizes his explanation, and erases his work as Romina notes those are all the combinations.

**Informal presentation Informal presentation**

Romina: Romina, Jeff, and Ankur agree they are not yet at the researcher’s question.

**Verifying completion (have not yet completed) Communication improvement**

00:18:30 Ankur: Not visible.

Michael: Tells Jeff to explain the new part. Helps Jeff explain that (n-x) is the number they are choosing from. He states it is three choose two for this problem. **Communication improvement Communication improvement**

Jeff: Jeff continues at the board by dividing the three factorial by n minus x factorial.

**Informal presentation Informal presentation**

Romina: Checks Jeff’s work as he writes.

**Answer checking Checking answer**

00:19:30 Ankur: Listening.

**Disengagement Disengagement**

Michael: Helps Jeff explain by agreeing with one factorial. Explains the variable substitution for five choose three; explains five choose two.

**Communication improvement Communication improvement**

Jeff: Jeff continues explaining by substituting three and two. Jeff asks if the ‘x’ is for ‘raising it to two,’ but continues without input. He also note the factorial will eliminate all the combinations they do not want.

**Informal presentation Informal presentation**

Romina: Listening.

**Disengagement Disengagement**

00:20:00 Ankur: Not visible.

Michael: Continues discussion noting many repeats are removed by division. **Communication improvement Communication improvement**

Jeff: Jeff notes they are subtracting, but Michael points out (n-x) is in the denominator.

**Answer checking Communication improvement**

Romina: Not visible. Heard discussing at table inaudibly.

**Collaboration Collaboration**

00:20:20 Ankur: Not visible.

Michael: Indicates Jeff wants to move on, but he does not know how to explain. **Collaboration Communication improvement**

Jeff: Adds multiplying by x factorial in the denominator. Jeff notes they do not know how to explain the final term; Michael mocks the question to come about it. **Informal presentation Informal presentation**

Romina: Romina asks if this is related to the repeat combinations, but Michael notes he does not know for sure because it is Robert’s idea.

**Collaboration Clarifying the problem**

**(Non-described researcher guidance between segments)**

00:20:55 Ankur: The researcher puts proving on Ankur, asking if he is convinced. **Researcher guidance; Disengagement Researcher guidance; verifying completion**

Michael: Points out five factorial is the total number of combinations. **Communication improvement Communication Improvement**

Jeff: Jeff attempts to explain by solving five choose two at the board. He calculates aloud with the group.

**Informal presentation Informal Presentation**

Romina: Working on her calculator. Jeff checks the answer with her, and he notes they are faster than the calculator.

**Answer checking Checking Answer**

00:21:20 Ankur: Not visible. “I get it, I get it.”

**Answer checking Emotions related to math**

Michael: Michael attempts to explain the terms being moved around in different spots. Michael clarifies that Jeff should substitute ‘x.’

**Communication improvement Communication improvement**

Jeff: Jeff and Michael claim their work makes sense, then attempt to ensure the researchers agree. (They reply the are waiting for the explanation to be finished.) Continues substituting, and finishes explaining that ‘x’ is their chosen number of a color.

**Informal presentation; Researcher guidance Researcher guidance; informal presentation**

Romina: Watching Jeff at the board, checking his work.

**Answer checking Checking answer**

00:22:20