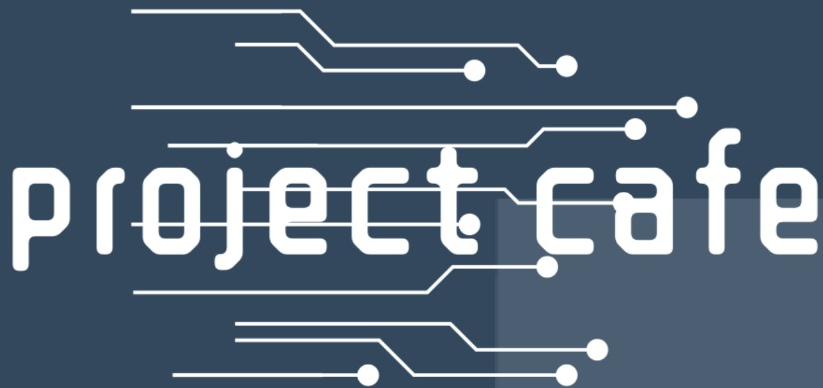


FIELD REPORT · THE URBAN ASSEMBLY



Classroom Interaction Findings

Project CAFE converts classroom video into structured instructional data, analyzing teacher talk, student talk, questions, summaries, timing, and other features of pedagogical discourse. Across 326 sessions and 111 teachers, the clearest signal of growth is not a change in question type. It is a stronger discourse ecology: more student voice, less silence, more respectful and encouraging language, and more frequent summarizing of student thinking.

326

Classroom sessions observed ·
July 2024 – April 2026

111

Distinct user / class entries in
the dataset

57

Users with 2+ uploads
anchoring the trajectory
analysis

27

Users with 5+ uploads (and 5
with 10+ uploads)

What changed across repeated uploads

EARLY → LATE · n = 57

+41%

Respectful language (27.7 → 39.1)

+39%

Summaries (11.2 → 15.6)

+14%

Student talk (12.9% → 14.7%)

+20%

Previews (15.2 → 18.2)

+18%

Encouraging language (30.9 → 36.5)

+5%

On-topic speech (71.1% → 74.8%)

-13.8%

Silence share (47.2% → 40.7%)

-11%

Open-ended questions (.424 → .377)

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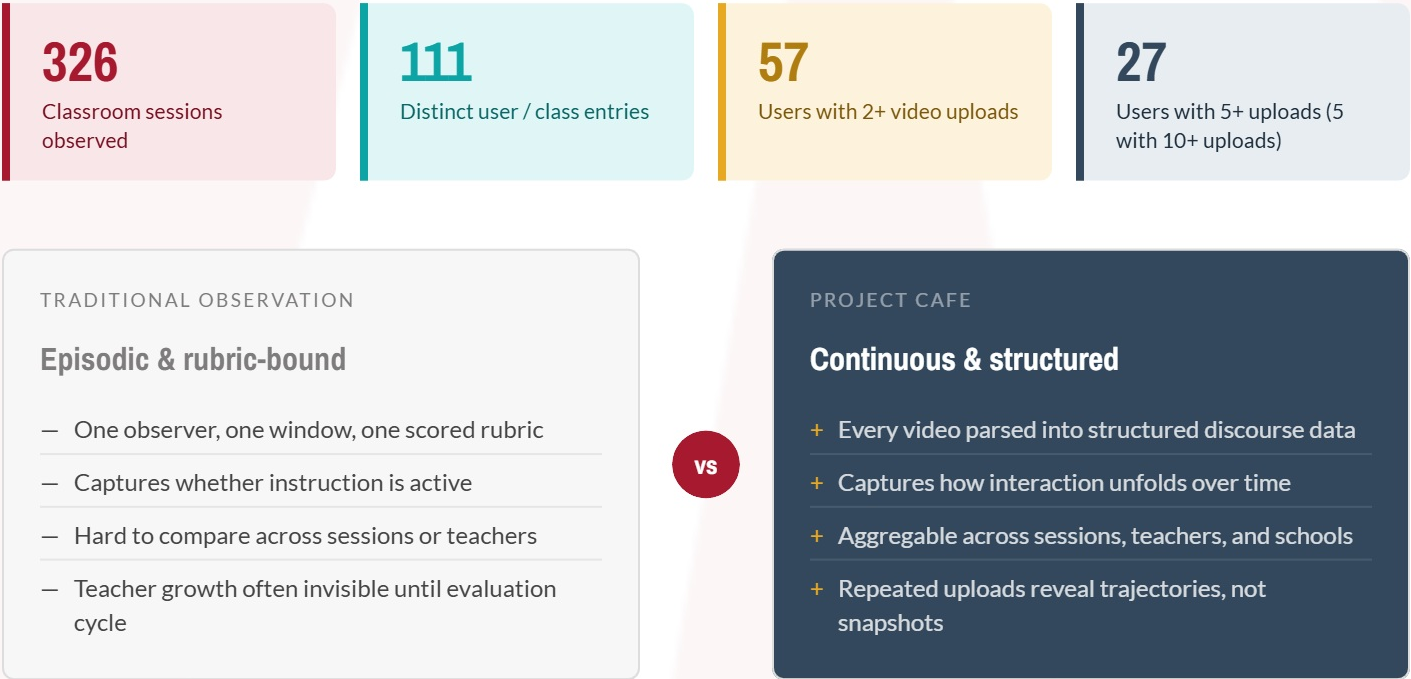
Takeaways

Five things the CAFE data tell us



From classroom video to structured discourse

Project CAFE is an AI-supported classroom observation and feedback system that converts video into structured instructional data. Rather than relying only on broad observation rubrics, CAFE captures fine-grained features of classroom discourse (teacher talk, student talk, questions, summaries, and timing) and aggregates them across sessions, teachers, and schools to make teacher growth over time visible.



What Project CAFE measures

Each classroom video is analyzed across three domains of discourse. The metrics below are the raw outputs that CAFE aggregates across sessions to reveal patterns in how teachers interact with students over time.

TALK DISTRIBUTION

Student Talk

Percentage of total video time during which students are speaking. The primary indicator of student voice and participation.

Unit: % of total video

Teacher Talk

Percentage of total video time during which the teacher is speaking. Inversely related to student talk at the session level.

Unit: % of total video

Silence

Percentage of total video time with no audible speech.

Unit: % of total video

On-Topic Speech

Percentage of total video time during which the spoken discourse is on the lesson topic, as opposed to procedural or off-task talk.

Unit: % of total video

DISCOURSE CLIMATE

Respectful Language

Count of respectful and affirming phrases per session (e.g. acknowledging, validating, or honoring student contributions).

Unit: count per session

Encouraging Language

Count of encouraging or supportive phrases per session that motivate students to participate or persist.

Unit: count per session

Redirections

Count of behavioral or topic redirections per session.

Unit: count per session

LESSON STRUCTURE & QUESTIONING

Summaries

Count of times the teacher paraphrases or restates a student's idea per session.

Unit: count per session

Previews

Count of times the teacher previews upcoming content or provides a forward-looking frame for the lesson.

Unit: count per session

Open-Ended Questions

Proportion of total questions that are open-ended.

Unit: proportion of total questions

Wait Time

Average number of seconds between when a question is posed and when a student responds or a teacher follows up.

Unit: seconds



Classrooms become more participatory and supportive

Using within-user early-, middle-, and late-phase averages across the 57 teachers with two or more uploads, the clearest changes over time are in classroom discourse climate and participation structure. Student talk rises, silence falls, summaries and previews become more frequent, and respectful and encouraging language climb sharply.

Q1

What changes over time in the repeated-user sample?

Within-user early-, middle-, and late-phase averages · n = 57 teachers

Metric	Early	Late	Change	Unit
Student Talk	12.9	14.7	+14.0%	% of total video
Silence	47.2	40.7	-13.8%	% of total video
Respectful Language	27.7	39.1	+41.2%	count per session
Summaries	11.2	15.6	+39.3%	count per session
On-Topic Speech	71.1	74.8	+5.1%	% of total video
Previews	15.2	18.2	+19.7%	count per session
Encouraging Language	30.9	36.5	+18.1%	count per session
Open-Ended Questions	0.424	0.377	-11.1%	proportion of total
Wait Time	2.35	1.56	-33.6%	seconds

The pattern at a glance

Classrooms become more participatory, more respectful, and somewhat more structured in how they frame and process ideas. Student voice and discourse climate move together; specialized questioning moves on a different timeline.

Q2

Do longer upload histories show clearer patterns?

Comparing growth trajectories across 2+, 5+, and 10+ upload groups

Metric	2+ uploads (n=57)	5+ uploads (n=22)	10+ uploads (n=5)
Student Talk	+14.0%	+38.8%	+33.7%
Silence	-13.8%	-11.7%	-19.9%
Respectful Language	+41.2%	+23.9%	+26.2%
Summaries	+39.3%	+12.3%	+34.8%
Previews	+19.7%	+14.7%	+22.1%

Teachers with the longest upload histories show the clearest gains in student voice, discourse support, and classroom climate. This is one reason repeated uploads matter analytically: many metrics become more interpretable only once a teacher has multiple videos in the system.

Which metrics tell the clearest story

Not all CAFE metrics are equally stable. Some gave a clear and coherent developmental signal; others were noisier or harder to interpret. Reading them together, alongside baseline effects, clarifies what kind of classrooms are actually becoming more participatory.

Q3

Which metrics were the most consistent and interpretable over time?

Not all metrics are equally stable; some give a coherent developmental signal, others are noisier.

• Clearest growth metrics

- Respectful Language
- Summaries
- Previews
- Student Talk
- Encouraging Language

• Noisier or harder to interpret

- Time Cues — essentially flat overall
- Redirections — increased, but hard to interpret normatively
- Question Count — noisy and inconsistent
- Wait Time — declined rather than improved
- Open-Ended Questions — mixed, generally downward in aggregate

Q4

What do baseline and ceiling effects tell us?

Teachers who start lower often show much larger raw gains than teachers who start higher.

LOWER BASELINE

More room to grow

Teachers who start with lower student talk, respectful language, or previews show much larger raw gains. Apparent "flatness" elsewhere is often a ceiling effect rather than a lack of growth.

HIGHER BASELINE

Sustainers, not non-growers

Teachers starting strong on these metrics may show smaller numeric gains but continue sustaining strong practice. Summaries are a partial exception, since both lower- and higher-baseline teachers can still grow.

What questioning and student talk reveal

Q5

What happens to questioning over time?

Open-ended instructional questioning · reconstructed sample

Questioning shows a more mixed pattern than the broader discourse metrics. When open-ended questioning is reconstructed to focus on instructional questions (removing procedural and administrative prompts), the proportion moves from **0.451 to 0.404**, a change of **-10.4%**. Most of the drop occurs from early to middle (-11.9%), followed by relative stabilization (+1.6%).

But a meaningful subgroup of **16 teachers** grew in open-ended instructional questioning, moving from **29.4% to 42.2%**. They did not change question type in isolation; they also showed stronger gains in student talk, summaries, previews, respectful language, and on-topic discourse.

WHO TENDS TO IMPROVE IN OPEN-ENDED QUESTIONING?

29.2%

IMPROVERS ·
STARTING
BASELINE

vs

47.5%

NON-IMPROVERS ·
STARTING BASELINE

The strongest predictor of growth in questioning was simply a lower initial baseline. The teachers most likely to grow were those with the most room to grow, and they also tended to start with less student talk and less developed discourse structure.

Q6

What predicts more student talk?

Session-level and within-teacher change correlations

At the session level, student talk co-occurs with...

less silence $r = -0.39$

less teacher talk $r = -0.36$

more respectful language $r = 0.25$

more on-topic discourse $r = 0.23$

more summaries $r = 0.19$

Within-teacher change, increases in student talk track...

declines in teacher talk $r = -0.41$

declines in silence $r = -0.30$

open-ended questioning $r = 0.29$

respectful language $r = 0.23$

THE CLEANEST INTERPRETATION

Teachers do not drive student talk primarily by changing question type alone. They do so by creating a broader discourse ecology: less teacher domination, less silence, more respectful interaction, and more sustained processing of ideas.

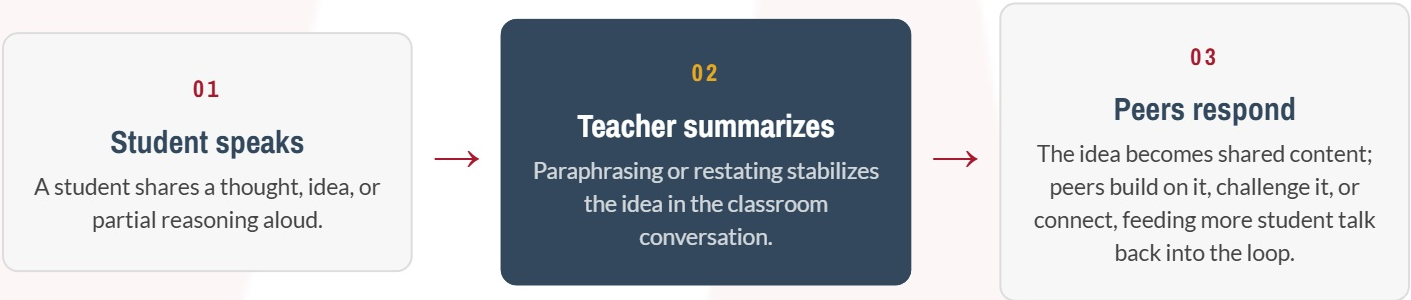
A feedback loop between talk and summary

One of the clearest patterns in the data is the rise in summary count over time and its relationship to student talk. Even a relatively simple summary move, including paraphrasing or restating a student's thought, can make that thought more visible to the rest of the class. Once an idea is made public, peers can respond to it, build on it, challenge it, or connect it to their own thinking.

Q7

Why do summaries matter so much?

A reinforcing feedback loop between student talk and teacher summary



THE LOOP FEEDS ITSELF: MORE TALK → MORE SUMMARY → MORE TALK

A self-reinforcing feedback loop

More student participation creates more opportunities for teachers to process and recirculate student thinking, and more teacher summarizing makes student thinking accessible to peers. Student talk creates material for summaries; summaries turn student contributions into shared classroom content that draws still more students into the conversation.

- Why summaries are unusually informative

Summaries grew across both lower- and higher-baseline teachers, suggesting that summary practice remains expandable even among teachers who already start relatively strong. Few CAFE metrics show that property; most show clear ceiling effects.

- What summaries do that questions alone don't

A summary makes a single student's thinking legible and durable inside the conversation. Questions invite contributions; summaries make those contributions stick, turning them into reference points for everyone else in the room.

A broader discourse shift comes first

The CAFE data suggest a clear sequence. Teachers appear to improve the **conditions for richer interaction** (more student talk, less silence, more respectful and encouraging language, more summarizing of student thinking) **before** they improve more specialized aspects of questioning. The stronger signal is growth in participation, climate, and idea processing. Open-ended instructional questioning improves only for a subgroup, and usually as part of a broader discourse shift rather than as an isolated questioning strategy.

01 Climate Respectful and encouraging language rise. The room becomes safer to speak in.	02 Participation Student talk rises, silence falls. More voices enter the conversation more often.	03 Processing Summaries and previews make student thinking durable and the lesson legible.
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Three things the CAFE data tell us

Across 326 sessions, the most consistent signal is not a change in question type. It is a stronger discourse ecology, and the most useful metrics for tracking that growth are the ones that hold steady across repeated uploads and reflect the conditions for richer interaction, not isolated technique.

Discourse conditions are the dominant story

Student talk	+14.0%
Silence	-13.8%
Respectful language	+41.2%

The clearest changes are in climate and participation, not question type.

Conditions come before questioning

Open-ended questions (aggregate)	-11.1%
Improver subgroup (n=16)	29 → 42%
Improvers' starting baseline	29.2%

Questioning grows mainly inside a broader discourse shift, not in isolation.

Longer upload histories reveal clearer trajectories within the same metric

	2+ uploads n = 57	5+ uploads n = 27	10+ uploads n = 5
Student Talk	+14%	+39%	+34%
Silence	-14%	-12%	-20%
Respectful Lang.	+41%	+24%	+26%
Summaries	+39%	+12%	+35%
Previews	+20%	+15%	+22%

Patterns become clearer and stronger as upload histories lengthen. The 5+ and 10+ groups show the most interpretable trajectories.

326

Classroom sessions analyzed across 21 months

57

Teachers with repeated uploads anchoring the trajectory analysis

5

Most interpretable growth metrics for tracking teacher development

What it means for practice

If discourse conditions are what move first, they are also where coaching and feedback should start. The CAFE data point to three practical habits: focus growth conversations on participation and climate before question technique; read every metric against a teacher's own baseline, recognizing that teachers who already start strong should be supported in sustaining that practice rather than evaluated against peers who had more room to grow; and keep teachers uploading, because trajectories only sharpen with repeated measurement.

Used this way, CAFE is less a scorecard than a mirror. It shows teachers the conditions they are building for student thinking, and gives coaches a shared, longitudinal picture of how those conditions change.

About Project CAFE

Project CAFE is an Urban Assembly initiative that uses AI-supported video analysis to surface fine-grained features of classroom discourse for teacher growth, coaching, and research. The current export covers 326 sessions and 111 user / class entries collected between July 2024 and April 2026.

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