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Mobilising Knowing-to: Using AI to Capture and Visualise Professional Learning

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From knowing to doing

To mobilise is to make something capable of movement, to bring it into circulation, and to make it ready for action. Harries writes that the term “makes the connection between knowledge and action – between knowing and doing.” (Harries, 2012:1)

For Malderez and Wedell, a lifetime of experience becomes experiential knowing, which they call the heart. Personal theories form on it, articulated or not, and only if and when they emerge into language can public theory, the head, meet them. (Malderez & Wedell, 2007:35)

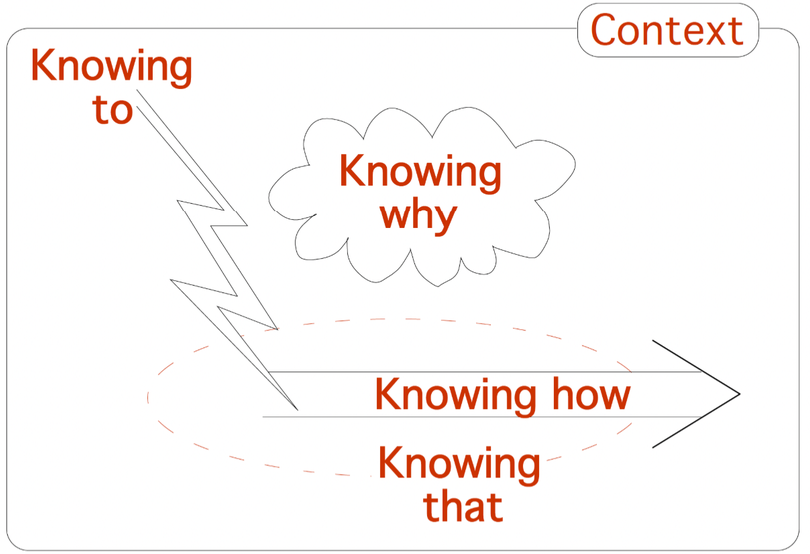
Public theory can meet only what has emerged into language.

Four kinds of knowing

Mason and Spence add a fourth kind of knowing to Ryle's three. Knowing that something is true. Knowing how to carry out a procedure. Knowing why, in the sense of “having some stories I tell myself to account for something.” And knowing to act in the moment. (Mason & Spence, 2000:9)

The first three can be achieved instrumentally, through memorising and habituation, or relationally, through connection and reconstruction. (ibid.:12) Mobilising them was handled by the internet, if not before. A language model has them.

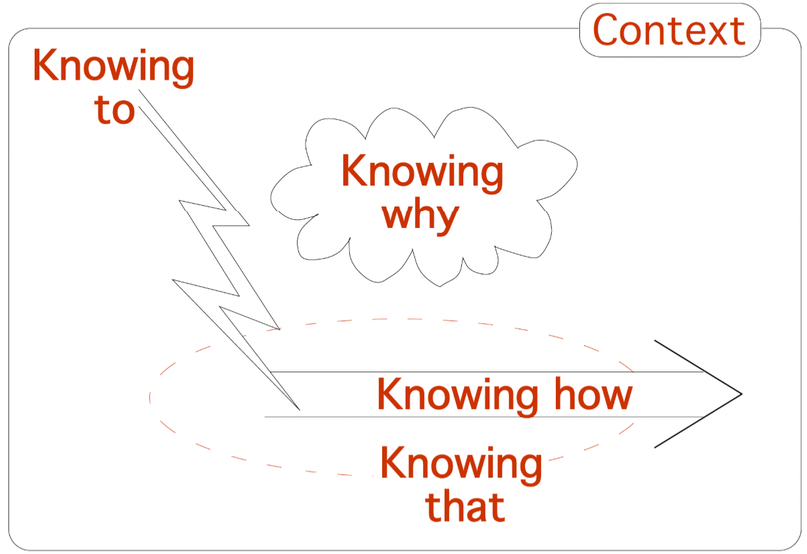
We have always been able to mobilise knowing-about. For teachers, that has not been enough.



Knowing-to

Knowing-to is “often marked by a sudden shift of the focus or locus of attention”, and is hard to notice as it happens because “your attention is likely to be fully caught up by the arriving idea.” (Mason & Spence, 2000:9)

It is “not a simple matter of accumulation. It is rather a state of awareness, of preparedness to see in the moment.” Knowing about a feature, “and having a label for it”, are “insufficient in themselves to enable a teacher to act in the moment.” (ibid.:13)



Knowing-to is hard to capture and hard to mobilise.
That is why mentoring is core to teacher development.

How knowing-to develops

Knowing-to develops “through connections being established between past, present, and future, so that in the future, past experience in-forms (literally) practice in the moment.” (Mason & Spence, 2000:14)

“What is required is active re-vivifying of recent incidents or moments, coupled with actively imagining oneself in a similar situation in the future in which you act as you would like.” (ibid.:15)

“The most powerful mechanism available to teacher and student alike is labelling.” A label, or framework, is “an axis around which experiences can collect”, and “practice to mastery is insufficient in itself.” (ibid.:16–17)

Re-vivify recent moments, label them, and imagine acting as you would like.

Recent incidents or moments

Data can be captured at two temporal scales, in the moment and retrospectively.

In the moment is hard to collect, but it can be encouraged. Between classes a teacher dictates or types what has bubbled to the surface and it goes into a logbook. Classroom recordings are transcribed and uploaded after the fact.

Retrospectively there are transcribed mentor conversations, and the message histories of AI mentoring in Noticing.

Instant noticings are recorded, ready to reflect on through the recipes in Noticing, and shareable within a community of practice.

Analysis

Analysis is a pipeline of skills, each operationalising one theoretical lens. The first group reads the discourse.

Skill	Theoretical inspiration	Visualisation	Reliability	n
cadence	SEDA, Hennessy et al. (2016); 33 codes in clusters, per turn, with target speaker and echo flag	Presence	Over 95% agreement with expert coding	1,774
discourse-primitives	21 codes and their sequences; IRF exchanges (Sinclair & Coulthard); Accountable Talk (Resnick); argument structure (Toulmin); exploratory talk (Mercer); dialogic teaching (Alexander)	Presence	Almost perfect agreement with cadence	500+
communicative-approach	Mortimer & Scott (2003); 4–8 phases, each in one of four quadrants	Presence (wash)		
idea-threads	Sustained contributions as working lens; per-turn weight 0–1, four states	Presence; Journey		
presence-reading	Bakhtin's centripetal and centrifugal forces; Wegerif's dialogic space; per-turn presence per speaker, 120 s half-life	Presence (band width)		
pairwise-attraction	Mercer's three types of talk; Littleton & Mercer's interthinking; per-pair strength 0–1, five levels from disputational to exploratory-sustained	Presence (drift)		
narrativity	English (2016); community, uptake, transformation, continuity, blind-spot pressure; up to twelve episodes	Presence		

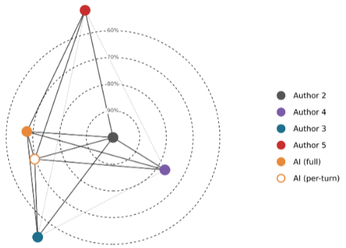
From their coding distributions alone, cadence and discourse-primitives both identify protocol transition boundaries in Noticing conversations with almost perfect accuracy.

Analysis

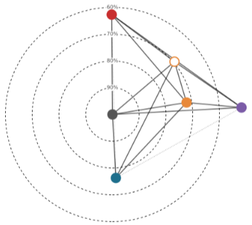
The second group reads the learner's disposition, and it is these that run in the moment before Noa replies.

Skill	Theoretical inspiration	Visualisation	Reliability	n
passibility	Biesta; Roth	Portrait	AC1 0.60 two-way, 0.70 three-way	338
interruption-in-between	Dewey; English; Meyer-Drawe	Portrait; Journey	AC1 0.70 four positions	354
subjectification	Biesta	Portrait	AC1 0.67 two-way	354
evaluative-listening	English	Portrait; middleware	AC1 0.86–0.88 flag vs none	316

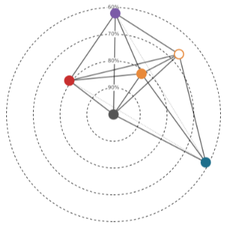
Reliability shown is for Gemma-4-31B. Gemma, Qwen 3.8, Gemini 3.7 Flash, gpt-oss-120B and GPT-5.6 Luna all run in production for different tasks, and intra-model reliability is significant. In production we are biased and choose the best model for each situation; for research we simplify by treating one model as canonical. 27 human–AI transcripts were also coded by four human coders; AI–human agreement was greater than or equal to human–human agreement.



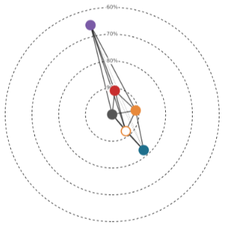
passibility



interruption-in-between



subjectification



evaluative-listening

ANALYSIS

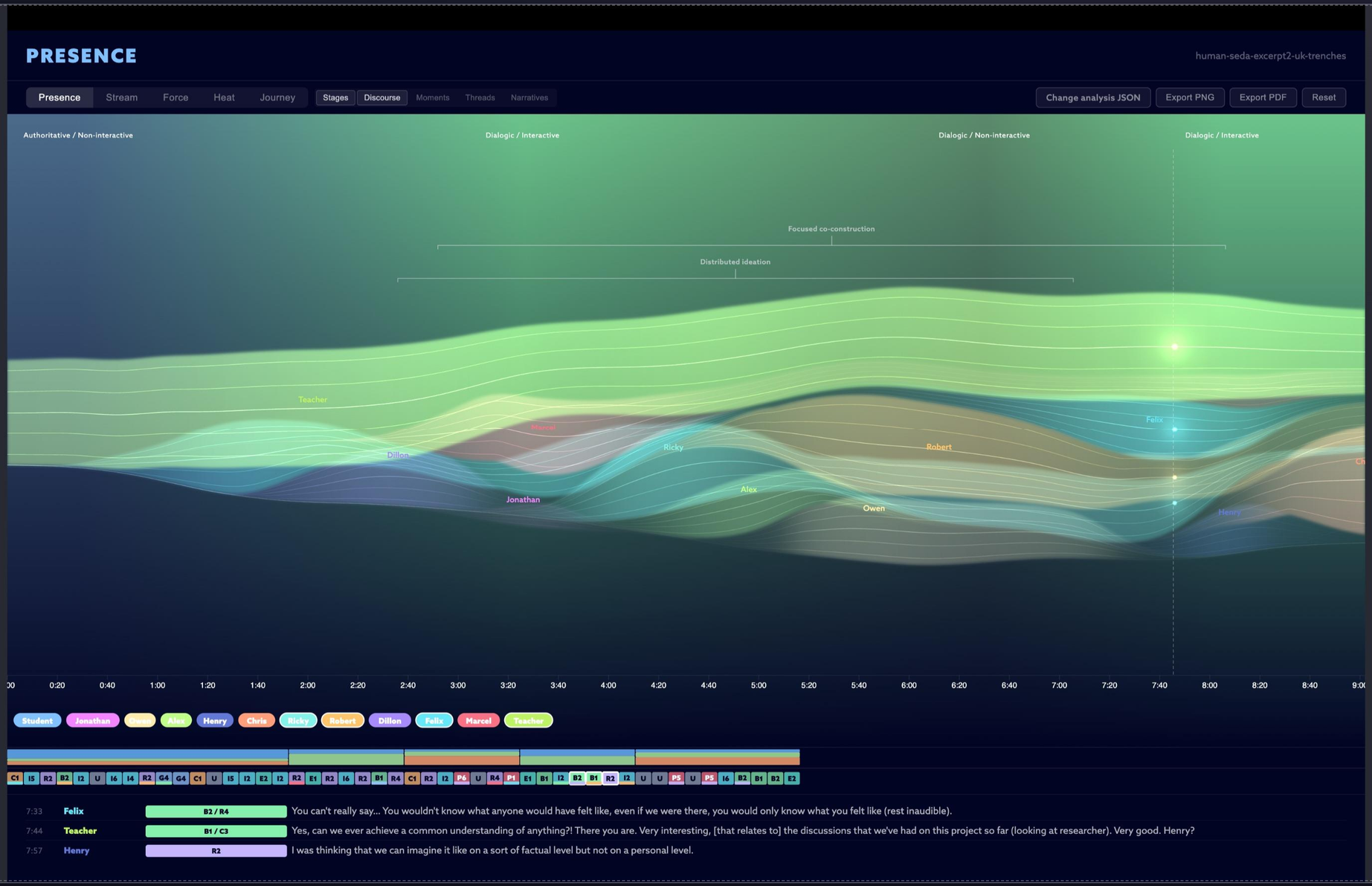
Pre-response middleware

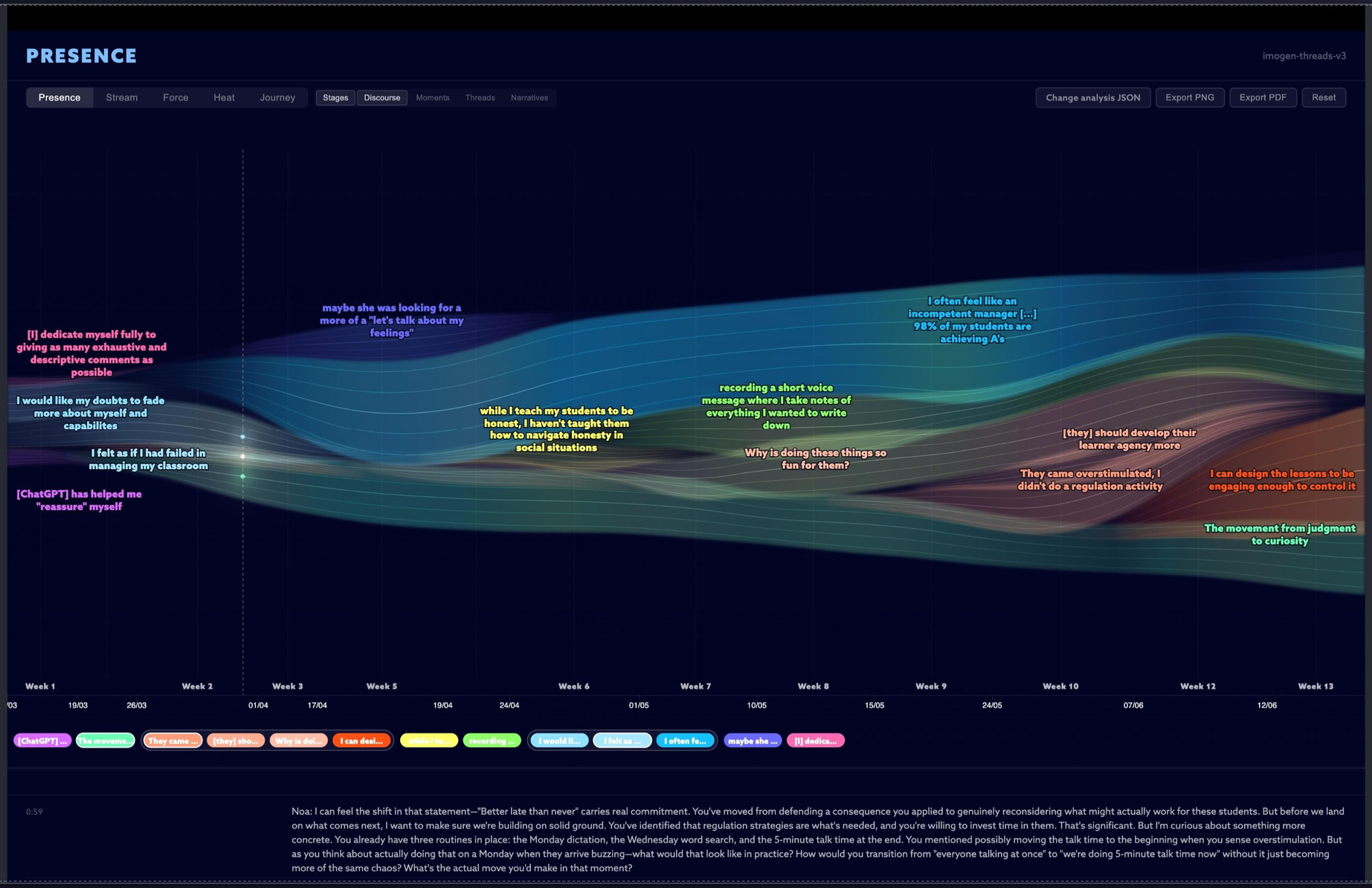
The same skills also run in the moment, on the conversation as it stands, before Noa replies.

Each returns a perspective on the learner's last turn, what it advises, and how much to say. Pedagogical listening advises which listening mode the moment calls for and flags when listening has become evaluative. Interruption reports whether the learner is in smooth flow, interrupted, or formulating their own problem, where the educator's obligation is not to intervene. Passibility reports how the learner is relating to what pushes back.

Noa's reply is composed with those readings in hand.

This is how we simulate knowing-to: what the moment calls for, read through many frameworks at once.


PRESENCE
human-seda-excerpt2-uk-trenches
Presence
Stream
Force
Heat
Journey
Stages
Discourse
Moments
Threads
Narratives
Change analysis JSON
Export PNG
Export PDF
Reset
Authoritative / Non-interactive
Dialogic / Interactive
Dialogic / Non-interactive
Dialogic / Interactive
Focused co-construction
Distributed ideation
Teacher
Marcel
Dillon
Ricky
Jonathan
Alex
Owen
Robert
Felix
Henry
0:20
0:40
1:00
1:20
1:40
2:00
2:20
2:40
3:00
3:20
3:40
4:00
4:20
4:40
5:00
5:20
5:40
6:00
6:20
6:40
7:00
7:20
7:40
8:00
8:20
8:40
Student
Jonathan
Owen
Alex
Henry
Chris
Ricky
Robert
Dillon
Felix
Marcel
Teacher
7:33 Felix B2 / R4 You can't really say... You wouldn't know what anyone would have felt like, even if we were there, you would only know what you felt like (rest inaudible).
7:44 Teacher B1 / C3 Yes, can we ever achieve a common understanding of anything?! There you are. Very interesting, [that relates to] the discussions that we've had on this project so far (looking at researcher). Very good. Henry?
7:57 Henry R2 I was thinking that we can imagine it like on a sort of factual level but not on a personal level.



0:59

Noa: I can feel the shift in that statement—"Better late than never" carries real commitment. You've moved from defending a consequence you applied to genuinely reconsidering what might actually work for these students. But before we land on what comes next, I want to make sure we're building on solid ground. You've identified that regulation strategies are what's needed, and you're willing to invest time in them. That's significant. But I'm curious about something more concrete. You already have three routines in place: the Monday dictation, the Wednesday word search, and the 5-minute talk time at the end. You mentioned possibly moving the talk time to the beginning when you sense overstimulation. But as you think about actually doing that on a Monday when they arrive buzzing—what would that look like in practice? How would you transition from "everyone talking at once" to "we're doing 5-minute talk time now" without it just becoming more of the same chaos? What's the actual move you'd make in that moment?

Aleksandra
10 turns
human-portrait-aleksandra-trajkovska-ad14842e-d8c0-4943-acab-9b95095e766d remove

Open from the beginning.

Interrupted in the first few turns.

A clear path from interruption through to a starting point.

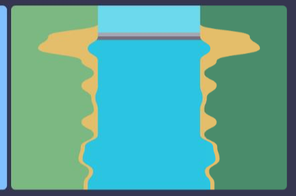


Mila
11 turns
human-portrait-mila-smilkovska-6f0934a0-01c5-409c-ae10-b82ba1723126 remove

Present from the first turn.

A real shift early on.

Working toward something definite by the end.



Jana
11 turns
human-portrait-jana-hristovska-a352cf0a-02e8-4858-bbe0-7aadbaf7859a remove

Started on their own terms.

Held that position throughout.

A real shift early on.

Working toward something definite by the end.



Simona
10 turns
human-portrait-simona-joleska-7f2d850b-f6c2-41a4-bfc9-9e31a2c15fbc remove

Present from the first turn.

More on their own terms as things went on.

A shift partway through.

Working toward something definite by the end.

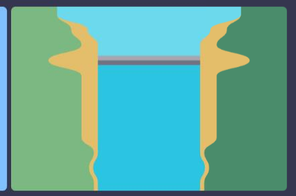


Elena
15 turns
human-portrait-elena-aleksoska-28b2c2f8-4708-4f77-b4bd-d6b19cdb39ea remove

Open from the start, and it showed.

A real shift early on.

Working toward something definite by the end.

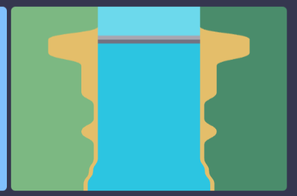


Simona
14 turns
human-portrait-simona-joleska-034d592d-a0d0-4ed7-979c-84dba466f56d remove

Open from the beginning.

Disrupted early on.

And ended up somewhere they could act from.



Mihaela
15 turns
human-portrait-mihaela-kacarska-e6e3f727-6444-403a-ac3c-c725c7e1f437 remove

Teodora
12 turns
human-portrait-teodora-chokuzovska-c4cb42e0-cf20-4bdb-bbd0-8b57a25f99dc remove

Ljubica
14 turns
human-portrait-ljubica-petrovska-4dbc6a4c-3696-44d1-a181-1d019ed05466 remove

Open from the beginning.

Less open as things went on.

Steady and present but never really disrupted.

More on their own terms toward the end.



Roze
9 turns
human-portrait-roze-ukoska-5e39d404-6cd3-467e-a184-577742aa6570 remove

Open from the beginning.

And that held the whole way.

Reached a starting point on their own terms.



Eleonora
14 turns
human-portrait-eleonora-naunovska-e648f488-7906-4929-ba3a-3435c2de84c2 remove

Present from the first turn.

Open the whole way through.

Found a way through without being disrupted.



Teodora
19 turns
human-portrait-teodora-ljatkoska-8b2ff095-d566-4c5a-ab1f-f332e9faee5f remove

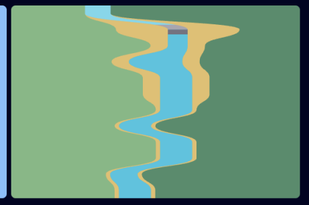
Making sense of it in their own way from the start.

That didn't change.

Not much room for being affected at any point.

Interrupted in the first few turns.

A clear path from interruption



Eleonora
12 turns
human-portrait-eleonora-naunovska-3b019683-2abb-49f3-9902-fd5ff54d5ca1 remove

Started on their own terms.

Held that position throughout.

Arrived somewhere without needing to be interrupted first.



Antoana
14 turns
human-portrait-antoana-kuzmanoska-647a8fc6-1ff8-4bd2-afd2-ada00054af67 remove

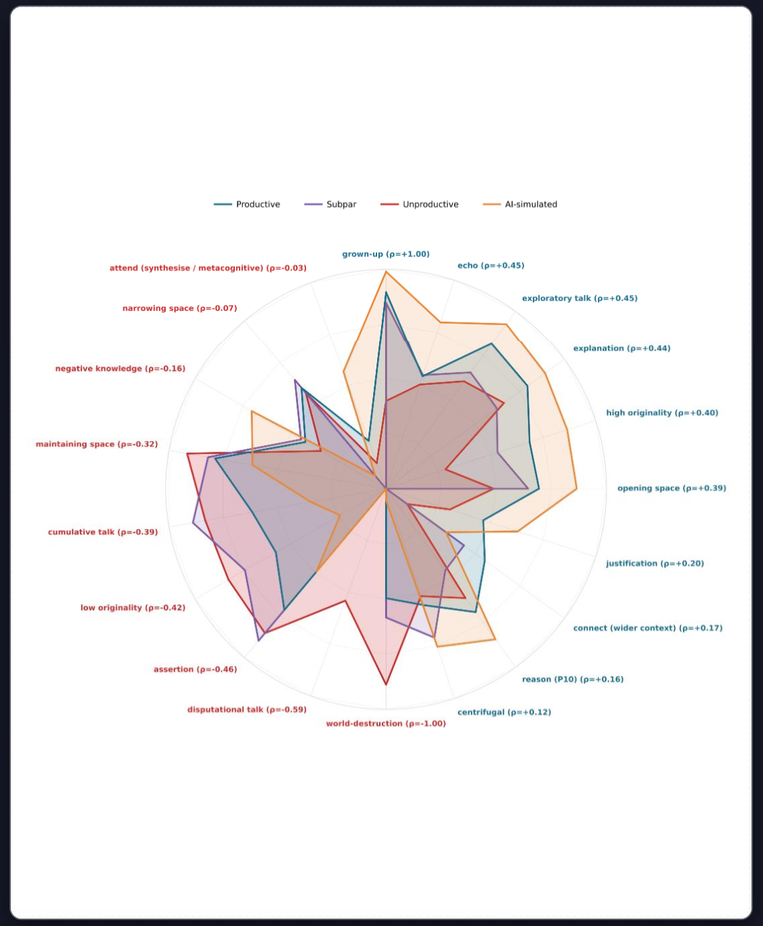
Disposition by cohort

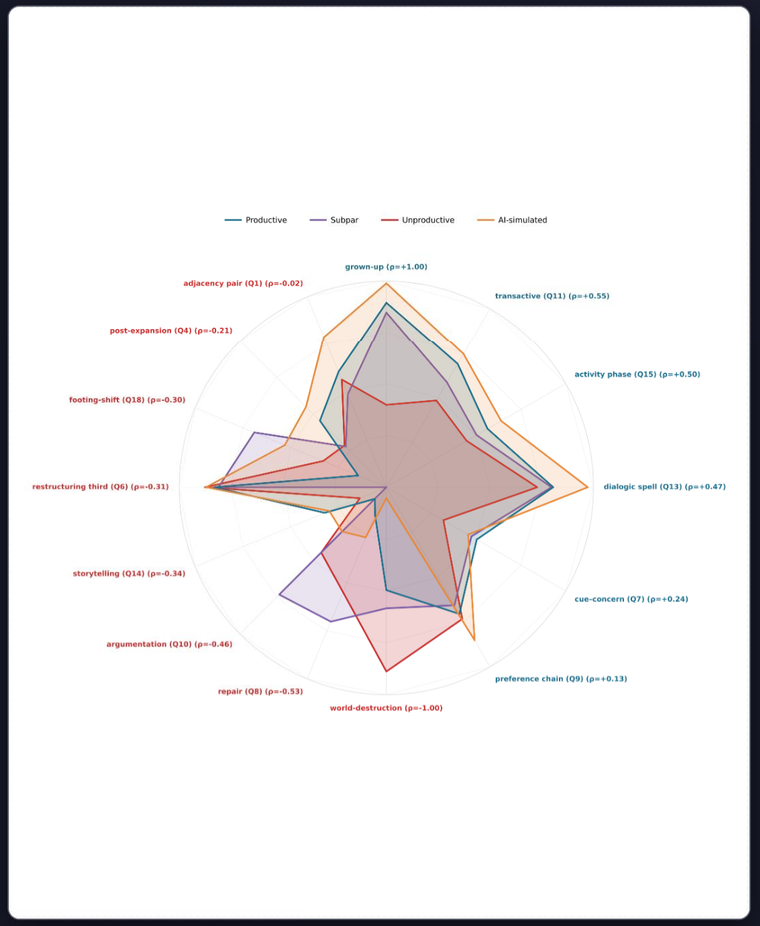


Cohort means on the passibility, subjectification and interruption axes, for productive, subpar, unproductive and AI-simulated conversations.

Grown-up orientation is at 76% of turns in the productive cohort and 16% in the unproductive; world-destruction at 23% against 74%. Subjectification is visible on 44% of productive turns and 7% of unproductive ones.

Discourse by cohort

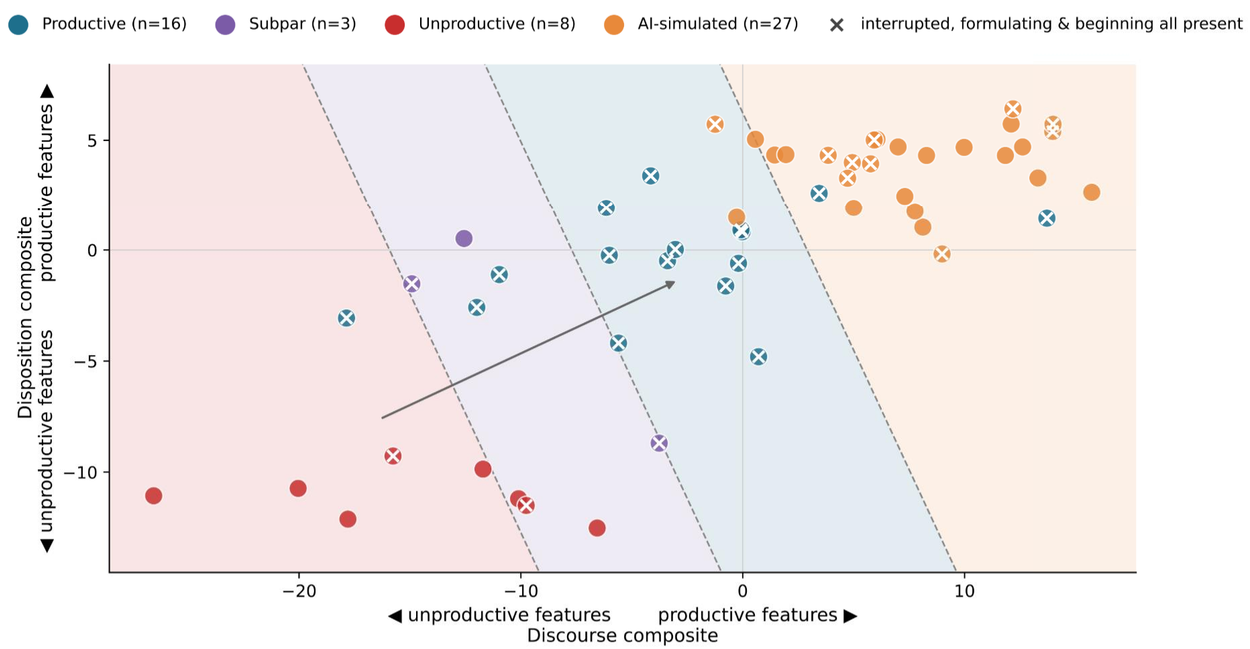




Cohort means on the discourse-primitive axes (left) and the discourse-sequence axes (right), for productive, subpar, unproductive and AI-simulated conversations.

The productive cohort is explanation-dominant, with exploratory talk at 60% against 32% in the unproductive. Transactive sequences, where the learner's reasoning builds on Noa's, appear in every productive conversation.

Disposition and discourse agree



Each conversation has two composite scores, disposition from the rubric measures and discourse from the primitive and sequence measures.

The rubric and the discourse skills draw on separate theoretical traditions. Across 54 conversations the two composites correlate at r = 0.763.

Two readings of the same conversation, from different traditions, agree.

Back to the framework

Capture keeps the “recent incidents or moments”. Analysis and display are the “active re-vivifying”. (Mason & Spence, 2000:15)

Shared with a mentor, a teacher educator or a community of practice, they are the encounter with others on the basis of which, English writes, a blind spot is recognised.

The pendulum then swings back into the next class, carrying whatever touched the heart that was passed by the head.

AI can digitally mobilise knowing-to, even at scale.

CONCLUSION

AI allows us to capture, display and mobilise knowing-to.

References

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