Generative AI in K-12 Classrooms: A Midyear Implementation Report

Interim report on Colleague AI adoption in Washington State Schools

*Covering Usage from **September 1 to December 31, 2025***

March 2026

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Executive Summary

This mid-year report summarizes teacher use of Colleague AI across 12 Washington State school districts from September 1 to December 31, 2025. Produced jointly by Colleague AI and AmplifyLearn.AI at the University of Washington, this report aggregates platform data and district-provided administrative records to provide an early look at how teachers engaged with AI during the first half of the 2025-26 school year. The districts vary in size from small districts with a few thousand students to large districts with up to thirty thousand students. The districts are rural, suburban, and urban. Only a subset of districts were able to provide mid-year administrative data, and findings that link teachers' use of Colleague AI to student characteristics should be interpreted as preliminary signals.

Key Findings

- **Adoption grew steadily over the fall.** Across 12 participating districts, 1,438 teachers used Colleague AI in September and a total of 2,891 teachers had used Colleague AI by the end of December, exchanging over 412,304 messages with the AI assistant. We have observed continued growth in platform adoption; as of March 31, 2026 adoption across these districts has increased by 61% to 4,644 teachers.
- **Among active users, teachers averaged 12 sessions and 3.7 hours on the platform.** Per session, teachers spent about 18 minutes. Teachers with more sessions also tended to have longer sessions and send more messages.
- **Claire AI and lesson planning dominated usage.** Conversations with the Claire AI assistant accounted for the large majority of platform activity, and lesson planning features made up 60-99% of usage in every participating district. Frequent users concentrated even more heavily on Claire, while lighter users and later adopters explored a broader mix of features.
- **Teachers serving different student populations engaged with AI differently.** While overall usage intensity was similar across classroom contexts, teachers serving higher shares of English Language Learners or Special Education students referenced Student Profiles and Differentiation & Accessibility more often in their requests. Teachers serving more SPED students and those with wider variability in their students' test scores also made relatively more use of Lesson Delivery features like Generate Image and Generate Interactive.
- **Small, positive relationship between Teacher AI Use and Student ELA scores.** Examining 12,005 students with matched beginning- and middle-of-year test scores, we found that average tested students' teachers used Colleague AI for approximately 3 hours, and this use was associated with a statistically significant 0.025 standard deviation increase in reading interim test scores; the corresponding association in math was not statistically distinguishable from zero. This is a preliminary correlation, and the small effect size is an encouraging signal for AI adoption.

Pedagogical topics. Colleague AI automatically tags the pedagogical topics present in each conversation. Across all districts, Planning and Explicit Teaching were the most common topics in teacher requests, followed by Assessment, Critical Thinking and Inquiry, and Student Profiles. Non-educational conversations were rare. We compared the pedagogical topics in teacher requests to those present in AI responses. Colleague AI is designed to assist teachers, and we found that the AI effectively surfaced additional topics, broadening the pedagogical scope of the conversation (see appendix for definitions of topics).

Differentiated use across classroom contexts. Although overall usage intensity was similar regardless of classroom composition, the *kinds* of use diverged. Teachers serving higher shares of ELL students more often referneced theo Student Profiles and Differentiation topics, as well as Engagement & Motivation and Project-Based Learning. This suggests that they were using the AI to assist with designing accessible, contextually rich tasks. Teachers serving more SPED students shared the emphasis on Student Profiles and Differentiation topics in their conversations, but were also more likely to use non-chat Lesson Delivery tools such as Generate Image and Generate Interactive. Teachers whose classrooms had lower average test scores or wider score spreads showed similar Differentiation-oriented patterns, pointing to AI as a potential resource for instructional differentiation in heterogeneous classrooms.

Early link to reading scores. The reading association reported above—roughly 0.025 standard deviations at three hours of teacher AI use—held across model specifications and alternative measures of AI engagement, while the math association was indistinguishable from zero. These findings warrant substantial caution. They are correlational and reflect only the first four months of a voluntary adoption period during which most teachers were still learning the platform, and teachers who chose to use Colleague AI more intensively may differ from lighter or non users in ways we cannot observe. We may be picking up a selection effect rather than an effect of the platform itself. Even so, the reading result is an encouraging early signal that we will continue to investigate as the study progresses through the full 2025-26 school year.

Study scope and data availability. The 12 districts in this report agreed to participate prior to the 2024-25 school year and completed Data Use Agreements with Colleague AI. Some paused their AI implementation plans during the study period or piloted alternative tools, resulting in variable engagement, and together they represent a subset of Colleague AI's overall user base. Individual districts are not identified. Several participating districts provided mid-year administrative records enabling the demographic and achievement analyses; sample sizes are noted throughout, and Appendix: Data Sources details availability by file type. This research has been approved by the University of Washington Institutional Review Board. All teacher use of Colleague AI is voluntary, and all data analyzed here has been de-identified.

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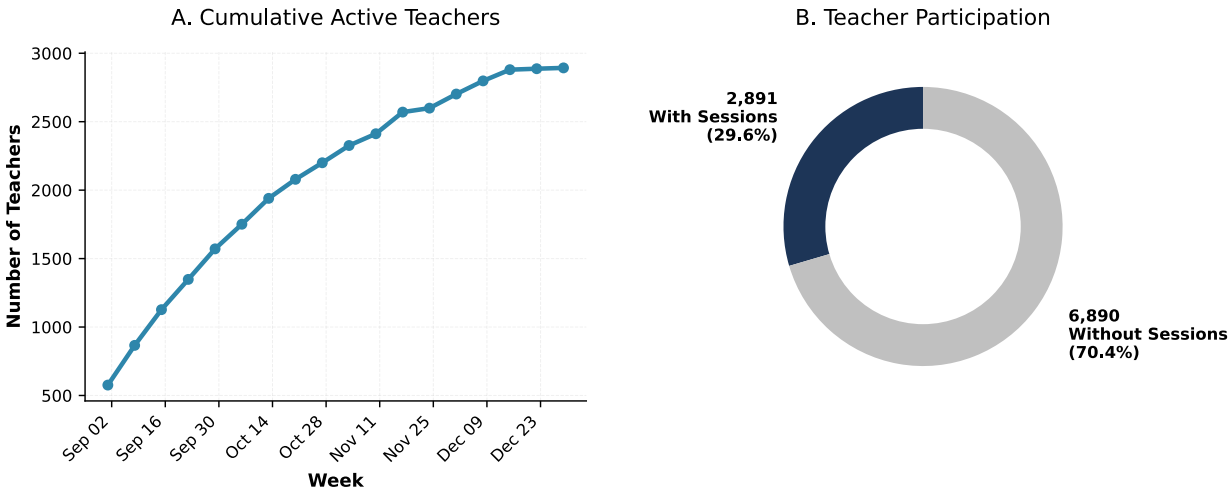
Teacher Usage Levels

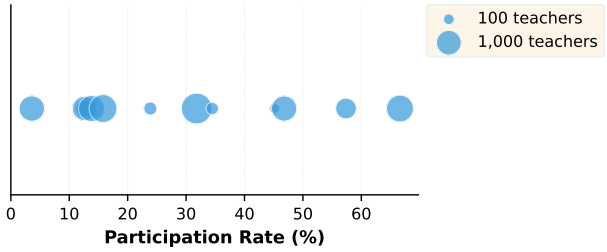
Usage of Colleague AI Increased Steadily Over the Fall

2891 teachers used Colleague AI as of December 31, 2025, representing nearly 30% of the teachers in the participating districts. For context, a nationally representative survey of K–12 science and mathematics teachers found that in May 2025 approximately half of teachers reported using generative AI tools, and most of those (44% of surveyed teachers) reported using ChatGPT rather than an education-specific platform (Esbenshade et al., 2025). In four of the districts participating in this study, teacher use of Colleague AI surpassed the national average rate of ChatGPT usage.[1].

Platform Adoption: Cumulative teacher engagement and overall participation rate



Participation Rate by District



[1] *A note on the participation denominator:* Platform rostering data reflects all accounts provisioned by the district on Colleague AI, which in many cases substantially exceeds the number of active classroom teachers. In districts that did not configure automated rostering, no denominator is possible as all observed accounts were manually created by individual teachers. We use the National Center for Education Statistics (NCES) full-time equivalent (FTE) teacher count for each district to calculate the participation rate consistently across districts. While NCES figures may — as an FTE value — undercount individuals, we believe they offer a more consistent estimate of the teacher adoption rate than the roster counts.

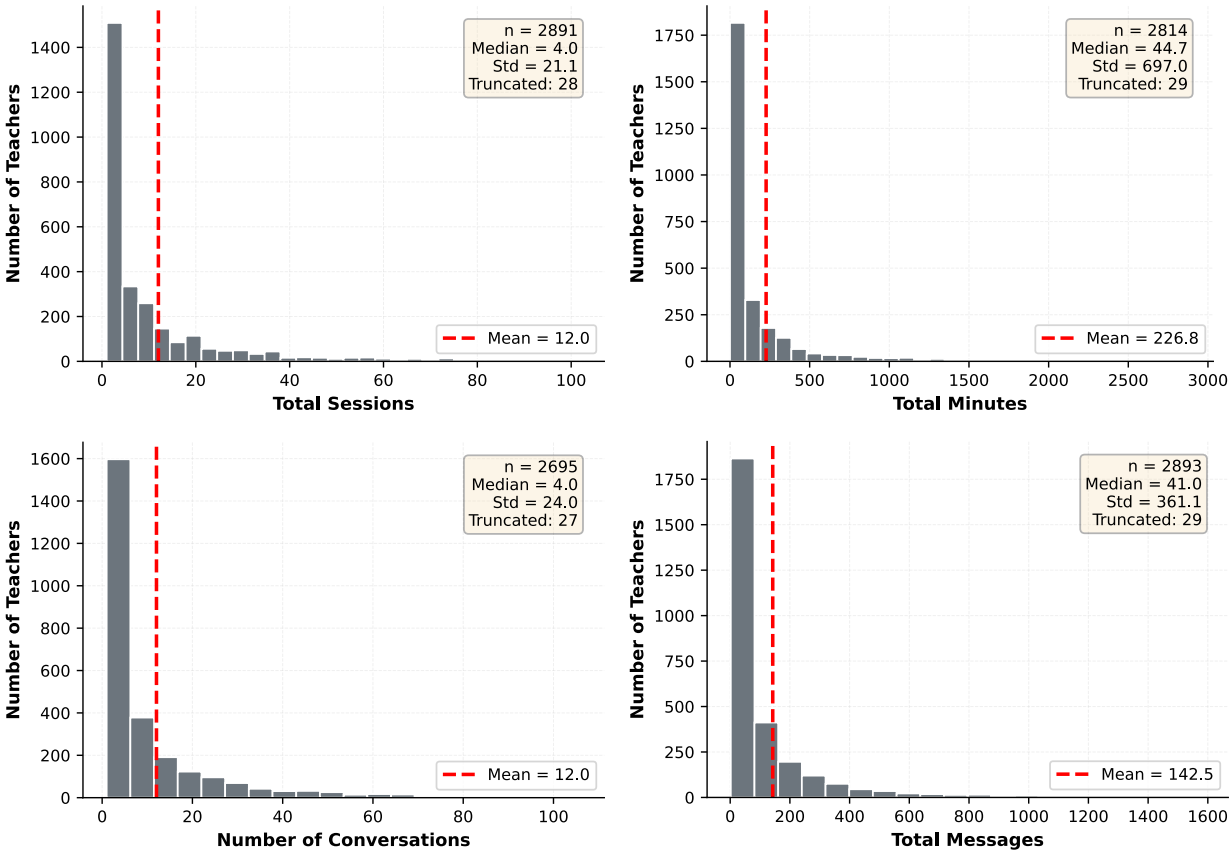
We also compare the adoption rate across districts. In this dot plot, each point represents one participating district's adoption rate as of December 31, 2025. We observed a substantial spread in teacher engagement during the fall across school districts. There is not a clear relationship between district size and participation rate. This report on Colleague AI's adoption does not just cover ideal use with invested school partners, instead we include a wide range of districts in order to best understand how an AI platform is broadly used by teachers.

We measure teacher usage of Colleague AI in four ways.

1. **Sessions** captures the number of times teachers use Colleague AI. We define a session as beginning with the first AI interaction and ending after 60 minutes of inactivity.
2. **Session Minutes** records the total time a teacher spent interacting with AI features, measured from the first to last observed interaction within each session. It does not include the 60 minutes of inactivity that signal the end of a session.
3. **AI Conversations** measures the number of chat threads a teacher created. The same thread can be returned to across sessions, and a teacher may create multiple conversations within a single session.
4. **AI Messages** measures the total number of messages teachers exchanged with the AI platform.

In the four histograms that follow, each histogram shows the per-teacher distribution for one usage measure; teachers with zero interactions are excluded, and values are truncated at the 99th percentile. Teachers on average had 12.0 sessions, spent 3.7 hours on the platform, had 12.0 conversations, and sent 143 messages. Across all four measures, most teachers used Colleague AI lightly, while a smaller group became frequent users. Sessions, minutes, conversations, and messages are generally well correlated: teachers with more sessions tend to also spend more time and send more messages, though some teachers favor a few long sessions while others prefer many short ones. Total n sizes vary slightly across the four figures due to technical variation in how different platform activities are logged. The n-size for conversations, in particular, is lower as that usage measure is only present for teachers who interacted with the Claire AI conversational feature.

Teacher Usage by Sessions, Minutes, Conversations, and Messages

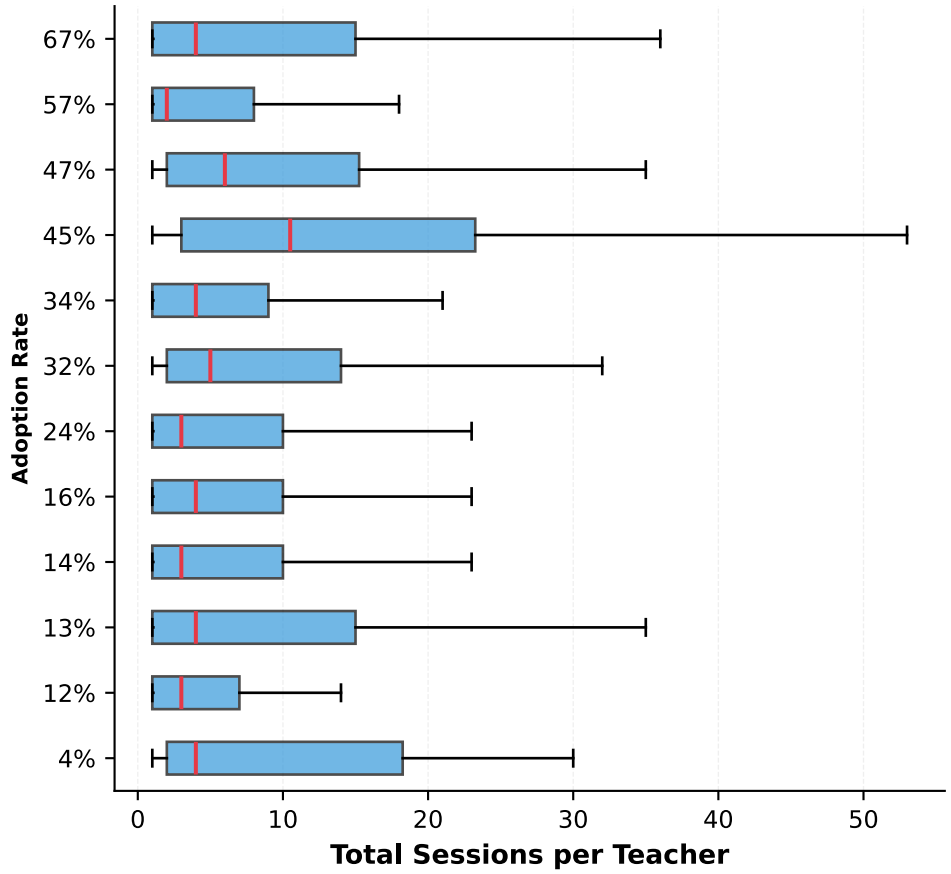


Correlation Between Usage Measures

	Sessions	Minutes	Conversations	Messages
Sessions	1.00	0.84	0.88	0.87
Minutes	0.84	1.00	0.89	0.97
Conversations	0.88	0.89	1.00	0.92
Messages	0.87	0.97	0.92	1.00

The four measures are strongly correlated, and for clarity we focus on total sessions as the primary usage metric in the analyses that follow.

Sessions per Teacher by District

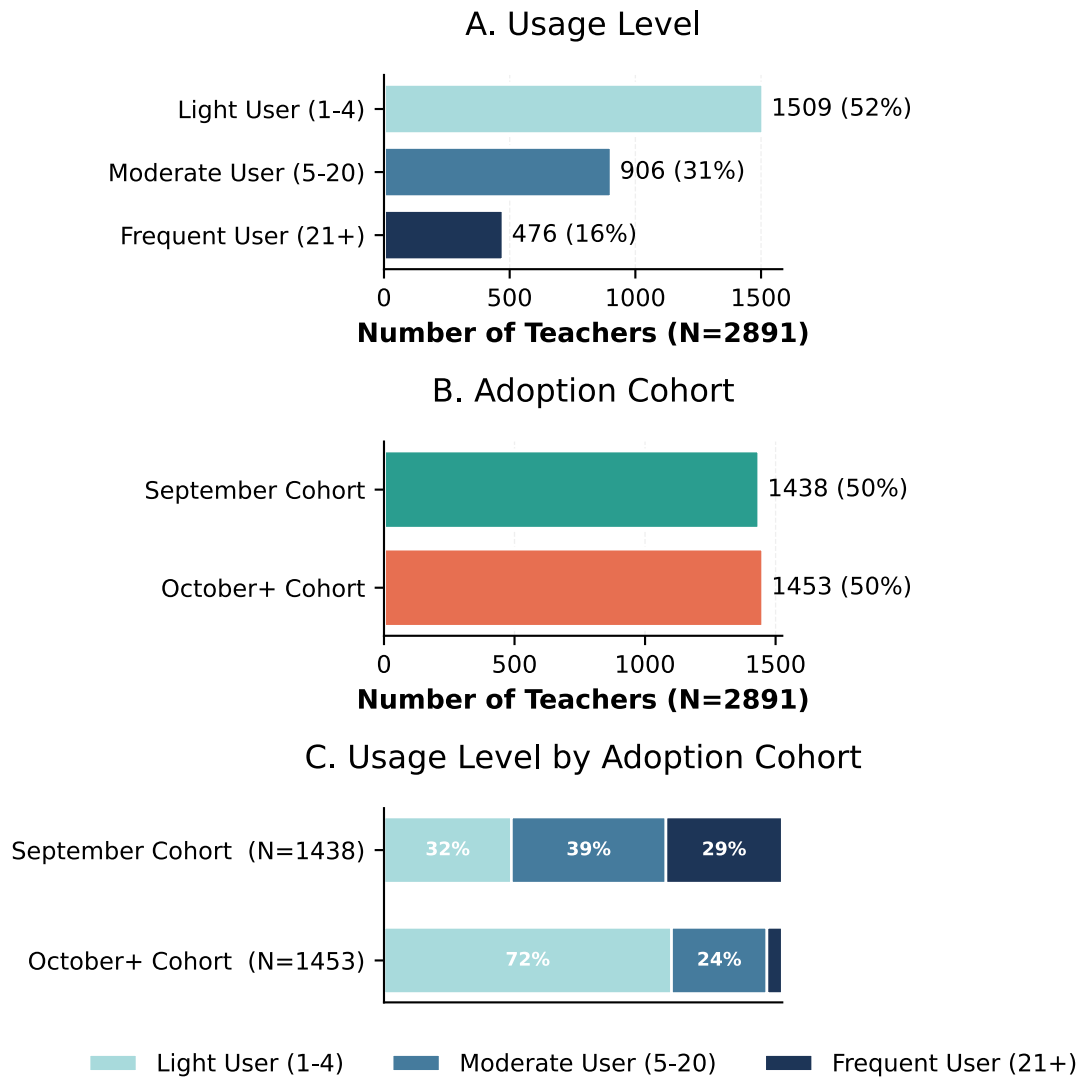


This boxplot shows the distribution of total sessions among active teachers by district. The districts are labelled based on their overall adoption rate. From this figure we can see that there is not a clear relationship between the overall adoption rate and the intensity of adoption as measured by per teacher sessions. Two districts with near 50% adoption rates have the highest per teacher median session rates, but the district with a 57% adoption rate has the lowest median per teacher session rate. The graph is sorted by district adoption rate, and we see substantial variation at the third quartile, with some districts that have lower median use showing substantially higher third quartile use. All of this is to say that adoption of Colleague AI in districts is complex, with substantial variation in how widespread and how intensive usage is.

To look more closely at who uses the platform and how, we define two groupings:

1. **Usage level** based on total sessions, which captures how many distinct times a teacher engaged with the platform, we define a light user group that has tried Colleague AI 1 to 4 times, a moderate user group who has used Colleague AI 5 to 20 times, and a frequent user group that has used Colleague AI 21 or more times. The frequent user group averaged over one session a week during the study period.
2. **Adoption cohort** compares early adopters with those who waited before trying Colleague AI. We define a September cohort of teachers who used Colleague AI in September 2025 and contrast it to an October+ cohort whose first recorded session occurred after October 1st, 2025.

Teacher Usage Groups and Adoption Cohorts



How Teachers Use The Platform

Colleague AI offers a range of features, which we group into three categories (see Appendix: Explanation of Feature Categories for full definitions):

- **Lesson Planning** encompasses features meant to aid in preparing lessons and includes: conversations with the AI assistant Claire, lesson plan creation, and the lesson plan quality measure tool.
- **Lesson Delivery** includes features designed to create materials to support teaching like: image, interactive, slide, podcast, and diagram generation.
- **Student Interaction and Feedback** groups together features that interface more directly with students such as: rubric generation, AI grading, and student-facing tools like the AI Tutor.

Teachers Mostly Use Lesson Planning Features

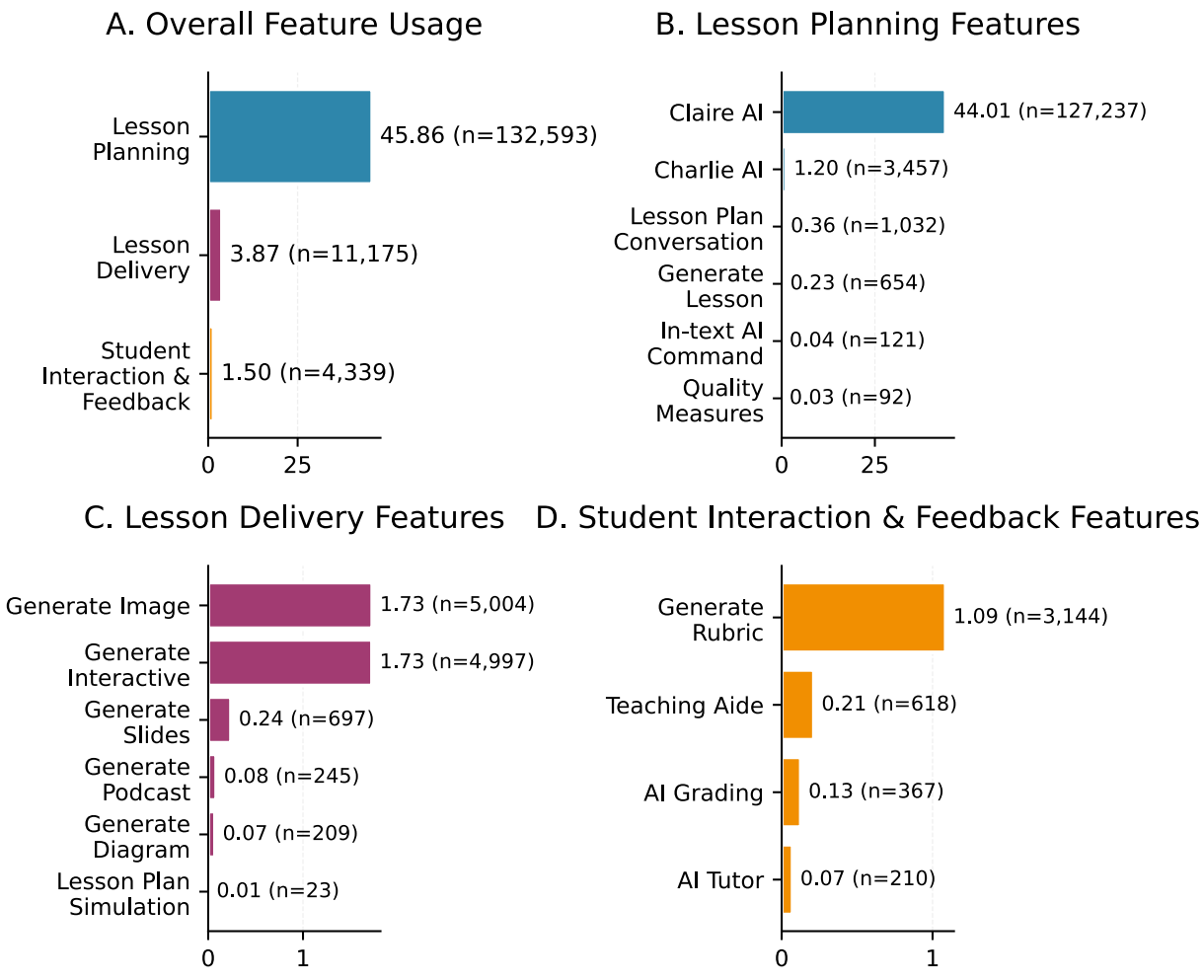
These categories may overlap in practice; conversations with Claire AI in Brainstorm Ideas, in particular, can span planning, delivery, and feedback. Across all districts, Claire is by far the most used feature on the platform.

The figures that follow shows each district's share of feature usage across the three categories and the breakdown of features used within the categories. While lesson planning dominates in every district, districts vary in how much they use lesson delivery and student interaction features.

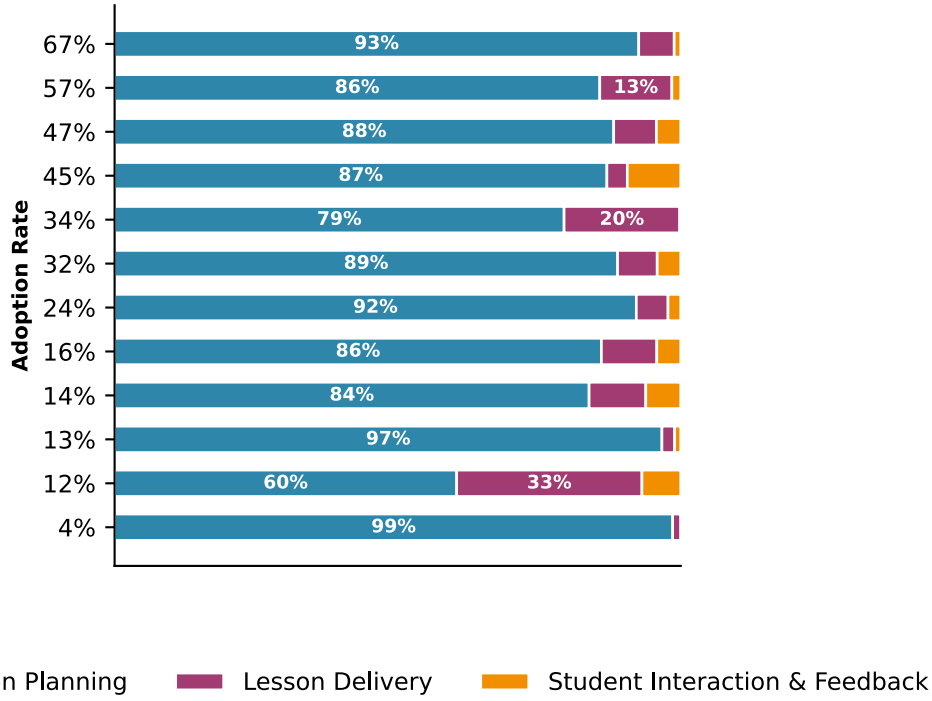
Conversations with Claire AI are far and away the most common use of the platform. As such, the lesson planning category predominates. We observe that frequent users concentrated on lesson planning features, while lighter users and later adopters tended to try a broader mix. This pattern indicates that as users spend more time on the platform, more of the usage is concentrated on conversations with Claire AI.

Colleague AI is continuing to develop the platform. In early 2026, improvements were released to Generate Slides and a new AI Grading workflow was added to the Claire chat interface. Further refinements including a live-chat mode are also being tested for the student facing features. In addition, with advances in AI tool calling and agentic capabilities, Colleague AI is integrating more features directly into the Claire AI chat interface. The end-of-year report will look at adoption of these updates.

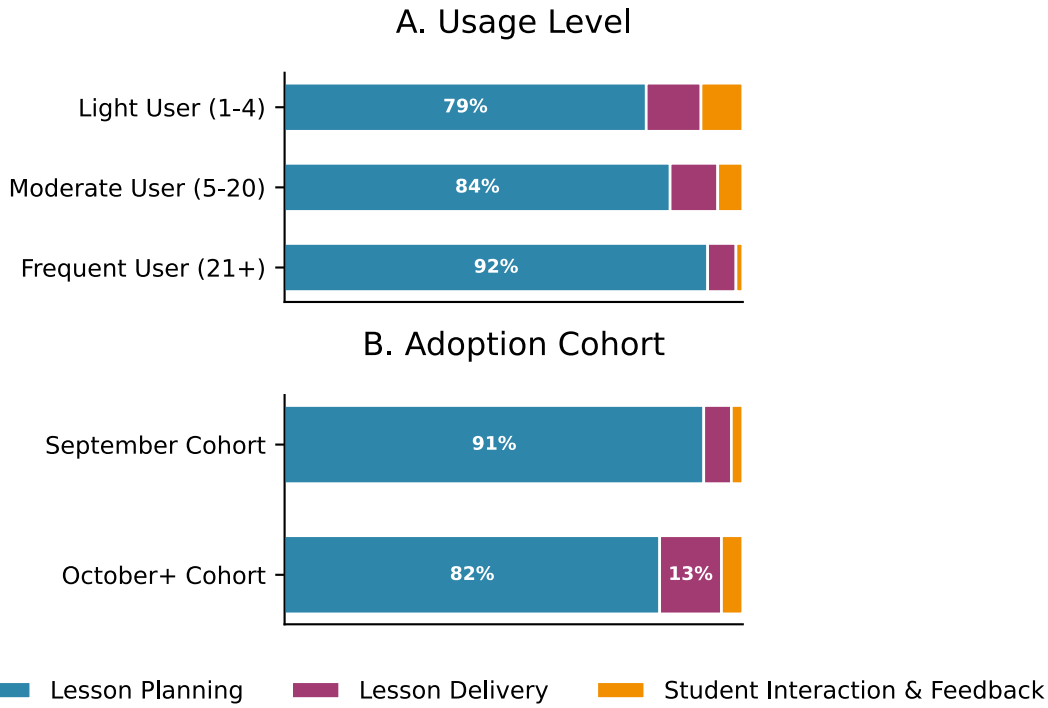
Feature Usage Overview



Feature Category Mix by District



Features by Teacher Groups



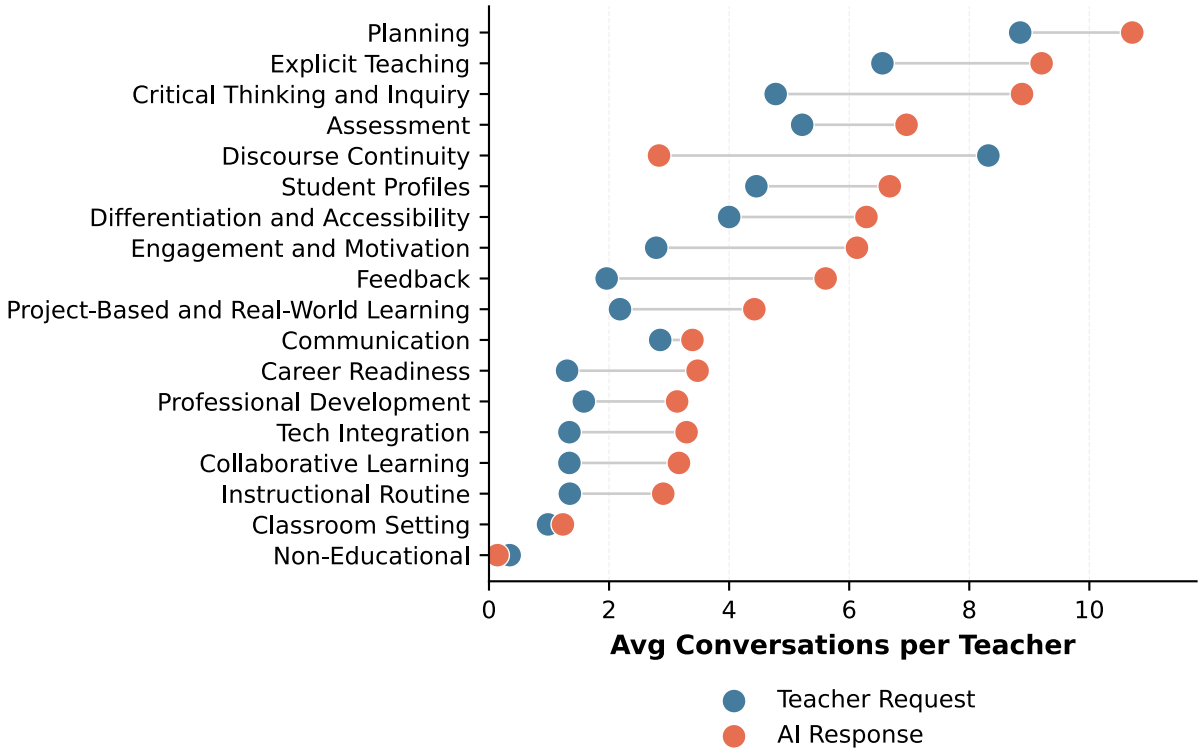
Pedagogical Topics of Teacher-AI Conversations

To further understand how teachers use Colleague AI, the platform automatically tags the pedagogical topics present in each conversation. At the end of this report we have included an appendix with detailed definitions of each pedagogical topic[2].

We begin by comparing across all the Teacher-AI conversations the relative prevalence of pedagogical topics in the message requests sent by teachers to those in the AI responses. The AI responses consistently add pedagogical topics to the conversation. Across districts, planning and explicit teaching, topics which refer respectively to prototyping lesson plans and explaining core content area topics, are the most commonly referenced by teachers. Non-educational conversation topics are very rare. Discourse Continuity refers to cross-turn coherence in conversational threads and the extent to which messages refer back to, and build upon, prior messages. This is the primary topic that is more prevalent in teacher messages than in AI assistant messages.

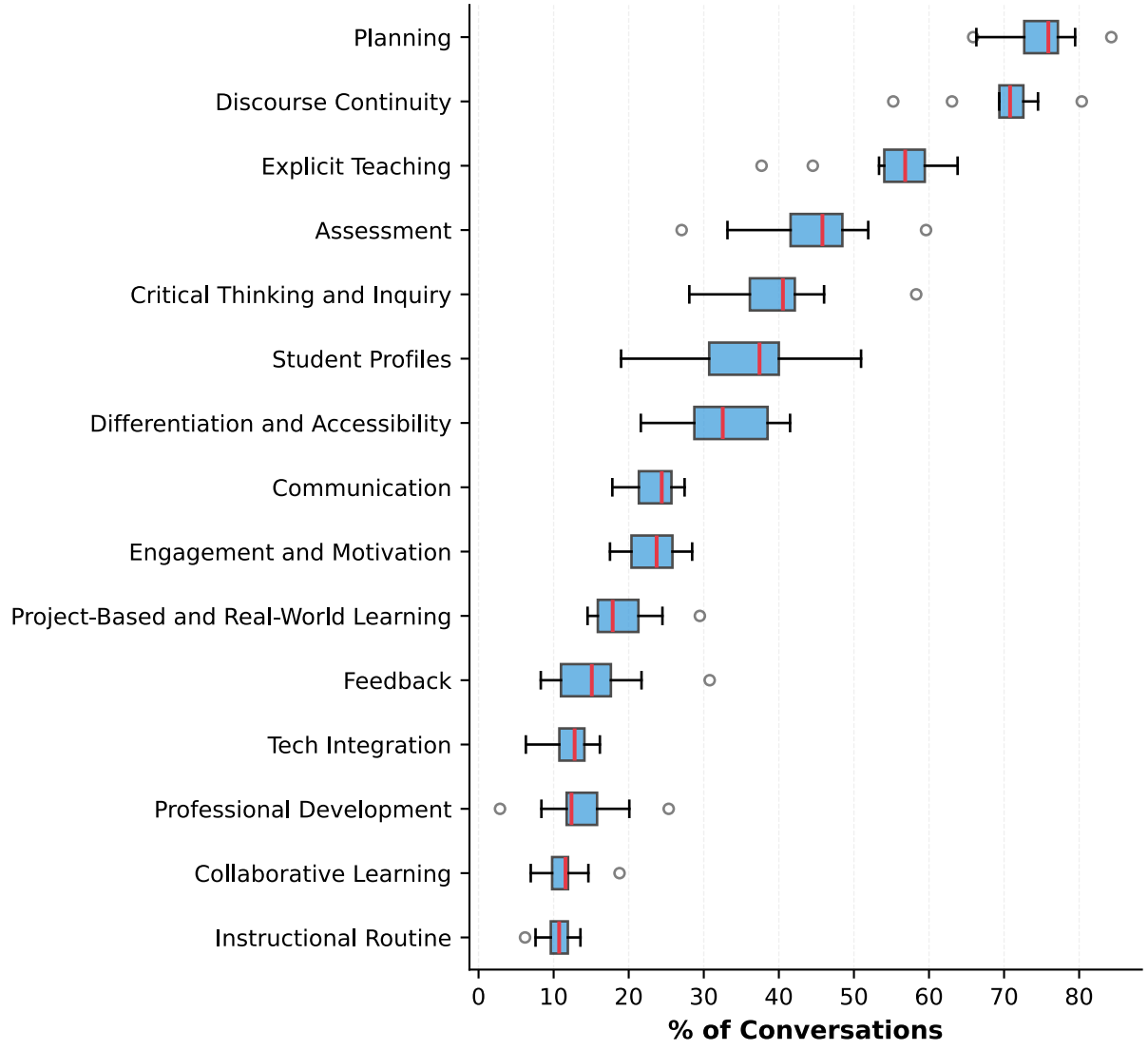
The following charts examine the pedagogical topics in teachers' requests to Colleague AI, showing how different groups of teachers interact with the platform.

AI Conversations Surface More Pedagogical Discourse



[2]More information on how conversation topics are identified can be found in Liu, A., Esbenshade, L., Sarkar, S., Tian, V., Zhang, Z., He, K., & Sun, M. (2025). How K-12 Educators Use AI: LLM-Assisted Qualitative Analysis at Scale. arXiv preprint arXiv:2507.17985

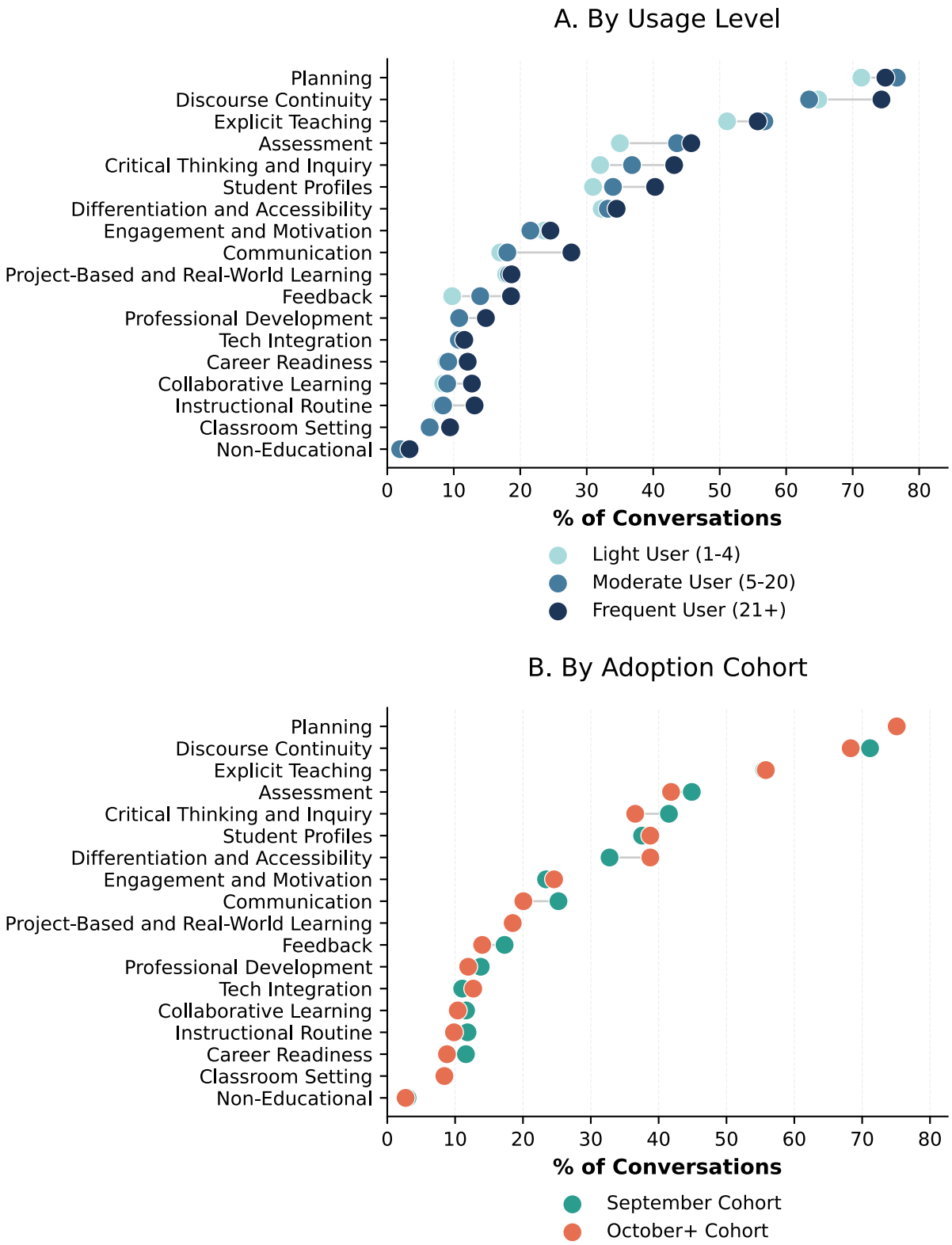
Teacher Requests' Topic Distribution Across Districts



Each box summarizes one topic's prevalence across participating districts. The Student Profiles topic, which refers to the explicit description of specific types of student groups that are being taught, has the widest range in use across districts. Differentiation & Accessibility, Critical Thinking & Inquiry, and Assessment also saw relatively wide ranges in prevalence across districts.

Relative to light or moderate users, frequent users of Colleague AI were more likely to follow up on AI responses in subsequent messages (Discourse Continuity) and more likely to use the AI tools to draft messages for communicating with families or colleagues (Communication).

Relative Prevalence of Pedagogical Topics (Teacher Requests Only)



Student-Teacher Rostering Linkage

Teachers are linked to students through classroom rosters on the Colleague AI platform. Classroom records with associated student and teacher accounts are created automatically through syncing with platforms like Classlink and Clever. The rostered classes automatically include some subject area information. Currently we observe that the most common class subject label is "other" and will continue to work to improve classroom subject mapping for analysis.

These linkages underpin the student-level analyses in this report. The table below pools roster data across all participating districts. We exclude classrooms with more than 70 students (the 95th percentile of all classroom sizes) as likely representing digital classrooms that do not directly relate to traditional classrooms.

We include only roster records that have a system update date on or after July 01, 2025.

Total Records	
Teachers	18,112
Active teachers	2,891
Students	77,486
Classrooms	28,400

Averages	
Students per classroom	26
Teachers per classroom	1.6
Classrooms per teacher	9.9
Classrooms per student	9.6

Classrooms by Subject Area

Subject Area	Classrooms
Other	12,753
ELA	3,185
Math	3,032
Science	2,378
Social Studies	2,130
Arts	1,760
PE	1,381
Computer Science & Technology	960
Career & Technical Education	572
English Language Learners	235
Special Education	14

Teacher Usage by Students Taught

With district provided student demographic data, we examine how the student populations teachers serve relate to their platform use. Generative LLMs have potential to assist teachers in differentiating their instructional materials to serve a broad range of students. In this section we examine early signals in how teachers serving different student populations are interacting with Colleague AI. Teachers are linked to students through classroom rosters on the Colleague AI platform; from these linkages we compute the percentage of each teacher's students who are English Language Learners (ELL) or receive Special Education (SPED) services.

Several patterns emerge. The overall usage level distribution is similar across teachers with different student populations. Approximately half are light users, 30% are moderate users, and 20% are frequent users. We see larger differences in terms of features used. Teachers serving more English Language Learners than the state average were less likely to use Lesson Delivery features. On the other hand, teachers serving more Special Education students than the state average were more likely to use Lesson Delivery features. The most commonly used Lesson Delivery features include Generate Image and Generate Interactive. In future work we will investigate these features more deeply to understand differences in adoption between teachers serving Special Education students and English Language Learners.

Teachers also cover different pedagogical topics depending on their student demographics. Teachers with more English Language Learners are more likely to reference Student Profiles and Differentiation & Accessibility topics, as well as Engagement & Motivation and Project-Based & Real-World Learning. Similarly, teachers with more Special Education students are more likely to reference Student Profiles and Differentiation & Accessibility in their AI requests, but do not have increased prevalence of conversations relating to Engagement or Project-Based Learning. We will continue to monitor these trends and in future work will expand on this analysis.

Data linkage and classification

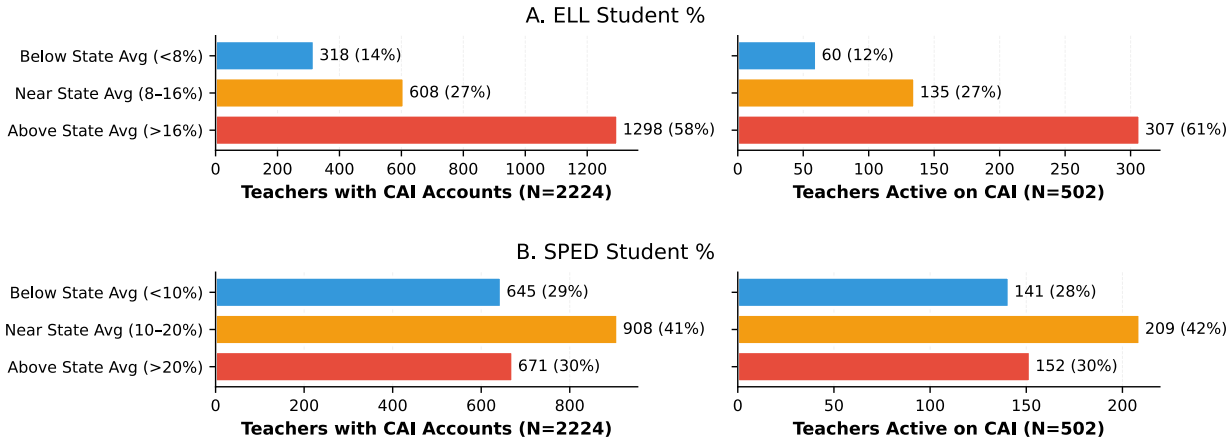
We are able to link over 500 teachers who used Colleague AI to their classroom students. Teachers are grouped by the proportion of English Learner and Special Education students in their classrooms, using categories anchored to Washington state enrollment patterns. These groupings describe the *teaching context*, the instructional environment in which a teacher works, rather than characterizing students or implying judgments about classroom quality.

For **English Language Learner** classification, we use the term and definition consistent with the Washington School Improvement Framework (WSIF) accountability reporting. Categories are anchored to Washington's statewide rate of approximately 12% of public school students receiving Transitional Bilingual Instruction Program (TBIP) services (OSPI, 2025). Teachers with fewer than 8% English Learner students are classified as below the state average; those between 8% and 16% are near the state average; and those above 16% serve English Learner populations substantially above the state norm, a threshold at which research suggests instructional demands shift meaningfully (Turgut, Sahin, & Huerta, 2016).

For **Special Education** classification, categories are anchored to state and national benchmarks. Nationally, 15% of public school students received services under IDEA in 2022–23, with Washington state rates close to this figure (NCES, 2024). Teachers with fewer than 10% Special Education students are classified as below the state average; those between 10% and 20% are near the state average; and those above 20% serve Special Education populations well above the typical range across states (Pew Research Center, 2023).

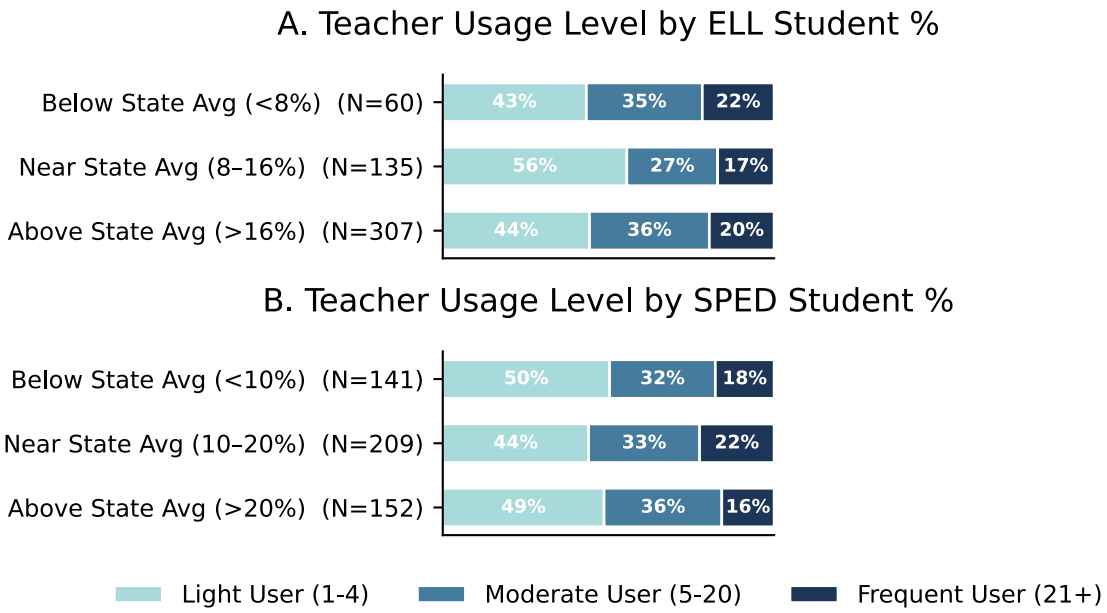
Student demographic data was provided by 4 of the 12 participating districts, covering 45,956 students linked to 2,224 teachers. Of these teachers, 502 used Colleague AI at least once during the study period.

Teacher Distribution by Student ELL and SPED Populations

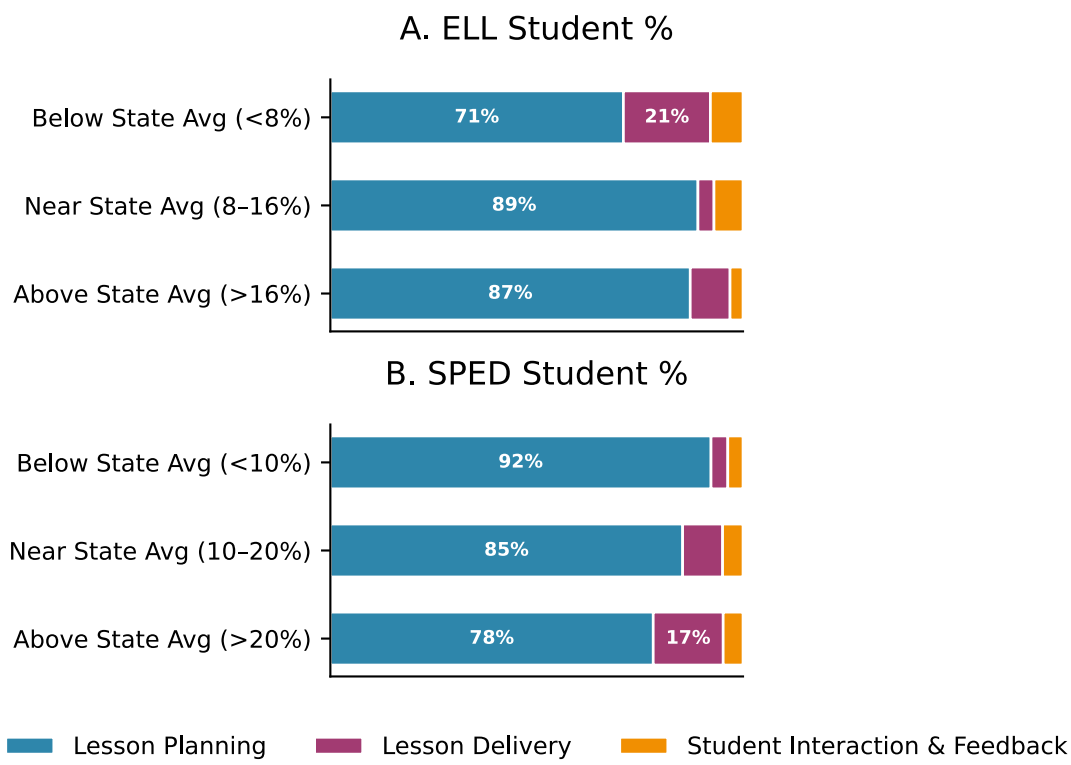


Among the teachers with linked student demographic data, we can compare usage levels across teachers serving different proportions of ELL and SPED students. We see that the overall distribution of teachers with Colleague AI accounts with linked student data (left charts) is similar to the distribution of teachers who used Colleague AI (right charts). The adoption rate among teachers with linked student data is 22%, somewhat lower than in the overall study.

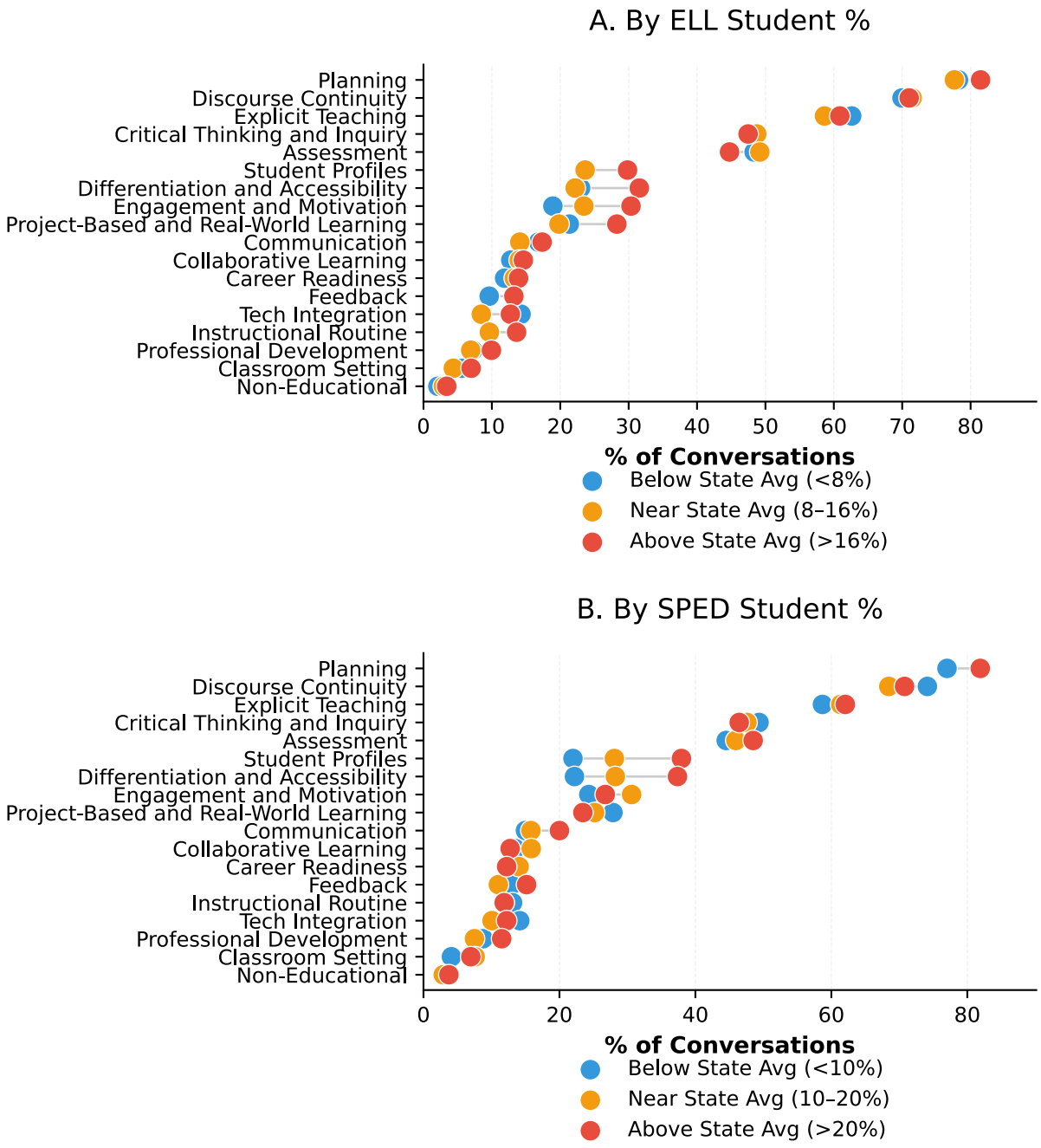
Colleague AI Usage by ELL and SPED Student Populations



Teacher Feature Use by ELL and SPED Student Populations



Relative Prevalence of Pedagogical Topics by ELL and SPED Student Populations



Teacher Usage by Student Assessment Data

With district provided student assessment data, we examine how teachers' platform use relates to the academic achievement profiles of their students. The results in this section describe the *teaching context* — the classroom achievement profile a teacher works within — and are not a measure of teacher quality or of AI's contribution to student learning. Continuing from the analysis in the previous section, here we focus on the average score level among teachers' students, and the degree of variability in the students' scores. After calculating the average score among teachers' linked students, we group teachers into thirds based on the overall distribution. We additionally disaggregate teachers' usage of Colleague AI based on how wide the spread is between the highest and lowest test scores of their students.

Within that frame, we see that teachers with lower-scoring classrooms are slightly more likely to use Colleague AI; 37% of teachers who use Colleague AI have average classroom scores in the bottom 33% of the overall distribution. We also observe that 54% of teachers with wide score variability are light users of Colleague AI and only 13% are frequent users (vs 42% light users and 23% frequent users for teachers with narrow score spreads). This has implications for further research regarding AI adoption and use to support instructional differentiation. We do see that teachers with wide test score variability did use Lesson Delivery features relatively more often. Teachers with students in the lower and middle third of the test score distribution were more likely to reference Differentiation & Accessibility, Student Profiles, and Engagement & Motivation in their AI requests. Patterns in pedagogical topics are less clear based on test score variability. There is a similar pattern with Differentiation, Student Profiles, and Engagement as teachers with moderate or wide test score variability are more likely to send message requests relating to those topics. There are also indications that teachers with moderate, as opposed to narrow or wide test score variability, were less likely to send message requests referring to Assessment, which should be investigated further.

In early 2026 Colleague AI released significant upgrades to the AI grading capabilities; these updates fall outside the scope of this September – December analysis. In future reports we will investigate relationships between student achievement levels in classrooms and teachers' adoption of AI grading and feedback functionality.

Data linkage and classification

Student test scores are standardized (z-scored) within each combination of test, subject, and grade level so that scores are comparable across different assessments. Where multiple tests were available for a district, each teacher's group assignment reflects a composite across all available assessments rather than any single test. Teachers with fewer than 5 linked students are excluded. Each teacher is characterized along two dimensions based on their students' score distributions:

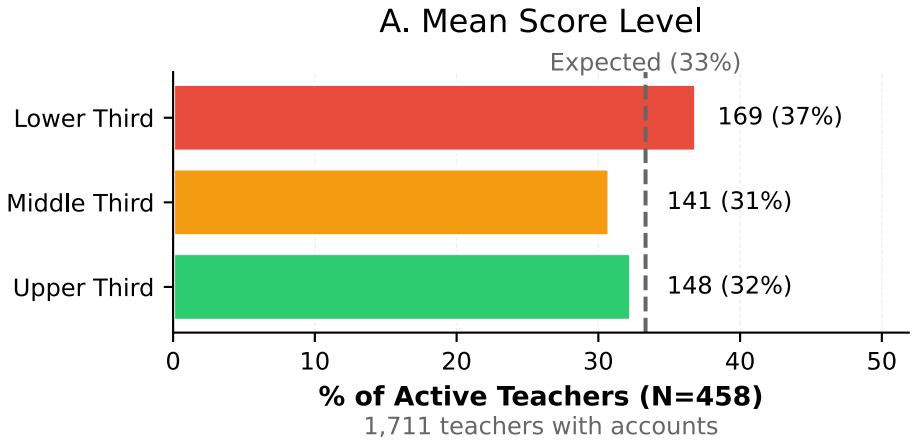
- **Mean Score Level** — We calculate the average standardized test score of a teacher's linked students. Then, within each district we divide teachers into thirds grouping them in the Lower Third, Middle Third, or Upper Third. This is thus a relative, within-district measure to

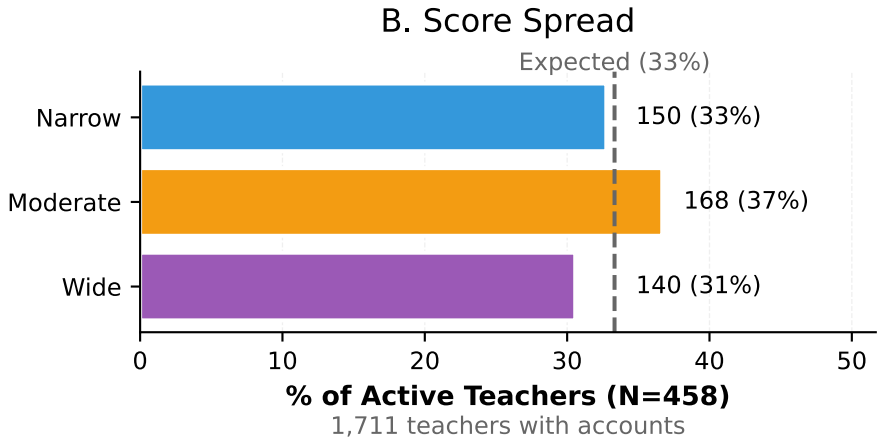
capture variability across teachers' classroom achievement levels. This is not a measure of teacher effectiveness but is a measure of the classroom context.

- **Score Spread** — Using the same teacher-student linkage, we calculate the difference between the lowest 10th percentile student's standardized test score and the highest 90th percentile student's standardized score. We then split this p10–p90 difference measure within each district into thirds, a Narrow, Moderate, and Wide grouping to measure the variability in achievement levels in teachers' classrooms. (See Reardon, 2011 for additional details about the p10–p90 measure.)

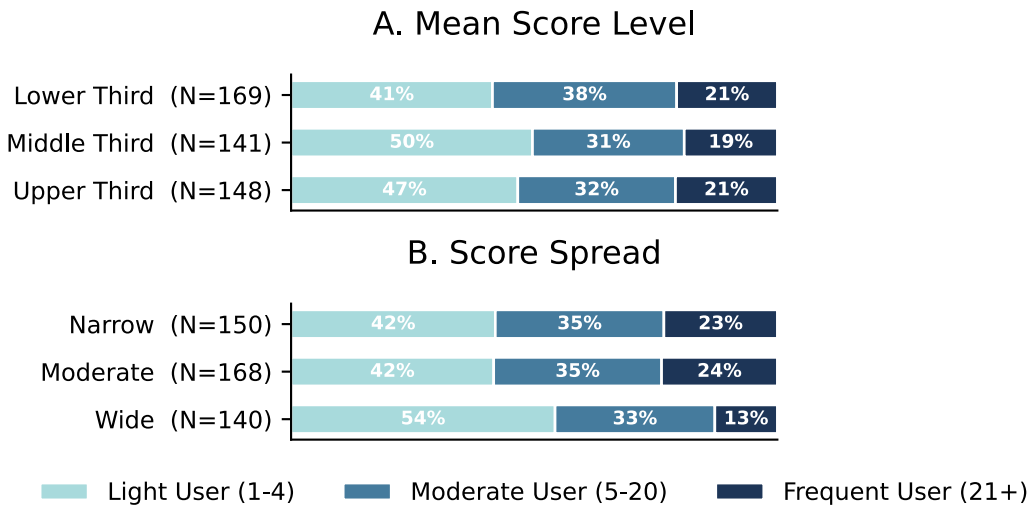
Student assessment data was provided by 3 of the 12 participating districts, covering 172,655 test score records for 27,551 students. Assessment data included a combination of WA State SBA assessments in math and reading, WCAS science, STAR Reading and Math assessments, and WIDA assessments. Scores were standardized within district, assessment, grade, and subject. After linking through classroom rosters, 1,711 teachers had at least 5 students with scores, of whom 458 used Colleague AI.

Teacher Distribution by Student Score Groups

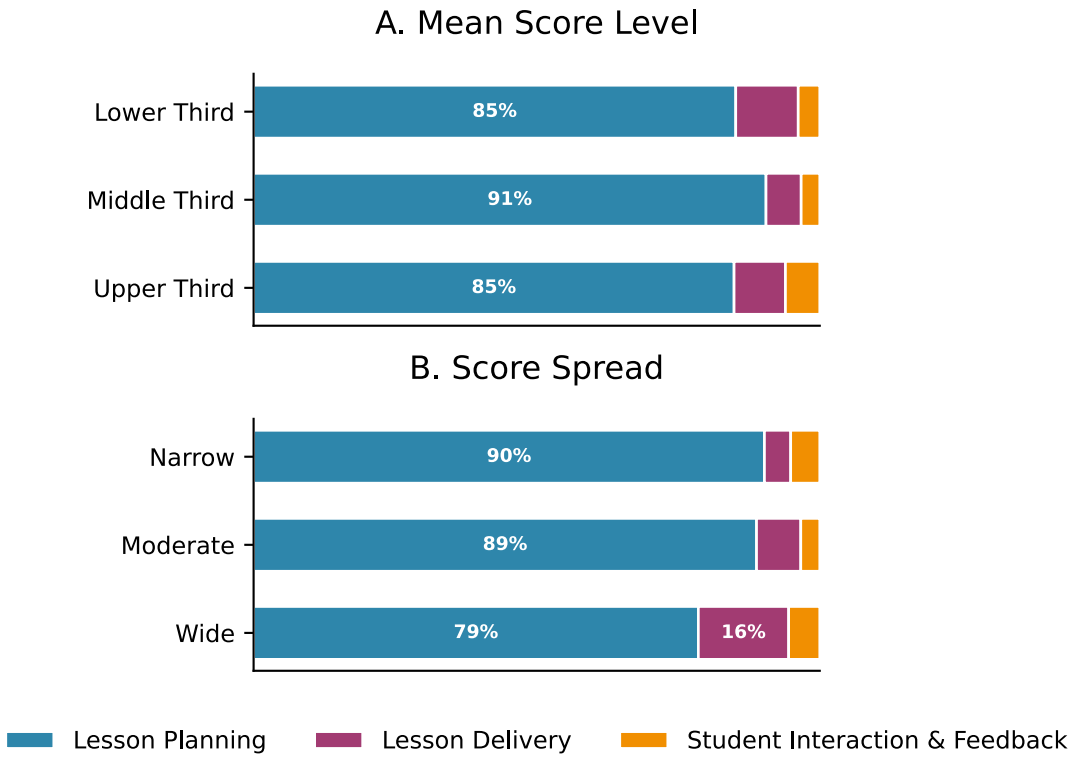




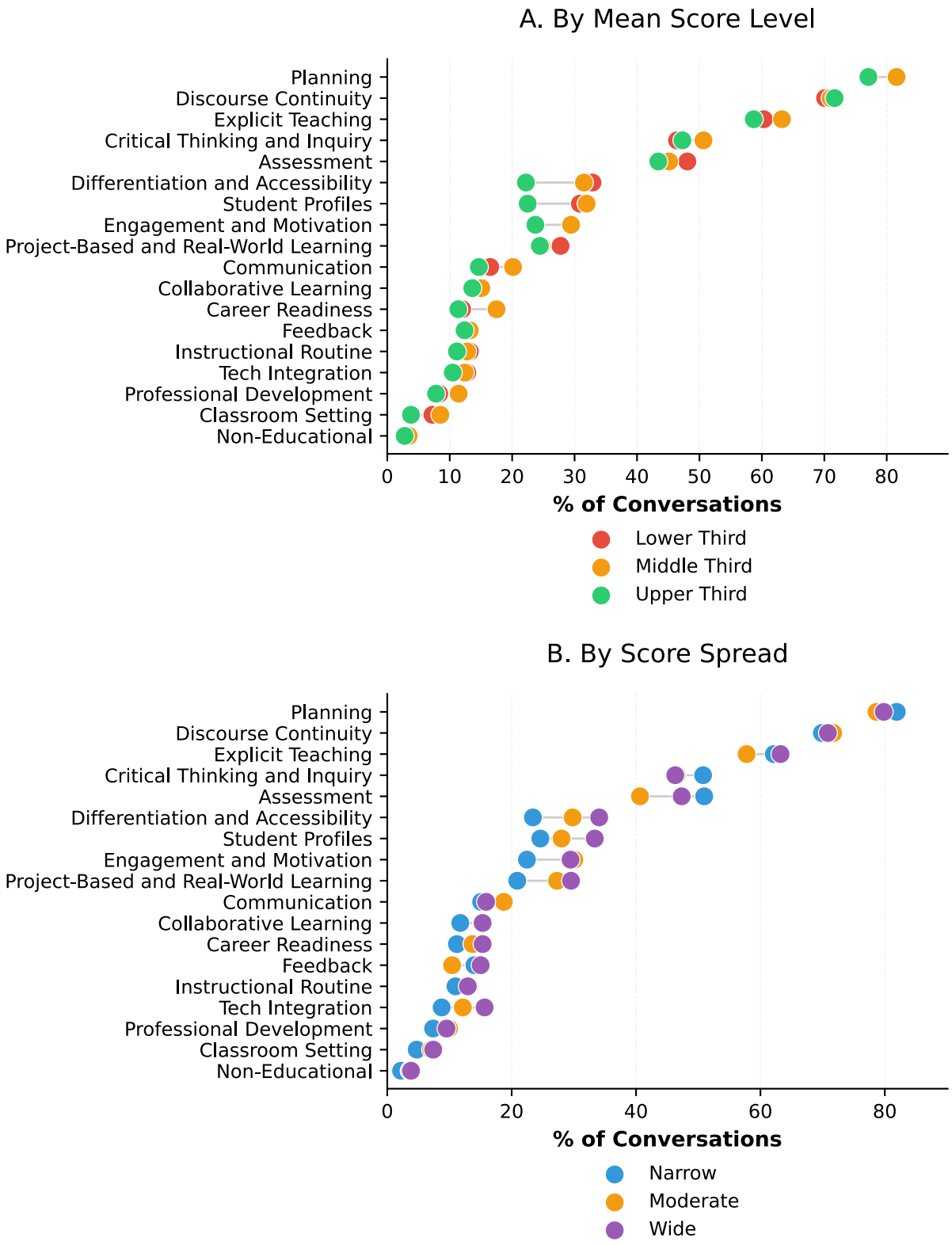
Colleague AI Usage by Student Score Groups



Features by Student Score Groups



Relative Prevalence of Pedagogical Topics by Student Score Groups



Student Interim Test Scores & Teacher Usage Correlations

This section pools 12,005 students with matched beginning-of-year (BOY) and middle-of-year (MOY) interim assessment scores across 2 districtsthat provided such data. BOY assessments were primarily administered in September 2025 and MOY assessments were administered primarily in December 2025 and January 2026. The exact days of administration varied across grade and subjects. Assessment data came from the STAR Math and Reading exams as well as the i-Ready Math and Reading exams. The analysis examines whether students whose teachers used Colleague AI more intensively showed different score trajectories, controlling for prior scores, student characteristics, and accounting for differences across assessment types and districts.

	Math		Reading	
	Mean	SD	Mean	SD
SPED	0.15	0.35	0.14	0.35
ELL	0.17	0.38	0.17	0.38
Attendance Rate	0.85	0.11	0.85	0.11
AI Hours	0.71	0.85	0.71	0.84
AI Hours (Active Tchrs)	2.97	4.18	2.91	3.91
Num Messages	15.73	17.41	15.80	17.26
Num Msgs (Active Tchrs)	66.48	85.62	65.43	81.12
Num Linked Teachers	3.86	3.11	3.93	3.15
N Students	11,259		11,292	
Grade 3	1,905		1,879	
Grade 4	1,963		1,941	
Grade 5	1,836		1,791	
Grade 6	1,934		1,945	
Grade 7	1,869		1,904	
Grade 8	1,752		1,832	

Statistics computed on the regression analysis sample (students with matched BOY and MOY scores). Student-level variables deduplicated by student within each subject.

The first table presents summary statistics for the regression sample, broken down by subject. Because the analysis pools multiple assessments across districts, BOY and MOY scores are omitted from the summary; scores are standardized (z-scored) within assessment, grade, and subject before entering the regression. Sample sizes differ across subjects because not all students have matched BOY and MOY scores in every subject. The AI hours row reflects the average Colleague AI usage among tested students' linked teachers; because many teachers used the platform lightly or not at all during this early adoption period, the average is modest. The active-teacher rows show the mean hours or messages among teachers who logged at least one session.

	Math				Reading			
	AI Hrs		Num Msgs		AI Hrs		Num Msgs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AI Hrs	-0.0004	-0.0007			0.0094*	0.0089*		
	(0.0054)	(0.0054)			(0.0050)	(0.0049)		
Num Msgs			0.0001	0.0001			0.0005**	0.0004*
			(0.0003)	(0.0003)			(0.0002)	(0.0002)
Prior	0.8715***	0.8382***	0.8717***	0.8380***	0.8968***	0.8564***	0.8968***	0.8564***
	(0.0046)	(0.0053)	(0.0046)	(0.0053)	(0.0042)	(0.0050)	(0.0042)	(0.0050)
Stu ELL		-0.1462***		-0.1461***		-0.1358***		-0.1359***
		(0.0133)		(0.0133)		(0.0122)		(0.0122)
Stu SPED		-0.0860***		-0.0861***		-0.1257***		-0.1255***
		(0.0136)		(0.0136)		(0.0129)		(0.0129)
Attendance		0.1197***		0.1215***		0.1871***		0.1881***
		(0.0443)		(0.0443)		(0.0399)		(0.0399)
R^2	0.762	0.765	0.762	0.765	0.804	0.808	0.804	0.808
N	11,259	11,259	11,259	11,259	11,292	11,292	11,292	11,292

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include assessment type and district fixed effects.

This table reports OLS regression results predicting middle-of-year (MOY) standardized test scores. All models control for beginning-of-year (BOY) scores, which are strongly predictive of MOY performance, and include assessment type and district fixed effects. For each subject, we estimate two specifications: a base model with only prior scores and the treatment variable, and a controlled model that adds student-level covariates for English Language Learner status, disability status, and attendance rate. We report results for two measures of teacher AI use: total hours on the platform and total messages sent, aiming to assess robustness across different operationalizations of AI engagement.

In reading, teacher AI hours show a small, statistically significant positive association with student MOY scores in both the base and controlled specifications. This association is not present in mathematics. The effect size is modest, on the order of 0.025 standard deviations at the average teacher AI usage level of 3 hours, but is notable given that this reflects only the first four months of a voluntary adoption period during which most teachers were still learning the platform. These are correlational findings and should be interpreted with caution; teachers who chose to use Colleague AI more intensively may differ from lighter users in unobserved ways. The consistency of the reading result across specifications and treatment measures provides an encouraging early signal that we will continue to investigate as the study progresses through the full 2025-26 school year.

To effectively contextualize the 0.025 standard deviation effect size observed in reading, it is helpful to view this early finding alongside established benchmarks in educational research. Hattie (2008) notes that the average effect size for educational interventions is approximately 0.40 standard deviations, a benchmark that typically represents a full year of intensive, targeted instruction. Furthermore, Guskey and Yoon (2009) emphasize that translating teacher learning and new practices into measurable student achievement usually requires sustained engagement, often identifying a threshold of 30 or more contact hours to see significant effects. The current study's findings reflect only three average hours of voluntary teacher engagement over a limited four-month period. Additionally, rigorous evaluations of educational technology frequently reveal negligible short-term impacts. For instance, Campuzano, Dynarski, Agodini, and Rall (2009) found that several widely adopted reading and mathematics software products produced effect sizes that were not statistically different from zero. Given the historical challenges of demonstrating

rapid, measurable gains from new educational technology integrations, the modest but statistically significant positive association in reading provides an early baseline relative to the low dosage of teacher platform usage. We will explore these preliminary findings in greater detail, utilizing a more complete dataset and rigorous analytical methods, in the forthcoming end-of-year report.

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Appendix: Report Data Sources

The AmplifyLearn.AI research team would like to thank the districts that provided mid-year administrative data. In follow up reports we expect to include administrative data from a wider set of participating districts. Because only one district was able to provide teacher administrative data at this time, we have excluded that section of analysis from this report.

District-provided administrative files vary in availability:

Data Type	Districts Providing
Teacher Administrative Data	1 of 12
Student Demographics	4 of 12
Assessment Data	3 of 12
Student Attendance	2 of 12

- Teacher Administrative Data: this includes teachers' years of experience, certificate status, and whether or not they have earned a masters degree.
- Student Demographics: this requested file includes students' grade level, and their binary multi-lingual and Special Education learner designation.
- Assessment Data: this file includes information on standardized assessment scores including state summative tests like the SBA and interim assessments administered by the district.
- Student Attendance: this file includes information on student attendance data.

Colleague AI platform usage data was provided by Colleague AI. All data is stored securely and id variables that link platform usage records to district provided data are de-identified before being accessed by the AmplifyLearn.AI research team.

Appendix: Explanation of Feature Categories

Lesson Planning

- **Claire AI**: The primary teacher-facing AI assistant that powers Colleague AI's content generation tools, including Brainstorm Ideas conversations, lesson plan creation, interactive editing, and auto-generating start messages for Teaching Aides.
- **Charlie AI**: This is a secondary teacher-facing AI assistant that is used to test experimental changes to the AI chat interface before they are implemented in the main Claire AI.
- **Generate Lesson**: Creates comprehensive, standards-aligned lesson plans based on teacher-provided learning objectives, subject, grade level, differentiation needs, and state standards.
- **Lesson Plan Conversation**: This feature encompasses AI conversations that teachers have using a dedicated sidebar when viewing a lesson plan document in the My Documents area of Colleague AI.
- **Quality Measures**: Evaluates lesson plan quality using research-validated rubrics (developed via Delphi method with practitioners), allowing teachers to compare their professional judgment with AI-generated reviews.
- **In-text AI Command**: When viewing documents in My Documents, teachers have the ability to highlight specific lines of text and engage in an AI conversation for a quick edit on that specific portion of the text.

Lesson Delivery

- **Generate Image**: Produces custom instructional images in various styles (realistic, cartoon, diagram) from text descriptions, with prompt history and regeneration support.
- **Generate Interactive**: Builds engaging online student activities such as quizzes, worksheets, drag-and-drop exercises, and formative assessments that can be shared via link and report on student responses.
- **Generate Slides**: Creates presentation slide decks from topic and learning objectives, with support for both Colleague AI's template library and custom teacher-uploaded templates.
- **Generate Podcast**: Produces audio learning content from teacher-specified topics, with controls for target audience, desired length, and tone (conversational, formal, storytelling).
- **Generate Diagram**: This feature creates editable diagrams for teachers.
- **Lesson Plan Simulation**: A lesson plan enhancement tool that lets teachers preview and simulate how a generated lesson might unfold in the classroom before teaching it.

Student Interaction & Feedback

- **Generate Rubric**: Creates assessment rubrics aligned to learning standards with customizable criteria dimensions and performance levels (e.g., Exceeds, Meets, Approaching, Beginning).

- **AI Grading**: An AI-powered grading assistant that scores student submissions against teacher-provided rubrics and answer keys, generating detailed rubric-based feedback with export options.
- **AI Tutor**: *Student Facing* An open-ended, student-initiated AI conversation feature within a classroom that allows students to ask questions on any topic, with conversations visible to the teacher.
- **Teaching Aide**: *Student Facing* A teacher-designed, topic-specific AI assistant deployed to students within a classroom, where teachers control the prompt, uploaded materials, and monitor conversations in real time.

Appendix: Explanation of Pedagogical Topics

Definitions reprinted with permission from Liu, A., Esbenshade, L., Sarkar, S., Tian, V., Zhang, Z., He, K., & Sun, M. (2025). How K-12 Educators Use AI: LLM-Assisted Qualitative Analysis at Scale. arXiv preprint arXiv:2507.17985.

- **Assessment.** Educators requested assistance in generating formative assessments, summative tasks, and grading rubrics, typically aligned with specific instructional units or learning objectives.
- **Career Readiness.** A subset of prompts focused on supporting students' exploration of career pathways, college readiness, or workplace skills, integrating postsecondary preparation into lesson and activity planning. These subthemes also align with the Curriculum and Content Focus domain, as such conversations often involved generating informational materials and instructional resources.
- **Classroom Settings.** Prompts referenced specific instructional contexts, including homeschooling, low-tech environments, afterschool programs, and classrooms requiring behavioral interventions. These contextual codes suggest that educators use generative AI to adapt instruction in response to structural constraints as well as individual learner needs.
- **Communication.** Requests related to drafting communications with families, colleagues, or administrators constituted a substantial portion of educator usage. These interactions demonstrate that AI was used not only for student-facing instructional tasks but also for administrative and professional communication.
- **Critical Thinking and Inquiry.** Many prompts asked AI to support strategies that encouraged deep questioning, research and source analysis, and historical, civic, or economic reasoning. Educators frequently sought guidance on structuring inquiry-based learning experiences and fostering higher-order thinking.
- **Differentiation and Accessibility.** Educators commonly sought support for differentiated instructional strategies tailored to English Language Learners (ELLs), students with Individualized Education Programs (IEPs), and mixed-ability classrooms. Prompts frequently included requests for tiered scaffolding, visual representations, and multilingual adaptations, particularly in core content areas.
- **Discourse Continuity.** Discourse Continuity in educator-AI conversation refers to the extent to which the interaction builds coherently across turns, with the teacher treating prior AI responses as part of an ongoing exchange rather than as isolated outputs. It captures whether the teacher follows up on earlier ideas, asks the AI to continue or refine prior work, rejects unsatisfactory output, or requests changes in content or format while maintaining the same underlying conversational thread. In this sense, discourse continuity reflects sustained engagement with the evolving response and the teacher's active orchestration of the interaction.
- **Explicit Teaching.** Educators regularly prompted the AI to model or explain core concepts in STEM and literacy, including explaining mathematical concepts, modeling problem-solving

processes, and supporting English language arts skill development. These requests reflect efforts to strengthen direct instruction in foundational content areas.

- **Feedback.** Educators used AI to draft feedback, interpret patterns in student performance, and suggest next instructional steps. AI often played an argumentative and elaborative role in tasks such as generating feedback for students or supporting data-driven progress monitoring.
- **Instructional Routines and Engagement.** Some prompts emphasized learning progression and routine adjustments, while others focused on actionable strategies to increase student motivation. These requests were particularly common in early-grade contexts and intervention-oriented settings, highlighting the role of AI in supporting classroom pacing and engagement.
- **Planning.** Planning-related conversations appeared prominently in educator requests. Educators frequently engaged with generative AI to prototype full lesson sequences, align instruction with learning standards, and design or adjust in-class activities. These planning-oriented requests were often combined with subject-specific scaffolding and instructional considerations, highlighting the close interdependence between content planning and adaptive pedagogy. The co-occurrence of planning with instructional strategies suggests that educators use AI not only to organize curricular materials but also to refine how those materials are enacted in classroom instruction.
- **Professional Development.** A smaller subset of prompts focused on reflective practice and the preparation of professional learning or workshop materials, indicating AI use in supporting educators' own learning and growth.
- **Project-Based and Real-World Learning.** Educators leveraged AI to generate tasks aligned with real-world engagement, hands-on projects, experimental design, and technical skill development. These practices were often connected to authentic disciplinary applications, such as engineering design challenges and science laboratory investigations, reflecting an emphasis on applied learning.
- **Student Profiles.** Educators frequently described target learners as below grade level, gifted, English Language Learners (ELLs), students receiving special education services, or students with social–emotional support needs. These descriptors were often paired with requests for differentiated instructional strategies, highlighting a common linkage between pedagogical approach and learner profile.
- **Technology Integration.** Educators also used AI to explore questions related to the integration of technology and multimedia tools into instruction. In addition to inquiries about using AI itself, prompts included requests for incorporating digital resources and multimedia to support teaching and learning. Notably, more systematic and infrastructure-oriented technology implementation conversations appeared in interactions initiated by administrators, reflecting broader organizational considerations around instructional technology adoption.