



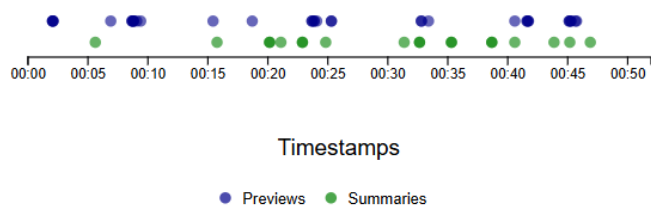
Project CAFE & Depth of Knowledge

Executive Summary

The Urban Assembly's Project CAFE (**C**lassroom **A**utomated **F**eedback **E**nvironment) is an AI-enabled observation and analytics platform that captures micro-interactions that define effective instruction. At the implementation level, teachers use CAFE as a feedback tool to track and improve their performance. At the systems level, the Urban Assembly (UA) aggregates CAFE user data to study to understand and predict the relationship between teaching and learning practices and classroom cognitive rigor.

Today, 65 teachers are using Project CAFE in the classroom to support their professional development and instructional quality. By the end of FY26, 500 classrooms will be utilizing Project CAFE. The meta-data available across CAFE sessions will result in a data base of relationships between instructional interactions and their impact on cognitive rigor. The UA recently ran a preliminary analysis of 167 CAFE sessions across 41 teachers, spanning over 21,000 discrete instructional exchanges using cafe metrics to predict [Depth of Knowledge](#) in classrooms. More in-depth analysis is in order to verify these initial findings on limited samples. Nonetheless, initial indications represent a revolutionary step forward in the ability to understand how instructional interactions in classrooms drive student thinking.

Summaries and Previews Analysis

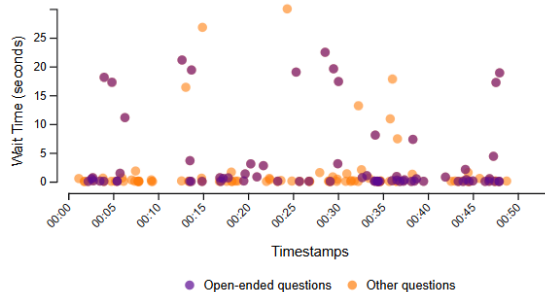


However, the data also show that higher-level teacher questioning does more than simply raise the cognitive bar. As teachers' respectful language increases, the likelihood that students are using deep reasoning in the classroom rises as well. The data also revealed that increasing student talk time and using redirections, sparsely but as targeted support during cognitive load, set a stable discourse regime in which depth could rise without heavy scaffolding.

Teacher & Student Questioning

Across 167 sessions, most teacher questions focused on recall (DOK1, 85%), with fewer prompts asking students to interpret, analyze, or extend ideas (DOK2-DOK4). CAFE creates the ability to track these trends longitudinally in near real time.

Instances of Questions Asked and Wait Time



Note: Wait times 30 seconds or greater may indicate that a question was not answered.



Student questioning followed a similar pattern. Most student questions were surface-level (DOK1–DOK2), with higher-DOK questions occurring only occasionally. These deeper student questions tended to appear in minutes where classroom discourse was stable, on-topic, and respectful, suggesting that discourse conditions may enable student curiosity and reasoning.

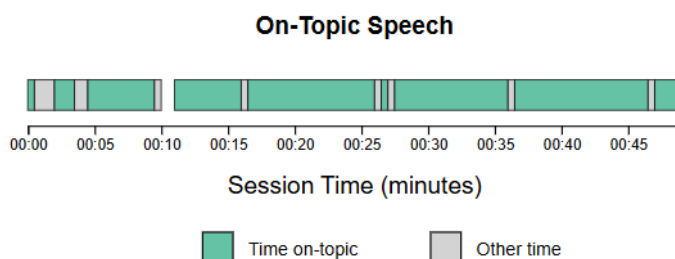
On-topic Talk

Although often viewed as tangential, relational or slightly off-topic talk—such as brief humor, check-ins, or personal comments—plays an important role in maintaining classroom connection and attention. CAFE data show that when used in moderation, these moments strengthen the overall learning environment by reinforcing positive tone, collaboration, and mid-level cognitive engagement (DOK2–DOK3).

Patterns differed across subjects:

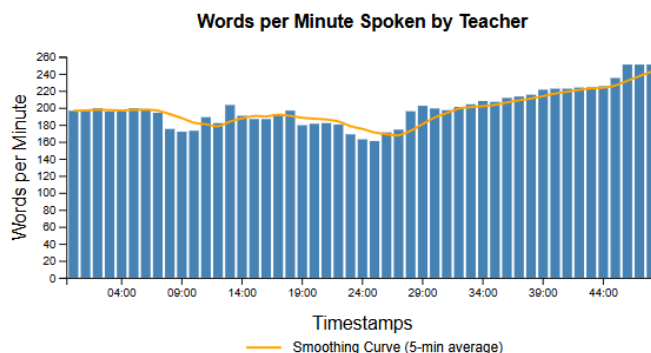
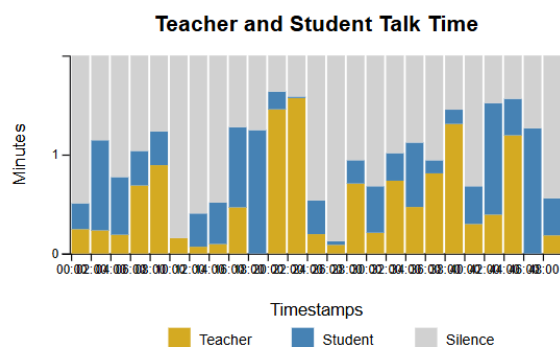
applied and humanities classrooms integrated more relational exchanges, supporting creativity and student belonging. Math and Science classrooms, which often prioritize procedural clarity, tended to limit these

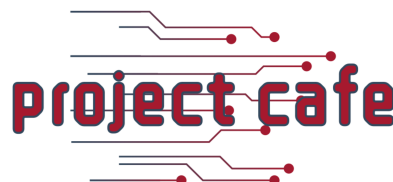
interactions and therefore saw fewer of the relational benefits. Importantly, the data suggest that relational talk, when brief and purposeful, enhances rather than detracts from learning.



Talk Time Distribution

CAFE findings indicate that the way teacher talk is used through time has a substantial impact on the level of thinking that shows up in classroom discourse. In our data, low-depth questioning dominates overall, but the minutes in which higher-DOK questions emerge look meaningfully different. High-DOK minutes are characterized by lower teacher question density, substantially higher open-ended questioning, and lower overall teacher language/event volume (fewer previews, summaries, and time cues).





Rather than being supported by more talk, depth appears when teachers ask fewer but more intentional reasoning-level questions, leaving more conversational space for students to process and respond. These high-depth minutes also show slightly higher but more precise redirection use, suggesting that redirections function as targeted support during cognitive load rather than constant management. In short, the empirical signature of high-level reasoning in this dataset is not ‘more teacher talk,’ but strategic, sparse teacher talk that creates space for deeper thinking.

Conclusion

Project CAFE demonstrates that it is now possible to capture teaching with a level of temporal precision and analytic depth that traditional observation systems cannot match. By recording each question, cue, redirection, and discourse move in real time, CAFE enables the Urban Assembly to build a high-resolution database of instructional interactions—one that reveals the actual mechanisms through which classroom discourse shapes cognitive rigor.

As CAFE expands from dozens to hundreds of classrooms, the Urban Assembly will be positioned to assemble one of the most comprehensive datasets in the country linking moment-to-moment teacher moves to student cognitive outcomes. This system-level visibility will allow UA to refine professional learning, strengthen instructional coaching, and identify the conditions under which deeper reasoning reliably emerges. In this way, Project CAFE is not only a feedback tool for teachers—it is a research engine capable of advancing the science of teaching and informing more equitable, effective classroom practices across the Urban Assembly network and beyond.