Supplemental Material 1

*Example utterance for each category applied to our think-aloud data.*

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| **Code label** | **Code details**  | **Example utterance (Participant code)** |
| ***Perception and Interpretation (full-merge 1)*** |  |
| *Perception (mid-merge 1)* |  |
| Unmerged 2 | Type 1.01 Perception Visual | “OK…So I was trying to sort of get everybody, making sure who was, uh…Watching, just trying to find out who was watching this way.” (A6)“So I’m scanning around to say that the information is for everyone to take in, it’s not a one-to-one.” (A12)“OK I’m just scanning the classroom now just to, just to see Who’s been answering the questions that are on the board.” (A18) |
| Unmerged 3 | Type 1.02 Perception Audio | “And then I’m listening to Joe here, doing the feedback, and listening to them.” (A5)“Make sure everyone knows What they’re doing, So I’m just reading the questions out And waiting for responses.” (A9) |
| Unmerged 4 | Type 1.03 Perception: Missing Info | “Um, so [name] I can’t, can’t…I can’t hear what he’s actually um… [saying].” (A1)“Yes I had a real go at them yesterday about the fact that their exam was very soon.” (A5)“By checking them [the boys] I then saw we’ve got a bit of eh… well, she’s obviously laughing at something, be it the glasses, I don’t know, but what I perceive is it’s with someone on my far left who is off screen now.” (A8)  |
| Unmerged 5 | Type 1.04 Perception Incomprehensible Statement | [Statements which are incomplete, do not convey a clear meaning, which can not be matched with a code.] |
| *Inference (mid-merge 2)* |  |
| Unmerged 6 | Type 1.05 Inference Student | “Uh, he’s, he’s a very Intelligent young man, um, he’s quite a sensitive young man as well, um, And, it’s, trying to not make him feel as though he, Isn’t wanted, in terms of his response, but, also not To allow him to take over the whole.” (A1)“She’s one of my more disruptive girls, So I’m just making sure she’s coming in quietly and not disrupting too much, Trying to get her settled.” (A2)“I already recognised that they were trouble and they are regularly off task, So I was just making sure that they were doing what they were meant to be doing, And I think I saw at that point that they weren’t.” (A3) |
| Unmerged 7 | Type 1.06 Inference Teacher | “I think I’d probably seen that they were a little bit, um, maybe, engaged in writing rather than have a [whole class] discussion [as they should have been].” (A3)“I couldn’t work out where Jack was moving and then I Realised he hadn’t got a chair.” (A5)“And I could hear that they Were saying something so I turned round to see what they were doing.” (A16) |
| *Explication of Consequences (mid-merge 3)* |  |
| Unmerged 8 | Type 1.07 Consequence Student Learning | “Um, I’m asking him if he doesn’t understand, or knows something, or…Has an answer or something, so then I asked someone to help him.” (A1)“And I’m just checking the rest of the room: you can usually tell by facial expressions, if they’ve got it or not.” (A5)“People disagreeing was exactly what I wanted, really, There was some really good discussion, so they’re not just thinking about um, what he might include, or what you might not.” (A14) |
| Unmerged 9 | Type 1.08 Consequence Classroom Management | “Right, and I’m trying to settle Meg down, there, right Joe’s watching.” (A5)“There’s less distraction there, they’re also thinking as a class. Everyone’s building on it. It allowed me to control it a lot more easily as well ‘cause I could see everyone was focused in on the discussion.” (A8)“I’m just scanning the class to really check students are listening, on task, and to make sure that they are doing what they should be doing, if they are…it’s a mixed group, so some of the individuals are now—” (A15) |
| Unmerged 10 | Type 1.09 Consequence for Behaviour | “I’m looking at the boy next to the one I’m talking to because I’m expecting him to get involved as well.” (A8)“By me looking, I’m expecting they will look, yeah.” (A17) |
| *Reasoning (mid-merge 4)* |  |
| Unmerged 11 | Type 1.10 Explanation or Reasoning | “Sometimes I think I’m quite conscious of eye contact with people and I think, sometimes I kind of go, ooh I’ve been staring at them while I’ve been talking, so just, look off somewhere else and then go back to them.” (A6)“I’m actually looking at the girl in front, because she’s looking sideways, rather than at the boy that was speaking, so I’m looking really at what she’s looking at.” (A7)“Constantly, I’m constantly looking at the board, trying to almost tease answers out of them, and to try and notice things that will generate myself to make a question that would make or prompt them for an answer.” (A10) |
| Unmerged 12 | Type 1.10.1 Lesson Structure or Classroom Climate | “That’s why I used the horseshoe layout for this particular lesson; this is not my usual seating plan. However, for this lesson, as it is, it’s a discussion, I need them all focusing in on me.” (A8) “Constantly, I’m constantly looking at the board, trying to almost tease answers out of them, and to try and notice things that will generate myself to make a question that would make or prompt them for an answer.” (A10)  |
| Unmerged 13 | Type 1.10.2 Quality of Instruction or Learning | “At this point you notice I actually felt I’m too middle-focused [laughing] and I started moving, and I, in a bit, I go and walk round the room, because I was realising that I was stuck at the front, and not helping, not moving it around as much.” (A5)“I look at my own computer screen because in this classroom the interactive whiteboard doesn’t work, and the quality is really poor. And so I always end up looking at the desktop so I can look at that one [version] as well.” (A10) |
| Unmerged 14 | Type 1.11 Uncoded |  |
| ***Themes and Focus (full-merge 2)*** |  |
| *Student Engagement (mid-merge 5)* |  |
| Unmerged 16 | Type 2.01 Learning | “There’s less distraction there, they’re also thinking as a class. Everyone’s building on it. It allowed me to control it a lot more easily as well ‘cause I could see everyone was focused in on the discussion.” (A8) “Um, the task that we’re doing is just trying to get them to think. Think creatively, outside the box.” (A10) “Yeah, I’m looking at her—she’s doing great this year, She started off very disruptive, I even phoned home to say how well she’s sort of performed, I’m sort of conscious of how she is [progressing].” (A11) |
| Unmerged 17 | Type 2.02 Attention Student Off-Task | “Um, yep. Once again going back over there [to the rear right corner] because they tend to take quite a long time to start.” (A16) “I’m focusing on him, That’s because I’ve been telling him off particularly, in the lesson, about being too chatty. And Dan, he’s very loud, very loud very, so whenever he says anything you’re automatically drawn to him because he’s louder than anybody else.” (A17)“I’ve got my eye on [name], She’s not looking and not Listening now.” (A18) |
| Unmerged 18 | Type 2.03 Attention Student On-Task | “So I’m sort of glancing in between Tamsyn and The rest of the class just to make sure that they’re actually listening to what they’re saying.” (A2)“It’s funny because there are certain students that I know I’m not looking At, and that’s because I know that they’re listening.” (A6)“So again that's, I'm trying to be positive there he was joining in, he's volunteering answers so I'm really trying to focus on him there.” (E1) |
| *Student Behaviour (mid-merge 6)* |  |
| Unmerged 19 | Type 2.04 Discipline and Rules | “So it was very much trying to get them, beginning of the year was very much don’t speak over each other. It was a lot of, don’t speak over you, don’t speak over you, now.” (A7)“And they’re nice, nice kids, But they, they um, get themselves into a bit of bother with me by, being either not listening, or talking out of turn.” (A18)“It’s nice that I’ve got their enthusiasm, but I’m really trying to get them to not shout out.” (A18) |
| Unmerged 20 | Type 2.05 Norms Behaviour Problematic | “But also checking Ellie. [laughs] That she’s caught up, that she’s late in, and she can be disruptive At times. Just to make sure.” (A16) “He’s got his issues with behaviour, so it’s about drawing him in to the lesson so that he doesn’t opt out, ‘Cause there are times when he gets completely upset and refuses to join.” (A17)  |
| Unmerged 21 | Type 2.06 Norms Behaviour Unproblematic | “Yeah so I’m having a look over there just to see that they’re getting on. Good yup.” (A2)“Now [name], [?] enough attention was drawn to Meg, using the phone, and it took me too long to realise that she was using it like normal young people do, to take a photograph of the worksheet she missed.” (A5)“You don’t have to have a go at them; I don’t have to challenge them, because you know they’re behaving really well. But I’m checking.” (A8) |
| Unmerged 22 | Type 2.07 Norms Notable Posture | “For example, the girl there is, three of them have got their head down, one of them has got their head up, I know the one with her head up is listening, by the expression on her face.” (A7) “And looking at her position, it… is she interested, is she half asleep, is she thinking, you know.” (A10) “And spotted that lad that wasn't facing forward.” (E1)  |
| *Student and Situational Types (mid-merge 7)* |  |
| Unmerged 23 | Type 2.08 Type of Student | “Uh, I chose Danny…Because, as it happened, I uh, like, to try and, uh…Wonder to different parts of the room and I know that he is a student who,…Is quite confident.” (A1) “She’s been quite good so far, But she’s another one that can be quite distracted.” (A2) “[I’m looking at him] because he’s my naughty boy [laughing].” (A17)  |
| Unmerged 24 | Type 2.09 Type Situation | “Before, she used to try and hide away from it; she knows it’s coming now.” (A8) “And just Looking around because occasionally some of them will start chatting whilst I’m getting feedback.” (A13) “And you get that sometimes, not him but students in general, sometimes. So it was quite half-hearted.” (A15) |
| Unmerged 25 | Type 2.10 Commentary Contextised | “I couldn’t work out where Jack was moving and then I realised he hadn’t got a chair.” (A5)“Just watching the… the video, we’ve got a set of questions, That the ch-the students have answer, regarding the video, So We’re gonna recap what we’ve just uh, just Watched, And see what, see what answers they’ve got.” (A9) “So I’m very conscious here that I was staring at the complete opposite direction into where Marcus is and I’m, and there’s a few students who I keep my eye on. And I’ve almost got my back to him then. So that’s bad.” (A15)  |
| Unmerged 26 | Type 2.11 Commentary Generalised | “That’s a very often refrain of mine in the class: ‘turn yourself around please’.” (A2)“And then I’m just pointing—I think it’s ‘cause I’m right-handed as well. You have to turn round [to see the board on the left]. You can’t really, unless I try and I’m like [laughing, demonstrating] with my left hand...” (A4)“And it’s quite intimidating if a teacher just stares at you constantly while you’re trying to draw a point out.” (A15) |
| *Teacher Perspective (mid-merge 8)* |  |
| Unmerged 27 | Type 2.12 Self-As-Teacher | “I don’t mind if they’re like, sort doing things like, twiddling their hands, or something. If that’s a – not a distraction, if it adds to focus I don’t mind.” (A8) “But she’s, she’s struggling with it, And I didn’t wanna just—I try not to just go for people with their hands up.” (A14)“So I try my best to find opportunities [for him] to join in, ‘cause actually he’s stronger academically than you realise.” (A17)  |
| Unmerged 28 | Type 2.13 Teacher Role and Influence | “Well that’s…By trying to give other people opportunities to be able to answer questions…Um, as well as going back to [name] when, he wants to respond as well.” (A1) “You can insist on them having their hands up, but, this is a mid to low ability class, I don’t wanna stifle it, So if someone looks like they’re trying to get involved, I’ll probably encourage it, by looking at him as if ‘come on, have a think’.” (A8)“So when I look at them, I’m more communicating to them, like ‘beware, I am watching ya.’” (A10)  |
| Unmerged 29 | Type 2.14 Teacher Action Taken | “This is me getting back on track. I’m looking at the board where my question is, so I was just looking at the board there. Just thinking, what’s the question, yep question, then back on.” (A8) “So here I’m silencing them.” (A11) “Um, then I’m just there to change the powerpoint slightly and…So I can mode it [the task] for them.” (A13)  |
| Unmerged 30 | Type 2.15 Teacher Does, Sees, Says Nothing | “I should’ve realised At that point, that [name] was in, and [same name] wasn’t here yesterday either. And therefore Was looking very puzzled.” (A5) “They [the boys] were cheesing me off, to be honest. Yeah, just uh… If I’d not got those [eye tracking] glasses on, I think they’d have been uh… dealt with a bit sooner. [laughing] I don’t [normally] wear glasses…” (A9)  |
| Unmerged 31 | Type 2.16 Uncoded |  |
| ***Timescale (full-merge 3)***  |  |
| *Extra-present time (mid-merge 9)* |  |
| Unmerged 33 | Type 3.01 Retrospection | “Now [name], [?] enough attention was drawn to Meg, using the phone, and it took me too long to realise that she was using it like normal young people do, to take a photograph of the worksheet she missed.”“Yes I had a real go at them yesterday about the fact that their exam was very soon.”“I do [think it's working]; I do think it's working he was -- if you'd seen what he was like two weeks ago, it would have been quite interesting to have filmed that because I ended up sending him out. He was just constantly interrupting, and constantly talking over me, looking at -- turning around, looking at that lad there, every time, you know he had the opportunity to say, go, go to the bin or something, you would find him at his table and things like that so he's been quite naughty.” |
| Unmerged 35 | Type 3.03 Prospection | “I’ll just move on and redirect him towards the lessons that’s taking place.”“So by them giving me an answer generally – it’s should generally encourage other students to then feel confident enough to join [the discussion].”“And I can put money on it that one of these, particularly her, will be asking for, what do I do next sir, Even though I’ve just explained it.”  |
| Unmerged 36 | Type 3.04 Continuation | “[inaudible] [inaudible] there is this one student who responds, um, it might encourage other people, maybe around them, or who also knew the answers, to be like, I could have got that right as well. To carry on and, talk as well.”“I’ve seen uh, Lucy later on and I talk to Lucy, kind of walking towards…Lucy a minute ago, and part of the reason for that is, if she…Is very bright student who does need a little bit of encouragement, um, every now and again.”“So again sort of looking back to and from the board and the students, Um, looking at [name] because he’s often one that’s Uh speaking quite a lot.” |
| *Present time (mid-merge 10)* |  |
| Unmerged 34  | Type 3.02 Contemporaneous | “So I’m, scanning to, just,…Who, is engaged and who is listening, and, maybe identify some people…That um, want to offer responses, and also try and encourage…Some people to give responses, as well.”“Uh, he’s, he’s a very Intelligent young man, um, he’s quite a sensitive young man as well, um, And, it’s, trying to not make him feel as though he, Isn’t wanted, in terms of his response, but, also not To allow him to take over the whole.”“So there, they get that: I’m sort of looking at students then around the room a bit more, um, so I’m trying not to distract myself while I’m in the mid-flow of talking.”  |
| ***Cumulative Cognitive Processing (full-merge 4a)*** | [Examples not possible: these codes were applied to the full transcript of each participant, as appropriate.] |
| *Viewpoint (mid-merge code 11)* |  |
| Unmerged 39 | Type 4.01 Viewpoint Single |   |
| Unmerged 40 | Type 4.02 Viewpoint Multiple |  |
| *Perspective (mid-merge 12)* |  |
| Unmerged 41 | Type 4.03 Perspective Highly Integrated |  |
| Unmerged 42 | Type 4.04 Perspective Partially Integrated |  |
| Unmerged 43 | Type 4.05 Perspective Nonintegrated |  |
| *Scope (mid-merge 13)* |  |
| Unmerged 44 | Type 4.06 Scope Continuous Time |  |
| Unmerged 45 | Type 4.07 Scope Discontinuous Time |  |
| *Certainty (mid-merge 14)* |  |
| Unmerged 46 | Type 4.08 Certain |  |
| Unmerged 47 | Type 4.09 Uncertain |  |
| Unmerged 48 | Type 4.10 Uncoded |  |
| ***Classroom Relationships (full-merge 5)*** |  |
| *Affect (mid-merge 15)* |  |
| Unmerged 50 | Type 5.01 Relational Affect | [All utterances coded as Unmerged 50 and Unmerged 51 were also coded as Unmerged 50.] |
| Unmerged 51 | Type 5.01.1 Negative | “Because, you know, it is hard, to have your name up there, They automatically think, I’m in trouble, and I’m just checking that their facial expressions—they should be used to it by now, ‘cause that’s what I do—but I still like to make sure that they’re not feeling bad.” (A5) “I just don’t want people like certain students to feel uncomfortable, or that they’re being scrutinised.” (A6)“Students can quite easily get frustrated when they’ve got their hand up for ages [but they are not picked].” (A10) |
| Unmerged 52 | Type 5.01.2 Positive | “But this one’s improved loads recently: she’s been coming to afterschool revision, she’s been putting extra work in, she’s got a level 7 on a test, so she’s really pleased, So we’re aiming really to try and keep that level, and not sort of rest on their laurels.” (A6)“He [Nathan] likes encouragement.” (A12) “Very proud that he’d done it as well, Which is nice.” (A18) |
| *Relational Links (mid-merge 16)* |  |
| Unmerged 53 | Type 5.02 Relations between actors | [All utterances coded as Unmerged 54, 55 and 56 were also coded as Unmerged 53.] |
| Unmerged 54 | Type 5.02.1 Student to Student | “These two students here, um, shouldn’t really be sat next to each other.” (A3)“And I addressed Josh there ‘cause I could see he was talking to Dan… He was talking to Dan so that’s why I was addressing him and that’s why I looked at him there.” (A4)“He’s one of the really bright members of the class – they both are. They try and bounce off.” (A8)  |
| Unmerged 55 | Type 5.02.2 Student(s) to Group of Students | “So I’m sort of glancing in between Tamsyn and The rest of the class just to make sure that they’re actually listening to what they’re saying.” (A2) “There’s less distraction there, they’re also thinking as a class. Everyone’s building on it. It allowed me to control it a lot more easily as well ‘cause I could see everyone was focused in on the discussion.” (A8)“People disagreeing was exactly what I wanted, really, There was some really good discussion, so they’re not just thinking about um, what he might include, or what you might not.” (A14)  |
| Unmerged 56 | Type 5.02.3 Teacher to Student(s) | “I’ve seen uh, Lucy later on and I talk to Lucy, kind of walking towards…Lucy a minute ago, and part of the reason for that is, if she…Is very bright student who does need a little bit of encouragement, um, every now and again.” (A1) “Right ok I’m just trying to get everyone motivated, so they’re like reading the Board, doing the task that I want them to do.” (A10) “And then Ellie was late in, which was why I’m looking over that side, making sure she’s doing what she should be.” (A16)  |
| Unmerged 57 | Type 5.03 Uncoded |  |
| Unmerged 58 | General Uncoded |  |