Evaluating the Implementation of Hybrid Learning Models

An Analysis of Key Components, Instructional Practices, and Student Outcomes

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Introduction

This study aims to inform the broader educational field by examining the features of successful hybrid learning programs, with a particular focus on the implementation of these programs and their associated student outcomes. We draw on existing literature regarding hybrid programs, coupled with a detailed analysis of a specific hybrid learning initiative, Coursemojo. By investigating Coursemojo, we seek to understand the factors contributing to its successful implementation and outcomes and explore the relationships between these elements. Insights from this study can inform strategies to address current challenges in implementing hybrid learning faced by many schools and districts, making them more equipped to meet current and future demands.

This report is organized into four sections. The first section provides an overview of the background of hybrid learning models and presents the research questions (RQs). The second section details the methodology used to conduct the study. The third section presents and interprets findings about each RQ. The report's concluding section summarizes the insights gained and offers recommendations for developing and improving future hybrid learning programs.

Study Overview

The educational landscape has faced unprecedented challenges in recent years, due primarily to a shortage of highly qualified K–12 teachers. Teacher shortages have resulted in limited access to both core and elective courses, leaving families with inequitable opportunities for their students. The COVID-19 pandemic has exacerbated these issues, significantly affecting student learning, intensifying existing challenges, and creating new challenges for schools nationwide. To address these growing challenges, schools and districts are exploring innovative solutions, including hybrid learning models that blend in-person and online instruction.

Districts are adopting hybrid models to address key challenges in education, ensuring continuity and expanding learning opportunities despite workforce and resource constraints. Some districts use these programs to combat teacher shortages that limit staffing for essential and specialized courses. Others leverage hybrid models to expand offerings in electives and career and technical education (CTE), giving students more opportunities to explore interests and career paths. In addition, hybrid learning promotes equitable access to advanced coursework, such as Algebra 1 for seventh- and eighth-grade students, as well as fair access to advanced placement and dual-credit courses.

This study seeks to inform the broader educational field about effectively implementing hybrid learning models. This report defines hybrid and blended learning models as typically consisting

of two or more unrelated learning approaches or a mixture of methods, such as linking face-to-face learning through online learning, linking online learning through access to teachers or faculty affiliates, or linking simulation with organized learning (Bonk & Graham, 2012; McGrath, 2013; Walsh, 2005). The purpose of this report is to offer insights into best practices for course delivery, measuring student engagement, and supporting a sustainable and effective learning model. The report combines findings from a study of a specific hybrid learning program with insights from a wider scan of the literature about such programs.

As this report will demonstrate, the hybrid learning model holds promise for supporting all students facing limited access to quality instruction, rigorous coursework, or diverse course options. This potential is especially significant for Black and Latino students, who have historically been marginalized by systemic barriers and educational inequities. By providing regular, engaging courses with personalized support in the classroom, the hybrid learning model demonstrated the potential to enhance learning experiences for these students, leading to more equitable learning spaces and opportunities. By combining the findings from our study of this model with a scan of the existing literature on other hybrid learning, we intend to offer guidance for adopting or refining hybrid learning approaches that benefit all students. Specifically, the report aims to identify key components of successful hybrid programs, examine emerging practices for measuring student engagement and implementation fidelity, assess perceptions of hybrid learning usefulness, identify facilitators and barriers to hybrid learning, and provide considerations for program adoption.

This report begins by delineating the study's RQs and detailing the methods used to conduct the research. Next, it presents and interprets the findings through the lens of each RQ, offering a comprehensive understanding of the program's impact. The report concludes with a summary of key insights and provides recommendations for developing and enhancing future hybrid learning programs.

Research Questions

This section of the report presents the RQs that guided our study of the effectiveness and sustainability of secondary hybrid/online learning programs. The RQs focus on identifying emerging and promising practices, measuring student engagement and learning, and understanding the key components that contribute to program success. By answering these RQs, we aim to provide insights for program development, implementation, and continuous improvement. The study's RQs were as follows.

1. What are the key components of successful hybrid programs?

2. What are emerging and promising practices for measuring student engagement in hybrid programs?

3. What are emerging and promising practices for measuring implementation fidelity in hybrid programs?

4. What indicators do educators find useful for hybrid program improvement and how do they make adjustments based on these indicators?

5. What are the facilitators and barriers to high-fidelity implementation of the Coursemojo program?

6. How can recommendations for program improvement inform the development of a high-quality and financially sustainable hybrid learning model?

Methods

This section outlines the approach used to evaluate hybrid learning models, drawing on both a detailed evaluation of the Coursemojo hybrid learning program and insights from a comprehensive literature scan. AIR partnered with Coursemojo to conduct a study of the Coursemojo model, with the broader goal of informing online and hybrid learning providers about the design and implementation of their learning models. The study of this program involved interviews and focus groups with key stakeholders (e.g., Coursemojo leaders, partner school and district leaders, Coursemojo online instructors, Coursemojo learning coaches, students in Coursemojo classes), program and platform data analyses, and analyses of existing Coursemojo survey data. The following sections highlight the key methodologies employed in assessing Coursemojo's hybrid learning implementation alongside relevant findings from existing research on hybrid learning models from the literature scan.

DESCRIPTION OF COURSEMOJO

Coursemojo's hybrid learning design provides 4 to 5 days per week of synchronous online instruction from Coursemojo instructors while a trained learning coach provides real-time support in the in-person environment. During class, all students in the physical classroom log into the same online learning environment. Online instructors guide students through learning tasks, while learning coaches manage classroom behavior, facilitate in-person collaboration, answer questions, and offer technical support. Courses are either semester- or year-long and include core classes such as mathematics, science, and world languages, as well as elective and CTE courses. These course offerings help underserved districts provide learning experiences for all students in the context of teacher shortages and limited local course offerings.

Coursemojo's program includes two key teams that support implementation: the success/operations team and the learning team. The success/operations team manages school and district relationships, provides technical support, and oversees business operations and analysis. The learning team manages online instructors, develops and designs engaging curricula, and maintains overall oversight of program operations.

Coursemojo utilizes various performance measures and gathers feedback from multiple perspectives. The success/operations team collects insights through surveys and rubrics completed by online instructors, learning coaches, and students. These feedback loops play an important role in driving continuous improvement and ensuring high-quality delivery across both in-person and online experiences.

Central to the Coursemojo model are the two key goals: fostering student engagement through blended instructional methods and student learning through quality pedagogical practices and implementation.

Sample and Timeline

The study examined Coursemojo's program in the 2023–24 school year in 12 schools across five districts. Three of the school systems were charter networks, while two were traditional school districts. Schools in the study predominantly served students from low-income families eligible for free or reduced-price lunch (76%) and Black/African American (36%) and Hispanic/Latino (52%) students (Exhibit A1 Appendix A). These study sites encompassed 2,377 students enrolled in 72 year-long Coursemojo mathematics, science, or world language hybrid learning courses; 20 online instructors; and 39 in-person learning coaches (Exhibit A2 Appendix A).

Data Collected

The study involved a literature scan of research in the field of hybrid and online learning; interviews and focus groups with key respondents (e.g., Coursemojo leaders, partner school and district leaders, Coursemojo online instructors and learning coaches, students in Coursemojo classes); program and platform data analyses; and analyses of existing student surveys from Coursemojo courses.

Interviews

AIR conducted virtual interviews with Coursemojo course instructors and learning coaches, district and school leaders, and Coursemojo staff members. A purposive sample of course instructors and learning coaches was selected for interviews based on role, experience,

assigned course(s), and school/district. AIR developed protocols (see Appendix B with input from Coursemojo). Interviews were recorded and transcribed.

Instructors and Learning Coaches. AIR conducted five semistructured interviews with online course instructors of mathematics or language courses (teaching across all Coursemojo districts/schools where their math or language courses are offered) and three interviews with learning coaches for mathematics courses in three schools. AIR also held informal debriefs with online instructors and learning coaches following AIR's class observations. These discussions focused on program implementation, student learning, engagement, scoring rationale, norming processes, and factors affecting high-fidelity implementation.

District and School Leaders. AIR conducted six semistructured interviews with school and district leaders in four districts to explore design and use secondary online/hybrid learning for instructional and financial sustainability. The respondents had roles including principal, head of school, chief academic officer, and chief executive officer of schools. Respondents were involved in program decisions and selections and were previously involved in the decision to adopt Coursemojo courses in their schools.

Coursemojo Staff. AIR conducted six semistructured interviews with Coursemojo leaders. AIR and Coursemojo collaborated to determine which Coursemojo representatives to interview. Coursemojo respondents who participated in interviews included those overseeing the organization, those overseeing multiple divisions of work across the program, and those overseeing a specific division of work (e.g., mathematics, operations). All respondents were involved in supporting Coursemojo program implementation in partner schools.

Student Focus Groups

AIR conducted three in-person focus groups comprising two, two, and six students in Coursemojo mathematics classes in three schools, respectively. Student focus groups were conducted in the same schools where observations occurred. Participating students were in classes where co-observations occurred.

Program and Platform Data

Coursemojo provided information on course enrollment and performance, captured in its program and platform data. AIR focused on course grades at the end of the school year. The data also allow students to be matched to their online instructor and learning coach. In the few cases in which students were matched to multiple learning coaches, AIR used an average of learning coach measures across the two learning coaches.

Student Surveys

Coursemojo administered surveys to year-long classes at three points in the year. The goal of the student survey was to measure student engagement and factors that may influence student engagement within hybrid classes. The surveys included items that were unique to each course as well as 14 items that were common across courses. We conducted a factor analysis for the 14 common items and found that they clustered into four constructs: features of quality instruction, quality of online activities, student satisfaction, and student engagement. Exhibit C1 in Appendix C lists each of the analyzed survey items and its respective construct.

AIR used four of the 14 common items and one additional item, all developed by two external sources: Panorama Education (2024) and Project for Education Research That Scales (PERTS; Gripshover et al., 2022), as benchmarks with which to compare student perceptions in Coursemojo courses to those in more traditional courses. Exhibit C2 lists each of the analyzed survey items from PERTS and Panorama Student Survey (Panorama) and describes how each benchmark was developed. In total, 15 items were included in the analyses.

The survey samples included 1,281 students in 72 classes in September 2023 (74% response rate), 1,015 students in 67 classes in December 2023 (63% response rate), and 673 students in 48 classes in May 2024 (43% response rate). Exhibit D1 in Appendix D provides additional details about the student survey sample across the school year. Due to falling response rates over the course of the school year, the composition of classrooms in the survey data changed in ways that may influence survey results.

Observational Rubric Data

Coursemojo staff conducted in-person and virtual observations of both online instructors and learning coaches during the fall semester of the 2023–24 school year. They used observational rubrics to measure implementation fidelity and key components of a high-quality hybrid learning environment. The online instructor rubric covered three domains: meaningful learning path, active learning community, and growth-oriented feedback cycles. The three domains comprised two to three measures (10 total) and used a 4-point rating scale from "Attempting" to "Exemplary." The learning coach rubric covered three domains: positive classroom environment, facilitating student engagement, and communication with online instructor. Each domain comprised one to three measures (six total) and used a 4-point scale, ranging from *Attempting* to *Exemplary*. In addition to the online instructor and learning coach rubrics, observers captured whether online instructors were meeting baseline expectations on components of a high-quality hybrid learning environment, which included a nondistracting background, lack of audio issues, and technology management. The measures rated during observations varied based on the mode of observation (in-person or virtual) and the timing within the semester. For example, the baseline expectations measures were primarily captured

at the beginning of the semester. These baseline items were evaluated using a checklist to indicate whether each aspect of lesson preparedness was observed and were not considered part of the rubric measure because they were meant to capture meeting baseline expectations and not domains of classroom instructional environment. Exhibits C3 and C4 provide an overview of the observation rubrics and the domains they assess as well as how Coursemojo defined baseline expectations.

Coursemojo staff observed online instructors and learning coaches on different occasions, using different formats. Learning coaches were observed in person, while online instructors were observed virtually on a weekly or biweekly basis, depending on the cadence and timing aligning with the course. Online instructors were observed virtually. Exhibit D2 summarizes the number of observations of math, science, and world language classes, respectively. However, Coursemojo would conduct more frequent observations of learning coaches and online instructors who scored lower on observations early in the school year, which indicated the need for additional monitoring and support.

AIR scored the rubric by averaging ratings across all assessed domains. Observers assigned ratings for each measure, which we then averaged to produce a total average score, reflecting the overall performance of the online instructor or learning coach.

AIR analyzed observation data collected by Coursemojo, focusing on the rubric measures that were captured in all or most observations. We calculated the average score of each online instructor's or learning coach's performance on each of these measures throughout the fall 2023 semester.

Analysis

Qualitative Analysis

Interview and focus group transcripts from learning coach and online instructor interviews, school and district leader interviews, Coursemojo leader interviews, and student focus groups were coded thematically using deductive and inductive codes aligned with the RQs (Braun & Clarke, 2006).

Co-observation and debrief notes were analyzed using inductive qualitative content analyses (Williamson et al., 2013). Illustrative quotes were coded separately to use in presentations and to explain or support quantitative findings.

Quantitative Analysis

AIR examined the relationship between course grades and measures of classroom student engagement, satisfaction, and classroom practice, as well as measures of implementation

fidelity from observations. AIR used class-level averages due to their increased reliability, as aggregating multiple responses makes it easier to detect relationships. To determine the strength of relationships between elements of the Coursemojo hybrid-learning model and student learning, AIR looked at correlations of class-level averages. To compare Coursemojo classrooms to each other as well as to classrooms not in a hybrid learning environment, AIR looked at classroom averages relative to overall averages and averages from other student surveys in the field.

Literature Scan Approach

The AIR team conducted a literature scan to identify practices in secondary hybrid/online learning programs. The goal was to collect information from published sources to identify emerging and promising practices and measures of student engagement in the online and hybrid learning space. The literature scan employed a systematic approach to identify research on hybrid learning models, frameworks, and approaches relevant to secondary education. We included search terms such as "hybrid learning," "online learning," and "online education," combined with terms like "frameworks," "models," "approaches," "syntheses," or "meta-analysis" specifically targeting high school, secondary, middle, or junior high school contexts. Studies focused on postsecondary education, undergraduate education, and COVID or pandemic-related impacts were deliberately excluded.

In a second scan, we used the same educational terms but expanded the focus to include research related to the measurement of student outcomes, using keywords such as "engagement," "satisfaction," "achievement," "motivation," or "effort." A third scan included terms from the first scan but included "measurement" with "fidelity" or "implementation." This approach aimed to capture studies that explored the effectiveness and quality of hybrid learning in terms of student experience and learning outcomes in secondary school settings.

The project team conducted a review of 176 published academic papers, identifying key insights from 56 highly relevant studies. Exclusion criteria included dissertations, papers older than 25 years, and studies that did not measure or significantly address student engagement or student learning. The literature scan was used to address the first three RQs by examining existing evidence on current practices and the measurement of student engagement and learning.

Findings

RQ 1: What are the key components of successful hybrid programs?

Based on findings from the literature review and interviews, we outline the key components that contribute to the success of hybrid programs. We then present additional components highlighted by Coursemojo practitioners and students as critical to a successful hybrid program.

Insights From Literature Scan

The literature identifies several key components of successful hybrid programs that support student engagement and learning. One essential element is the inclusion of an in-person component to complement online instruction, which has been shown to be more effective than fully online models, both in terms of learning outcomes and motivation (Indra et al., 2022; Means et al., 2010). In addition, aligning coursework with standards, offering diverse implementation practices, and providing robust feedback processes are critical markers of success, as these practices have been linked to improved student learning outcomes (Bakia et al., 2012). A structured course design, opportunities for collaboration, and reflective prompts also contribute to student success and satisfaction (Means et al., 2010). Furthermore, emerging technologies like artificial intelligence (AI) and augmented reality (AR) enhance hybrid learning environments by boosting student engagement, self-efficacy, and performance through interactive and personalized experiences (Ciloglu & Ustun, 2023; Li et al., 2022).

Insights From Coursemojo

Aligned with successful practices identified in the literature, Coursemojo incorporates an in-person component in every classroom and provides students opportunities for real-time feedback with their instructors, along with other effective practices.

Benefits of Coursemojo

District and school administrators and students shared their belief that Coursemojo's hybrid learning model could be used to fill gaps stemming from teacher shortages and improve student engagement and learning environment and outcomes.

District and school leaders reported that programs like Coursemojo address specific needs by enabling self-paced, differentiated learning, offering support from two teachers, and providing real-time feedback to students. They also shared that hybrid learning models are particularly successful in student learning and engagement, especially when the course is an elective and serves self-directed students.

During student focus groups, students shared about their learning and engagement in their Coursemojo courses. Students felt that they benefited from the computer-based learning format because it allowed them to ask questions discretely and engage in more visual and interactive activities. Students also shared that their online instructors did a good job of instructing and making lessons engaging. And overall, students felt comfortable going to their online instructors or learning coaches with questions about the course and content.

Key Components of Successful Implementation of Coursemojo

Qualitative study activities (i.e., interviews, focus groups, co-observations, and debrief conversations with Coursemojo staff) revealed several key components of successful implementation of Coursemojo: high-quality curriculum and supplemental programs, well-prepared instructors and learning coaches who receive ongoing professional learning and targeted support, activities designed for high student engagement, and a collaborative and communicative partnership between the online instructor and the in-person learning coach.

High-Quality Curriculum and Ongoing Professional Learning

According to Coursemojo leadership, the Coursemojo program was intentionally designed to support student learning and engagement. Online instructors and learning coaches received training and professional learning on how to implement the curriculum and supplemental programs. In addition, ongoing coaching through in-person and virtual observations allowed for targeted feedback toward achieving high-quality Coursemojo implementation.

A Focus on High Student Engagement

Both online instructors and learning coaches strongly emphasized student engagement as a key factor in student learning within Coursemojo courses. Coursemojo leaders, instructors, and coaches highlighted the importance of building relationships with students as a foundation for fostering student engagement. In addition, students shared their initial skepticism about being in a Coursemojo course due to negative perceptions of nonengaging online learning from their experiences during the pandemic. Coursemojo learning coaches shared that it is more difficult for students to build relationships with an online instructor compared to a teacher in a non-Coursemojo class. However, both instructors and learning coaches stressed the importance of breaking down students' negative perceptions in order to fully engage them in the course.

"I think that [students] that are taking an online course with Coursemojo for the first time have some thoughts at the beginning because of their only experience being COVID, and it was not a good experience. So, I guess those students would have a little bit more difficulty getting used to it."

– *Coursemojo online instructor*

Online instructors and learning coaches identified different approaches for keeping students engaged in the hybrid environment. Online instructors mentioned the importance of building relationships with students, providing students with hard-copy materials (notes and outlines), using dynamic and interactive curriculum and programs, and having autonomy to make necessary instructional changes. Learning coaches recommended addressing misbehavior, redirecting student attention, playing more learning games, and giving students more breaks during long classes as approaches for increasing student learning and engagement.

Instructor-Learning Coach Partnership

An essential factor for promoting student learning and engagement is the partnership between the learning coach and the online instructor. Online instructors cited a direct relationship between partnership with the learning coach and student learning and engagement. Specifically, online instructors mentioned the responsiveness of the learning coach to the online instructor, the frequency and quality of communications from the learning coach about student participation and engagement, and the learning coach's classroom management skills.

"Again, it also not only depends on me, it also depends on the LC [learning coach]. So, I guess that would be the only difference, depending on the LC, how involved that person is, how that person is reacting to the class. Their body language also says a lot. Then that helps because I have different LCs, and I can see the differences in the classes."

– *Coursemojo online instructor*

"I will message [the online instructor] a list of kids who need to have a point deducted because of excessive phone use or a list of kids who don't have their materials or so-and-so had their eyes on so-and-so's computer, or just the stuff that they can't really see in the classroom."

– *Coursemojo learning coach*

RQ 2: What are the emerging and promising practices for measuring student engagement in hybrid programs?

In response to RQ 2 using the literature scan, interviews, and student survey data, we describe how hybrid learning models in the field and within Coursemojo programming have measured student engagement.

Insights From Literature Scan

A review of the literature reveals several promising practices for measuring student engagement in hybrid programs. The most common tools for measuring engagement in hybrid settings are self-report surveys, which capture student perceptions of their emotional and behavioral engagement (Henrie et al., 2015). Countering the potential biases from responses from student

responses, using observational measures with coding protocols to measure engagement in online environments provides a more objective assessment (Fredricks et al., 2011).

One promising practice is a multi-dimensional approach, using measures to capture a combination of behavioral, emotional, cognitive, and social dimensions, each contributing to a more holistic understanding of a student's experience (Wang et al., 2016). For example, student surveys were used to measure both behavioral and emotional engagement in online credit recovery courses (Rickles et al., 2023).

Another promising practice includes educational data mining to measure behavioral engagement. This includes tracking "click-data," assignment submission rates, time spent viewing videos, and other online activities (Halverson & Graham, 2019). One other noted approach to measuring student engagement includes digital traces for real-time monitoring of student behavior; however, this approach alone should be used in conjunction with others, as it may not fully capture the full scope of engagement given that hybrid contexts include in-person interactions that also play a role in engagement (Gettinger & Walters, 2012; MacFayden & Dawson, 2010).

Frequent testing to ensure cognitive engagement (Szpunar et al., 2014) and self-assessment quizzes (MacFayden & Dawson, 2010) serve as effective indicators of engagement, highlighting the importance of interaction-based metrics in hybrid learning environments. Finally, longitudinal tracking of student engagement patterns has shown promise in understanding how student engagement evolves across time in hybrid learning programs (Clements et al., 2021; Pazzaglia et al., 2016).

Insights From Coursemojo

Coursemojo measured student engagement through student surveys, which occurred at multiple points over the course of the school year. We found a positive relationship between student engagement scores on the surveys and measures of student learning. This positive relationship suggests that Coursemojo's approach may hold promise for measuring student engagement throughout the course to identify underperforming classrooms, allowing for timely intervention and support. In addition, Coursemojo's approach of adapting items from validated surveys of in-person courses can help provide a benchmark to compare engagement in hybrid courses to those in more traditional courses.

Student Surveys

The Coursemojo student surveys were used to gather students' perceptions of instruction, their satisfaction, and their engagement in their courses.

Analyses of the survey data collected for the Coursemojo evaluation found a positive relationship between scores on all four survey constructs and student learning. To do the analysis, we created classroom-level averages of the scores on each item within a given survey construct. This approach allowed us to account for different classroom characteristics, administration dates, and response rates across each administration. To measure student learning, we used course grades at the end of the fall semester and course grades at the end of the year. Given the correlations between student engagement and grades, these survey measures can be useful indicators of classrooms that are more likely to excel or fall behind on student learning.

Exhibit 1 shows correlations between each of the survey measures and student learning. The correlation coefficient and the darkness of the square reflect the strength of each measure's relationship to other measures and grades. Correlation coefficients can range from -1.0 to 1.0, with numbers closer to the absolute value of 1 signaling a strong positive or negative relationship and numbers closer to 0 signaling little to no relationship. Of the student survey constructs, student engagement had the strongest relationship with a classroom's final average grade, with a correlation coefficient of 0.38.[1] Among student survey measures, instructional quality and quality of online activities had the strongest relationship with student satisfaction with correlation coefficients of 0.83 and .87, respectively. These measures also had a smaller but strong relationship with student engagement with correlation coefficients of 0.63 for instructional quality and 0.59 for quality of online activity. These relationships with the student engagement measure and final course grades signal their potential in measuring important characteristics of hybrid classrooms.

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[1] For all survey correlations, *df* = 72, *p* < .001.

Exhibit 1. Relationship Between Student Survey Measures and Learning
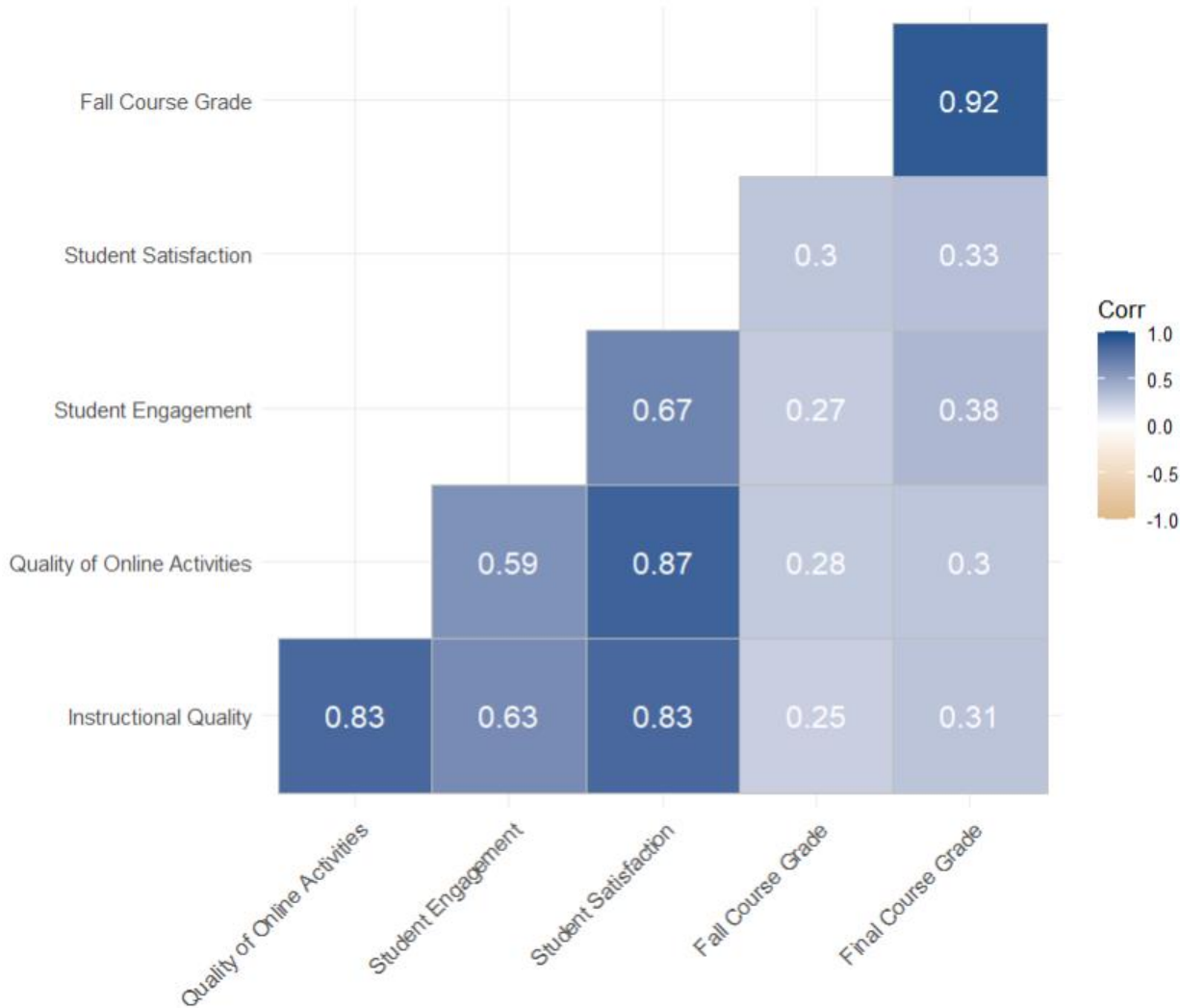
Note. Correlation coefficients can range from -1.0 to 1.0, with numbers closer to 1 signaling a strong positive or negative relationship and numbers closer to 0 signaling little to no relationship. Instructional Quality, Quality of Online Activities, Student Engagement, and Student Satisfaction are all measures of class averages of student survey responses. Fall Course Grade and Final Course Grade are the fall semester and final grades as reflected on Coursemojo's online platform data.

Because these measures can signal higher or lower grades over the course of the school year, these results suggest that surveys like those used by Coursemojo may be useful for identifying classrooms more likely to excel or fall behind in courses. Exhibit 2 plots classroom-level averages across the four constructs to illustrate how a program can identify classrooms that may be succeeding or struggling and choose where to intervene. When used over the course of

the year, the survey can help hybrid program leaders and instructors identify areas for improvement that could have an impact on student learning.

Exhibit 2. Class Averages of Student Engagement and Instructional Practice Measures
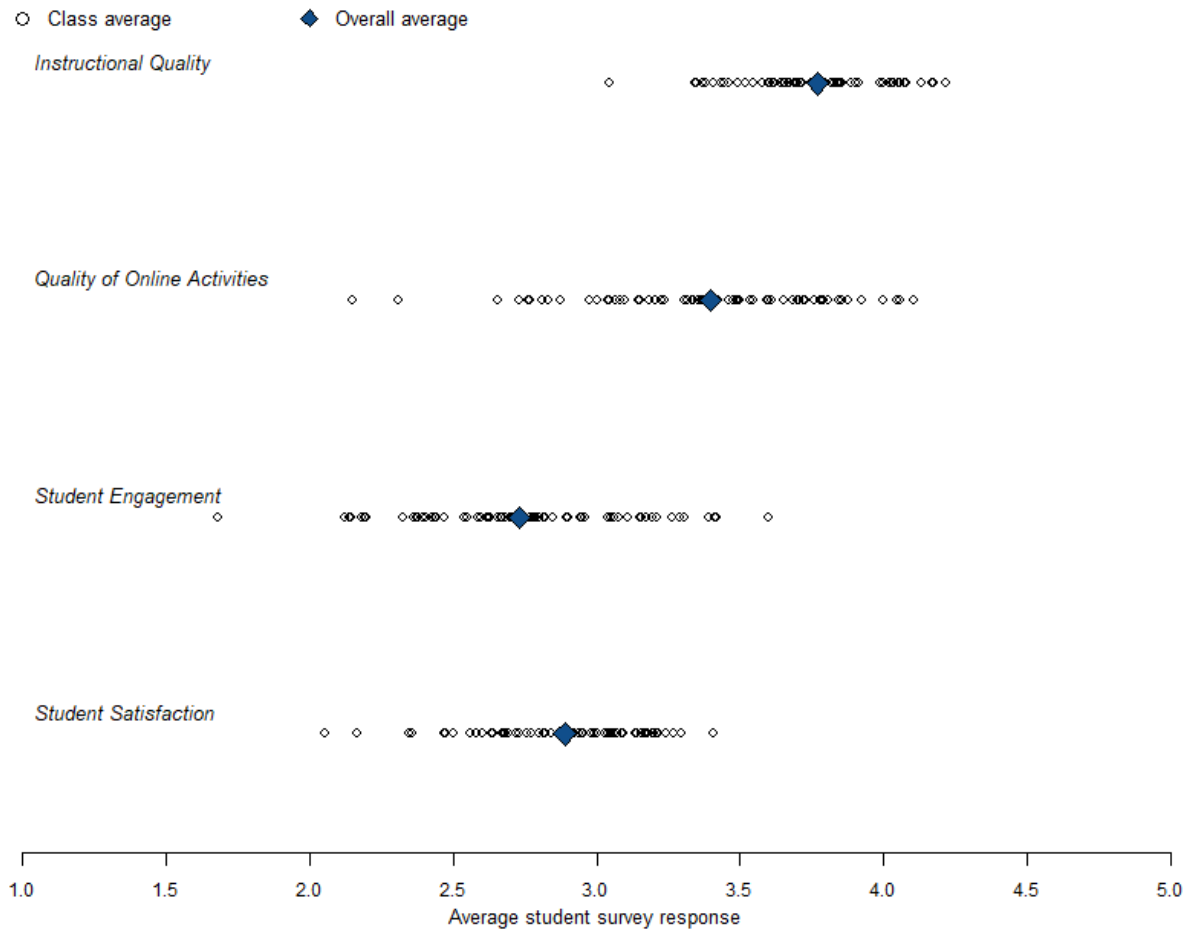
Note. From the student survey, we excluded two classes with fewer than five student survey responses. Each measure takes the average over survey items that students rated on a scale from 1 to 5.

It is notable that classrooms generally had lower reported levels of engagement and satisfaction than reported levels of instructional quality and quality of online activities. This finding points to the challenges of maintaining student engagement even when students report higher satisfaction with classroom practice. These analyses show the potential value for a hybrid learning program in monitoring classrooms with potentially greater frequency than grades using survey measures that are related to average classroom grades.

Another promising practice in the measurement of student engagement was adapting items from validated surveys developed by Panorama Education and PERTS. Adapting questions from external validated surveys not only allows for more reliable measurement of student

perceptions but also presents a potential comparison of student engagement in more traditional courses.

It is important to note that the Panorama and PERTS surveys were administered in educational contexts that differed in potentially meaningful ways from those participating in Coursemojo. See Exhibit C2 for more details on AIR's methods for estimating a benchmark. Additional information on each survey measure and the sample can be found in the technical supplements of Gripshover et al. (2022) and Panorama Education (2024).

Exhibit 3. Student Survey Class Averages Relative to Benchmarks
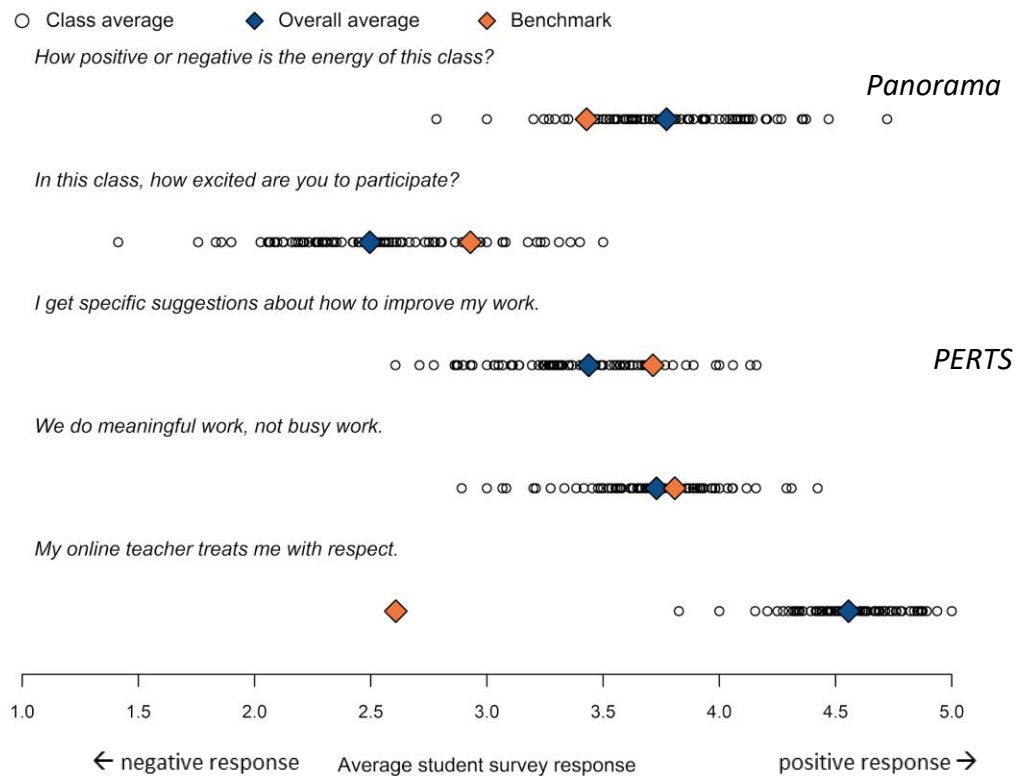
Note. Panorama benchmarks are based on the average of the same item. PERTS benchmarks are based on averages of multiple items within the same construct. We excluded two classes with fewer than five student survey responses.

Relative to the benchmarks, the average Coursemojo classroom was more positive about the energy of the class but less excited to participate. On average, Coursemojo classrooms were below the benchmark on reported levels of feedback and meaningful work, but all classrooms were far above the benchmark on teacher respect and caring. Some of these differences were not very large and could be the result of contextual differences beyond participating in

Coursemojo. Nevertheless, these benchmarks provide a way to compare student attitudes in Coursemojo and other hybrid/online learning programs to those in traditional classrooms.

Perspectives From Coursemojo Instructors, Coaches, and Leaders on Measuring Engagement

When asked about how to best measure student engagement and learning, online instructors and learning coaches had differing perspectives. Online instructors focused on students' assignment completion and accuracy, verbal responses, and use of cameras during class time. Learning coaches shared a different approach for assessing student engagement and learning, focused on student behavior in the classroom.

For recommendations for measuring student engagement, online instructors suggested using platform data, such as the number of minutes with the camera on, the time spent muted or unmuted, attendance records, and mouse clicks.

Coursemojo online instructors and learning coaches provided several recommendations to improve the process for measuring student engagement through observations. Specifically, they suggested distinguishing which rubric components should be prioritized at the start of the school year to better support onboarding and start-up processes. They also recommended clearer guidelines for interpreting check-box questions on the baseline rubric, noting that some questions required a check when components were present, while others required a check when components were absent, making it difficult to interpret aggregated data accurately. They also proposed revising the observation rubrics to better capture and measure student joy, motivation, and energy. They suggested clearer distinctions between scores that reflect the learning coach and online instructor partnership versus those that assess individual performance. They also recommended collecting more numerical data during formative observations to enhance the assessment process.

Coursemojo leaders shared that the most useful data for measuring student engagement were student feedback data, student grades and assessment data, and observation rubric data from learning coaches and online instructors. Coursemojo leaders suggested that it would be helpful to collect state standardized assessment data, student engagement and experience data, and data from meetings and touch points with learning coaches and online instructors.

"I don't think we formalized it, but managers would collect [data] in meetings ... if we had a priority around learning coaches meeting with online instructors, are those meetings actually happening? … In a coaching meeting when a teacher says, "yeah, meeting with my LC, regularly," that is a data point that [indicates the] relationship is probably reasonably functional."

– *Coursemojo leader*

RQ 3: What are emerging and promising practices for measuring implementation fidelity in hybrid programs?

In addressing RQ 3, and drawing on the literature review, observation rubrics, and correlations between student engagement and rubric scores, we find that while gaps exist in measuring implementation, Coursemojo has demonstrated a promising approach. Its observation rubric provides an effective tool for assessing the quality of implementation.

Insights From the Literature Scan

Although there is evidence of continued growing interest in hybrid and online learning programs, it is noteworthy that this literature review reveals a noticeable gap in the identification of emerging and promising practices in the area of measuring implementation quality and fidelity. This limitation may be due to the rapidly changing landscape of the intersections of technology and virtual learning.

Insights From Coursemojo

Coursemojo Observation Rubric

Coursemojo conducted in-person and virtual observations of online instructors and learning coaches using a rubric that measured fidelity of program implementation. We found small positive relationships between some fidelity indicators on the observation rubric and student learning, which suggests the approach may hold promise for measuring and addressing concerns related to program implementation during hybrid courses but that more work is needed to develop fidelity measures of hybrid learning programs.

To explore the relationship between implementation and student learning, we analyzed two key composite rubric measures—one for online instructors and one for learning coaches. Our goal was to explore how these measures related to indicators of instructional quality, which included student survey data (aggregated to the class level) on instructional quality and the quality of online activities, as well as average class grades.

In addition to the online instructor and learning coach rubrics, we also examined whether online instructors met baseline logistical and technological expectations at the start of the school year. Because this baseline measure was intended as an initial check and not part of the overall rubric, it was excluded from the composite Online Instructor Rubric Measure.

The results highlighted some important insights, which are summarized in Exhibit 4. Neither the online instructor nor the learning coach rubric measures showed meaningful relationships with average class grades. Specifically, the correlation coefficient between the online instructor

rubric and grades was of -0.17[2] (*ns*), and the correlation coefficient for the learning coach was -0.16 (*ns*)—both negative and statistically insignificant. These small, negative correlations suggest that the rubrics may not fully capture the instructional elements that directly influence student learning outcomes.

The relationship between the rubrics and student survey data told a more nuanced story. The online instructor composite measure demonstrated insignificant correlations with both student survey constructs on instructional quality (r = -0.10) and the quality of online activities (r = 0.02). In contrast, the learning coach composite measure showed stronger positive relationships with both metrics, with instructional quality (r = 0.38, p < 0.01) and quality of online instruction (r = 0.28, p < 0.01). These findings suggest that the learning coach rubric may capture more elements that influence students' perceived quality of instruction and online activities than the online instructor rubric.

The baseline expectations measure derived from the domain of "Meeting baseline expectations" from the rubrics added an additional layer to the analysis. This measure was positively associated with final grades, with a correlation of 0.23 (p < 0.05). Classrooms that met these expectations early on saw higher student survey scores. Both instructional quality and quality of online activities had correlations of 0.40 (p < 0.01) with meeting baseline expectations. These findings indicate that addressing logistical and technological needs early in the school year helped foster more positive student perceptions of the instructional experience.

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[2] For all observation correlations, df = 70, (ns) indicates p-values greater than 0.05.

Exhibit 4. Relationship Between Rubric Implementation Measures, Student Learning, and Student Classroom Practice Measures
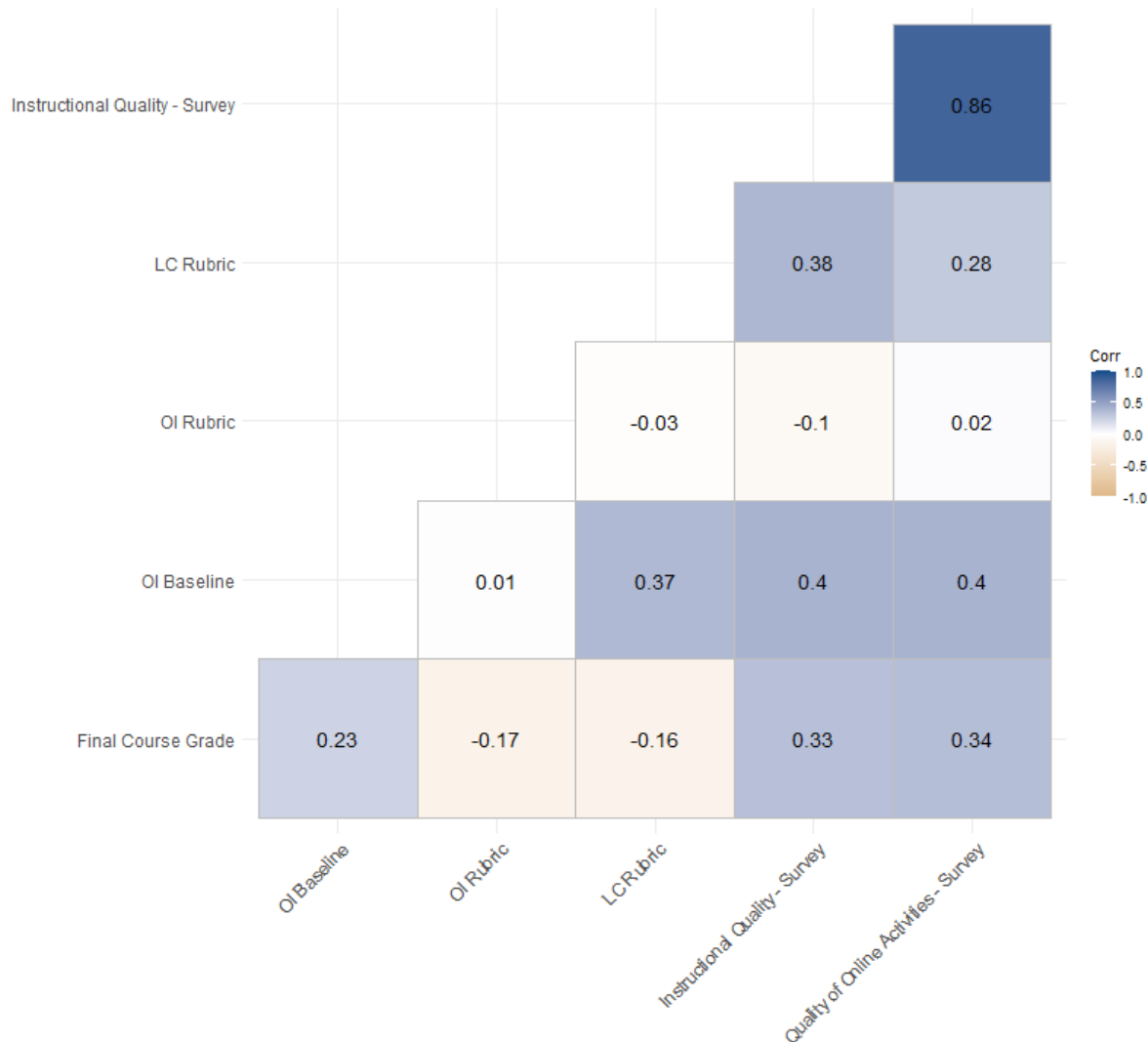
Note. Correlation coefficients can range from -1.0 to 1.0, with numbers closer to 1 signaling a strong positive or negative relationship and numbers closer to 0 signaling little to no relationship.

Overall, online instructor and learning coach observation measures had less of a relationship with average class grades than student-reported survey measures, but they can still be important in influencing students' experience in the classroom. The online instructor baseline rubric appears to be particularly useful for identifying classrooms that are at risk for lower-than-average grades or for lower-than-average features of quality instruction and quality of online activities.

Coursemojo Leader and Instructor Perspectives

Interviews with online instructors and learning coaches revealed differing perspectives on the observation rubric and its effectiveness in supporting the implementation of Coursemojo

programs with fidelity. Online instructors were familiar with the observation rubric and felt it aligned well with their roles and expectations. They also appreciated the feedback they received from their manager, considering it valuable for their practice.

In contrast, all three interviewed learning coaches were unfamiliar with the observation rubric and expressed mixed opinions about the achievability of Coursemojo's expectations. They reported a lack of regular, useful feedback, despite being frequently observed by individuals visiting their classes. Notably, many of these referenced observations were conducted by individuals outside of Coursemojo's staff.

In interviews, Coursemojo leaders shared that while online instructors have direct access to their observation rubric scores, learning coaches do not receive feedback or their scores directly from Coursemojo staff. Instead, Coursemojo staff work closely with campus site leads, who oversee the learning coaches, to relay feedback. However, leaders acknowledged challenges in this process. Although they collaborate closely with site leads, it is ultimately the site leads and school staff who determine how to deliver Coursemojo's actionable feedback. This process can impact the consistency and effectiveness of the support provided to the learning coaches. Despite Coursemojo's efforts, leadership noted that the actionable feedback rarely reached the learning coaches as intended.

"A lot of people have come in. We have a lot of groups of people. **I'm not sure who has come in to observe me specifically.**"

–   Coursemojo learning coach

RQ 4: What indicators do educators find useful for hybrid program improvement and how do they make adjustments based on these indicators?

Insights From Coursemojo

Coursemojo had several processes for collecting data, reflecting on trends and findings, and making improvement decisions. Coursemojo leaders participated in data "Stepback" meetings, where they discussed student survey results and used data from surveys and observations to derive themes.

Prior to the meeting, stepback meeting participants received slide decks summarizing online instructor, learning coach, and student survey responses and reviewed and completed a prework survey. The prework survey captured participant responses about positive trends they noticed, areas for improvement, and their initial thoughts on achievable levels of prioritization within a 6-month period. At the beginning of the meeting, attendees spent 7 minutes reviewing each other's responses to the survey. The team reflected on the data and responses to the prework survey and refined and narrowed their improvement goals to be more specific and

achievable within a 6-month timeframe. Team members noted that student survey data are only part of the story, and that other data (observation information and measures of student learning) would help the team have a more robust understanding of what is happening in Coursemojo classrooms.

Coursemojo leaders shared that the most useful data for continuous improvement were student feedback data, student grades and assessment data, and observation rubric data from learning coaches and online instructors. Coursemojo leaders suggested that it would also be helpful to collect state standardized assessment data, student engagement and experience data, and data from meetings and touch points with learning coaches and online instructors.

RQ 5: What are the facilitators and barriers to high-fidelity implementation of hybrid programs?

Insights From Coursemojo

Throughout the study, Coursemojo leaders, instructors, learning coaches, and students often shared about bright spots and challenges with program implementation. Often, the reasons why implementation was successful or challenging stemmed from the same factors: the online instructor and learning coach partnership and/or the ability to use technology.

The Online Instructor and Learning Coach Partnership

During interviews, online instructors shared that the partnership between a learning coach and an online instructor can be a facilitator or a barrier to implementation, depending on the quality of the partnership. When learning coaches were prepared for class, engaged students in the content, and communicated frequently with the online instructor, online instructors saw the partnership as a facilitator of high-quality implementation. However, when the learning coach was not prepared for class (e.g., did not have materials prepared), did not communicate with the online instructor, and did not engage students in the content, online instructors saw the partnership as a barrier to high-quality implementation. During interviews, learning coaches mentioned having the online instructor's support in addressing difficult student behavior as a facilitator of high-fidelity implementation.

"The key [facilitator to implementation] would be [the] relationship between the online instructor (OI) and the LC. I think that's because **[the LC] is your eyes. They're in the classroom. Then they have to keep on, basically the classroom management**; it's all on them. Not all, but mostly it's on them."

– *Coursemojo online instructor*

In focus groups, students also mentioned the partnership between learning coaches and online instructors. Students said that having two teachers could result in increased support but suggested that a learning coach with content expertise would be helpful. Students also

recommended having more consistency in learning coaches (students cited challenges with turnover in this role). Students felt comfortable asking their learning coaches and online instructors questions but were sometimes confused about who to ask about content, grading, and school policies.

> "I mean, having two teachers help you … makes it different from me learning in other classes, but I feel like it would be better if they both (LC and OI) knew about [the content]."
>
> – *Student in a Coursemojo course*

Technology

In addition to the learning coach and online instructor partnership, interviewed online instructors cited technology as a facilitator of and barrier to high-quality implementation, depending on usability. Online instructors suggested that technology was a facilitator when all platforms and hardware were accessible to students and running smoothly (e.g., no issues with Wi-Fi). However, technology could be a barrier when student access was inconsistent (e.g., not having enough headphones for all students) or when technology platforms were not operating as intended (e.g., running slowly or not loading course content due to server errors). Learning coaches who were interviewed also mentioned technology as a barrier when students experienced issues logging on to their course platforms within the expected time specified by Coursemojo.

Students in focus groups suggested that they benefited from computer-based learning and appreciated having all materials online. However, they also shared that they struggled with accessing reliable Wi-Fi and experienced a lag in communications with the online instructor. Several students also mentioned struggling to access materials from prior lessons or lesson recordings when they missed a class or wanted to review content.

> "To be honest, another piece is the tech piece … **I've had students who … aren't able to hear me, I cut in and out, or one of my classrooms right now is currently having issues with having enough headsets … when [students] unmute to speak, I get the feedback from everyone.**"
>
> – *Coursemojo online instructor*

> "My least thing is that **when we're on Zoom it lags sometimes, and I miss some things.**"
>
> – *Student in Coursemojo course*

The use of technology for instruction also poses challenges for implementing certain instructional approaches, such as student collaboration, discourse, and peer-assisted learning. In focus groups, students shared concerns about difficulties they faced when engaging in collaborative and discussion-based activities. In interviews, online instructors explained that

when tasks involved student collaboration, they sometimes struggled to hear or provide feedback on student conversations because microphones had to remain muted to prevent audio feedback. In addition, some of the interviewed learning coaches expressed discomfort with facilitating content-focused student discourse while simultaneously managing the classroom.

Because partner work and student discourse were intentional components of Coursemojo course design, interviewed online instructors who experienced technical issues had to be strategic and deliberate in implementing learning activities that fostered collaboration and meaningful discourse. Students from focus groups expressed a desire for more effective ways to collaborate with peers on course content during their Coursemojo classes. A spotlight on a successful learning coach—online instructor partnership, which exemplifies effective collaboration, can be found in Appendix E.

"**We really don't do much partner work together**… The online teacher would ask [the LC] … 'Oh, do you want them to do partner or alone?' The in-person teacher would say alone, and I don't know why. Some kids would be mad because they want to talk to their partners, but we mostly do it alone."

– *Student in a Coursemojo course*

"I suppose in a way we could also measure [student] learning through their discussions, when we hear them having discussions and talking, but **we're not currently doing [student discussions and talking]. We're not currently measuring that either.** Or even any presentation, that one I think is doable in a math class, you just have to scaffold that a little bit more. And we're not really doing anything like that right now, but that would be something interesting to try in the future."

– *Coursemojo online instructor*

Other Facilitators and Barriers

Online instructors reported that Coursemojo expectations were achievable and that their preparation and training to lead Coursemojo courses was adequate (i.e., they felt supported to implement Coursemojo classes as intended). Interviewed learning coaches, however, suggested that they were not prepared to implement Coursemojo classes as intended, citing a lack of training, issues with accessing technology, and challenges addressing student disengagement. As a result of the variation in preparation, coordination, and support, the implementation quality and fidelity in Coursemojo also varied.

Online instructors and learning coaches mentioned other major facilitators and barriers to high-quality implementation, which are listed in Exhibit 5.

Exhibit 5. Other Major Facilitators and Barriers

Other Major Facilitators	Other Major Barriers
• Having two adults to support student learning (OI, LC, S) • High-quality online instructor who is also able to adapt (OI, LC) • Learning coach ability to engage in content alongside students, manage the classroom, and adapt (OI) • Intentional course design (OC) • Thorough training and professional learning for coaches and online instructors (OI, LC) • Ability to communicate with students individually through seeing/hearing students on Zoom screen and allowing for video uploads through online programs (especially for language teachers) (OI, S) • Gamifying the curriculum and lessons to increase student engagement and learning (OI, LC, S) • Good student-teacher rapport (OI, LC, S)	• Students having negative perceptions of online learning (stemming from pandemic-related experiences) (OI, LC, S) • Differences between school and Coursemojo grades and grading expectations (OI) • Deficit-based framing of student ability and behavior (mostly from learning coaches) (LC) • Variability in school and district expectations and needs (OI) • Limited training on technology platforms and instructional practices for digital learning (OI, LC) • Limited training for learning coaches on classroom management (OI, LC) • Lack of communication about class and school schedule changes (OI, LC)

Note. OI: mentioned by online instructors; LC: mentioned be learning coaches; S: mentioned by students.

RQ 6: How can lessons learned from Coursemojo inform the development of high-quality and financially sustainable hybrid learning models?

Insights From Coursemojo

Continuous improvement and learning from feedback were core tenets of the Coursemojo organization. Throughout the study, Coursemojo leaders, online instructors, learning coaches, and school and district administrators shared recommendations for the continuous improvement of the Coursemojo model and lessons learned from the development and implementation of Coursemojo. Taken together, these insights can help inform the quality and financial sustainability of hybrid learning models and the field of hybrid learning more broadly.

Recommendations From Coursemojo Leadership

Coursemojo leaders were asked about their lessons learned from Coursemojo design and implementation and how those lessons could help inform the field of online and hybrid learning programs. Coursemojo leaders shared that the biggest challenge online and hybrid learning providers will face in the coming years is the high cost of providing a high-quality program, especially with federal pandemic funding ending. Coursemojo leaders shared that keeping up

with new, developing technologies, and embedding them in classrooms and lessons presents both a challenge and an opportunity, especially with the expansion of AI.

When asked what advice Coursemojo leaders would give to providers entering the online and hybrid learning space, leaders shared the following:

- Have a clear and defined purpose and model for the organization.
- Keep the impact on students at the center of conversations.
- Set clear expectations for district partners.
- Focus on engaging course content.
- Start with a lean scope, focusing on essential components.
- Revise the cost model (including considering nonprofit status).

Coursemojo leaders also suggested areas for future research, including conducting impact evaluations, studying the impact of AI in school settings, and finding more valid and reliable ways to measure student joy and well-being.

Recommendations From School and District Leaders

In interviews, district and school leaders most frequently mentioned the following factors when considering an online or hybrid learning program: teacher shortages, cost, the availability of qualified course instructors, and the administrative burden.

Three school leaders said Coursemojo could be a long-term option—given that an improvement in teacher shortages is unlikely—and identified types of students (e.g., self-directed) and courses (i.e., electives) that would be a good fit for long-term hybrid and online learning.

> "I think there is a possibility of using Coursemojo to accelerate [student learning] ... summer ... eighth period ... credit recovery ... or to just broaden the course offerings."
>
> – *School leader*

School and district administrators also reflected on the trade-offs between factors that would lower the cost of hybrid learning programs. When considering the trade-off of a lower cost with a slight increase in class size (five students per class), the majority of district and school leaders said they would accept the tradeoff and opt for the lower cost model. When comparing a lower cost model to an increase in asynchronous learning, none of the school or district leaders said they would accept more asynchronous learning. When asked about the inclusion of AI to support student learning, leaders were split. Some leaders believed AI integration would allow them to increase their innovation; however, other leaders were concerned about the monitoring and safety of students when using an AI tool.

Conclusion

In this section, we examine the study's limitations, offer suggestions for future research, and provide closing thoughts on hybrid learning models like Coursemojo and its role in advancing hybrid education.

Limitations of the Study

The report presents findings from a literature scan on hybrid learning models and an evaluation of Coursemojo programming within the context of broader questions about hybrid learning programs. While insightful, these findings remain limited to the scope of the literature scan and the evaluation of a single example, Coursemojo.

Suggestions for Future Research

This study highlights opportunities for future research on the hybrid learning model. To more comprehensively address the RQs posed in this report, it is important for the field to continue contributing to the research. Program designers and researchers should study additional hybrid learning examples for deeper and more nuanced understanding of the models. One example of this type of research could be a study to investigate the impact of the hybrid learning model on long-term student engagement and student learning. Studies could also examine best practices for integrating technology and considerations to ensure accessibility for special populations of students (e.g., English learners, students in special education). Lastly, market and cost-analysis studies could provide additional insight into necessary resources for schools, districts, and other partners to provide hybrid learning educational environments for their students.

Final Thoughts

Hybrid learning programs, like Coursemojo, represent a growing and essential part of modern education, addressing critical challenges such as teacher shortages, the need for flexible learning models, and the increasing role of technology in education.

Access to working technology and preparation and training for educators are important elements for high-quality implementation of a hybrid learning model. At Coursemojo, online instructors and learning coaches required proper training and support to build their partnership strategies and operate programming. Without access to the necessary technology, learning coach and online instructor communication suffer, and high levels of student engagement and learning cannot be achieved.

Although district leaders believe hybrid/online learning models fill a need for qualified teachers and provide benefits for students (e.g., differentiation, benefits related to technology use,

timely feedback, expanded course offerings, self-directed learning), they were divided on whether these types of models could operate as long-term options for most students across a variety of content areas. Concerns about scalability and cost, as well as growing teacher shortages and reduced federal funding, could present challenges for hybrid/online learning organizations in the coming years, highlighting a need to think strategically about how to position online/hybrid learning models in a changing education landscape.

As hybrid and online learning models continue to evolve, the insights from Coursemojo and related research offer valuable guidance for refining these educational approaches. Access to technology, proper educator training, and strong partnerships between online instructors and learning coaches are vital to ensuring high-quality implementation. While challenges such as scalability, cost, and teacher shortages remain, ongoing innovation and thoughtful adjustments to implementation practices will be crucial. By building on the promising practices and addressing barriers identified in this analysis, hybrid learning programs can be positioned to provide meaningful, sustainable learning experiences for students across diverse educational contexts.

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Appendix A. Characteristics of Study Sample

Exhibit A1. Characteristics of Study Schools

Characteristics	Study schools
Percentage of students qualifying for free or reduced-price lunch	76%
% of students in Grade 6	5%
% of students in Grade 7	6%
% of students in Grade 8	5%
% of students in Grade 9	24%
% of students in Grade 10	24%
% of students in Grade 11	19%
% of students in Grade 12	17%
% of female students	49%
% of American Indian or Native American students	2%
% of Asian students	2%
% of Black or African American students	36%
% of Hispanic or Latino students	52%
% of Hawaiian or Pacific Islander students	1%
% of students who identify as two or more races	4%
% of White students	4%

Note. Common Core Data from the 2021–22 school year.

Exhibit A2. Study Sample

Sample characteristics	Fall semester	Spring semester
Total students (N)	2,238	2,377
Number of classrooms	72	72
Number of schools	12	12
Number of districts	5	5
Number of online instructors	20	20
Number of in-person learning coaches	34	39

Sample characteristics	Fall semester	Spring semester
Percentage of students in mathematics courses	36.5%	35.8%
Percentage of students in science courses	12.5%	11.8%
Percentage of students in world language courses	51.0%	52.4%
Percentage of assignments submitted	90.6%	98.8%
Average final grade	69.1	68.0

Note. From Coursemojo program and platform data.

Appendix B. Interview Protocols

Online Course Instructor Interview Protocol – Coursemojo

Participant name	Date and participant location	Additional participant notes

Introduction (5 minutes)

Thank you for agreeing to speak with me/us about your experiences as an online course instructor in Coursemojo courses. As part of our study, we are interested in learning from you about (1) what you view as most important for student engagement and learning, (2) how prepared you feel to implement Coursemojo courses, and (3) the facilitators and barriers to high-fidelity implementation.

The purpose of our discussion today is to help us understand the ways in which Coursemojo courses can be improved and adapted to meet the needs of students, teachers, and schools. We will not identify you by name in any reports, publications, or presentations that result from this work or link any comments you make to you personally in any communications we have with others in the schools and districts where you teach courses.

During our conversation today, we will take notes, and, with your permission, we'd also like to record the conversation so we can review it at a later time for points that we might miss in our notes. Is it okay if we record today's conversation?

> IF YES: Thank you.

> IF NO: We will take notes but will not record today's conversation.

A. Background Information (5 minutes)

To start off, we are hoping to learn a little bit more about you.

1. Please share your name, the Coursemojo class(es) that you teach, and your background with teaching Coursemojo courses.
   a. What is your overall experience with online teaching?

2. How did you come to be a Coursemojo course instructor?

B. Student Engagement and Learning (15 minutes)

Next, I want to talk about student engagement and learning in Coursemojo classes.

Student engagement and learning

3. I am going to ask you to respond with a rating from 1 to 5 to answer my next question: To what extent do you feel students are engaged during Coursemojo classes? Again, please tell me a rating from 1 to 5 (1 meaning *not at all engaged*, 5 meaning *fully engaged*). What do you think makes students more and less engaged during Coursemojo classes?

   a. How do you measure student engagement? (Prompt: How can you tell whether a student is [or is not] engaged?)

   b. How do you judge whether a student is engaged? What behavior indicates they are engaged?

   c. Can you think of any ways to gauge student engagement that you are not using currently?

   d. How do you think student engagement in a Coursemojo class compares to student engagement in a non-Coursemojo classroom?

   Probe: Ask about small-group work, peer-to-peer collaboration.

4. What do you think influences student learning during Coursemojo classes?

   a. What do you think makes students learn more or less during Coursemojo classes?

   b. How is student learning monitored and reported?

   c. Are there any other ways you think student learning should be measured?

   d. How do you think student learning in a Coursemojo class compares to student learning in a non-Coursemojo class?

C. Implementation Fidelity (15 minutes)

Next, I want to talk about how supported you feel to implement classes through the Coursemojo program.

Implementation fidelity

5. How prepared do you feel to implement Coursemojo classes as intended? (i.e., classroom set-up and Coursemojo expectations for daily joy routines, precise directions and narration, praise for academic work and habits, corrections, turn and talks, scripts, and feedback)

   a. Describe any components of Coursemojo classes that you feel completely prepared to implement.

   b. Are there any components of Coursemojo classes that you do not feel fully prepared to implement?

   c. How are student engagement and learning impacted by the components you described in the last question?

   d. Do you feel that the expectations for Coursemojo classes are achievable?

Implementation fidelity

6. How supported do you feel as an online course instructor to support students in Coursemojo classes?

    a. Do you feel that the training and support you receive from Coursemojo is helpful in your work as an online course instructor?

    b. Do you receive feedback from Coursemojo on your role as an online course instructor?

    c. Do you feel the feedback you receive from Coursemojo is helpful?

    d. Are you familiar with the rubric Coursemojo uses during observations?

    e. [*If Coursemojo shares the rubric with online course instructors*] Do you feel the Coursemojo rubric for your observations is aligned to the work you're doing in the Coursemojo class?

    f. [*If Coursemojo shares the rubric with online course instructors*] Is there anything on the Coursemojo observation rubric that you feel should not be on the rubric? Is there anything you would add to the rubric?

    g. Are there ways Coursemojo could better support you?

    Probe: What information do you think would be helpful to Coursemojo leadership to make support more effective?

D. Facilitators and Barriers to Implementation (15 minutes)

Next, I want to talk about the facilitators and barriers to implementation.

Facilitators and barriers

7. What are the key components to successful and high-quality Coursemojo implementation?

    a. Do these vary by subject area taught?

    b. Do these key components vary based on other factors (e.g., the number of students in the class, available technology)?

    c. To what extent does collaboration between the learning coach and online course instructor influence implementation?

    d. To what extent does collaboration between Coursemojo and the district influence implementation?

    e. To what extent does supporting technology influence implementation?

    f. To what extent do the site coordinators/site leads influence implementation?

8. What types of things do you view as barriers to Coursemojo implementation?

    Probes [these may have been covered in Q5]: Collaboration between the school, district, and Coursemojo? Support from Coursemojo? Planning/collaboration time with the online course instructor?

E. Conclusion (5 minutes)

Conclusion
9. Do you have any other thoughts, preferences, or reflections you'd like to share that we did not ask about?

Goodbye: We are now done with the interview. Thank you for participating in this discussion and sharing your thoughts and experiences. We appreciate your contributions to our study! If later you have any questions or think of something you would like to add, please feel free to contact us.

Learning Coach Interview Protocol – Coursemojo

Participant name	Date and participant location	Additional participant notes

Introduction (5 minutes)

Thank you for agreeing to speak with me/us about your experiences as a learning coach in Coursemojo courses. As part of our study, we are interested in learning from you about (1) what you view as most important for student engagement and learning, (2) how prepared you feel to implement Coursemojo courses, and (3) the facilitators and barriers to high-fidelity implementation.

The purpose of our discussion today is to help us understand the ways in which Coursemojo courses can be improved and adapted to meet the needs of students, teachers, and schools. We will not identify you or your [district /school] by name in any reports, publications, or presentations that result from this work, or link any comments you make to you personally in any communications we have with others in your district.

During our conversation today, we will take notes, and, with your permission, we'd also like to record the conversation so we can review it at a later time for points that we might miss in our notes. Is it okay if we record today's conversation?

> IF YES: Thank you.

> IF NO: We will take notes but will not record today's conversation.

A. Background Information (5 minutes)

To start off, we are hoping to learn a little bit more about you.

1. Please share your name, the Coursemojo class(es) for which you are a learning coach, and your role and background working at your school and district.

2. How did you come to be a Coursemojo learning coach?

B. Student Engagement and Learning (15 minutes)

Next, I want to talk about student engagement and learning in Coursemojo classes.

Student engagement and learning

3. I am going to ask you to tell me a rating from 1 to 5 to answer my next question: To what extent do you feel students are engaged during Coursemojo classes? Again, please tell me a rating from 1 to 5 (1 meaning *not at all engaged*, 5 meaning *fully engaged*).

   a. What do you think makes students more and less engaged during Coursemojo classes?

   b. How do you judge whether a student is engaged? What behavior indicates they are engaged?

   c. Can you think of any ways to gauge student engagement that you are not using currently?

   d. How do you think student engagement in a Coursemojo class compares to student engagement in a non-Coursemojo classroom?

   Probe: Ask about small-group work, peer-to-peer collaboration.

4. What do you think influences student learning during Coursemojo classes?

   a. What do you think makes students learn more or less during Coursemojo classes?

   b. How is student learning monitored and reported?

   c. Are there any other ways you think student learning should be measured?

   d. How do you think student learning in a Coursemojo class compares to student learning in a non-Coursemojo class?

C. Implementation Fidelity (15 minutes)

Next, I want to talk about how supported you feel to implement classes through the Coursemojo program.

Implementation fidelity

5. How prepared do you feel to implement Coursemojo classes as intended? (i.e., classroom set-up and Coursemojo expectations for daily joy routines, precise directions and narration, praise for academic work and habits, corrections, turn and talks, scripts, and feedback)

   a. Describe any components of Coursemojo classes that you feel completely prepared to implement.

6. Are there any components of Coursemojo classes that you do not feel fully prepared to implement?

   a. How are student engagement and learning impacted by the components you described in the last question?

   b. Do you feel that the expectations Coursemojo sets for its classes are achievable?

Implementation fidelity

7. How supported do you feel as a learning coach to support students in Coursemojo classes?

   a. Do you feel that the training and support you receive from Coursemojo is helpful in your work as a learning coach?

   b. Do you receive feedback from Coursemojo on your role as a learning coach?

   c. Do you feel the feedback you receive from Coursemojo is helpful?

   d. Are you familiar with the rubric Coursemojo uses during observations?

   e. [*If Coursemojo shares the rubric with learning coaches*] Do you feel the Coursemojo rubric for your observations is aligned to the work you're doing in the Coursemojo class?

   f. [*If Coursemojo shares the rubric with learning coaches*] Is there anything on the Coursemojo observation rubric that you feel should not be on the rubric? Is there anything you would add to the rubric?

   g. Are there ways Coursemojo could better support you?

      Probe: What information do you think would be helpful to Coursemojo leadership to make support more effective?

D. Facilitators and Barriers to Implementation (15 minutes)

Next, I want to talk about the facilitators and barriers to implementation.

Facilitators and barriers

8. What are the key components to successful and high-quality Coursemojo implementation?

   a. Do these vary by subject area taught?

   b. Do these key components vary based on other factors (e.g., the number of students in the class, available technology)?

   c. To what extent does collaboration between the learning coach and online course instructor influence implementation?

   d. To what extent does collaboration between Coursemojo and the district influence implementation?

   e. To what extent does supporting technology influence implementation?

   f. To what extent do the site coordinators/site leads influence implementation?

9. What types of things do you view as barriers to Coursemojo implementation?

   Probes [*these may have been covered in Q5*]: Collaboration between the school, district, and Coursemojo? Support from Coursemojo? Planning/collaboration time with the online course instructor?

E. Conclusion (5 minutes)

Conclusion
10. Do you have any other thoughts, preferences, or reflections you'd like to share that we did not ask about?

Goodbye: We are now done with the interview. Thank you for participating in this discussion and sharing your thoughts and experiences. We appreciate your contributions to our study! If later you have any questions or think of something you would like to add, please feel free to contact us.

Appendix C. Data Collection Measures

Student Survey Measures

Exhibit C1. Student Survey Items Included in Each Construct

Features of Quality Instruction
- (Q13) In this class, I get specific suggestions about how to improve my work.
- (Q15) In this class, we do meaningful work, not busy work.
- (Q16) In this class, we have opportunities to interact with each other.
- (Q17) It is easy to use and switch between different tech tools / tabs in this class (for example, Canvas, video conferencing, activities, presentations, readings).
- (Q18) It's clear what we're supposed to be doing in this class.
- (Q19) My in-person teacher cares about how I'm doing and helps me improve my grades when I need support.
- (Q20) My online teacher responds to student suggestions to make our class better.
- (Q21) My online teacher treats me with respect.

Quality of Online Activities
- (Q3) How much do you enjoy the activities led by your online teacher?
- (Q24) The activities led by my online teacher help me better understand what I'm learning.

Indicators of Student Engagement
- (Q10) I feel comfortable sharing my thoughts and opinions in this class.
- (Q14) In this class, how excited are you to participate?

Indicators of Student Satisfaction
- (Q2) How do you feel about your Coursemojo class overall?
- (Q22) Overall, I am happy with my Coursemojo class.

Student Engagement Benchmark

Exhibit C2. Student Survey Benchmark Source

Item	Source	Benchmark description	Publicly reported average	Scale-adjusted benchmark
How positive or negative is the energy of this class?	Panorama 2020	Rescaled survey average of the same item as was used in the Coursemojo survey	5.3	3.8
In this class, how excited† are you to participate?	Panorama 2020	Rescaled survey average of the same item as was used in the Coursemojo survey	3.7	2.6
In this class, I get specific suggestions about how to improve my work.	PERTS 2022	Rescaled survey average of a construct average that includes the same item as was used in the Coursemojo survey	4.8	3.4
My online‡ teacher treats me with respect.	PERTS 2022	Rescaled survey average of a construct average that includes the same item as was used in the Coursemojo survey	5.2	3.7

Item	Source	Benchmark description	Publicly reported average	Scale-adjusted benchmark
In this class, we do meaningful work, not busy work.	PERTS 2022	Rescaled survey average of a construct average that includes the same item as was used in the Coursemojo survey	4.1	2.9
It's clear what we're supposed to be doing in this class.	PERTS 2022	Not available	Not reported	Not available
In this class, we have opportunities to interact with each other.	PERTS 2022	Not available	Not reported	Not available
I feel comfortable sharing my thoughts and opinions in this class.	PERTS 2022	Not available	Not reported	Not available
My online‡ teacher responds to student suggestions to make our class better.	PERTS 2022	Not available	Not reported	Not available

Note. †Coursemojo used "excited" while Panorama originally used "eager." ‡The word "online" was added to the Coursemojo survey.

After identifying measures of student engagement in the field, AIR determined that summaries of the same items included in the Coursemojo student survey published by their developers were the most comparable student survey benchmarks. Comparing Coursemojo student survey responses to similar surveys in the field requires careful consideration of differences in how a question is phrased, the public availability of survey responses, and the context of the survey (e.g., the collection period, grade span, and sample demographics). It should be noted that these surveys were administered in educational contexts that differed in potentially meaningful ways from those participating in Coursemojo.

Coursemojo adapted survey items from two external sources: Panorama 2020 and PERTS 2022. The Panorama survey sample consisted of 7,219 students in Grades 3–12 and was administered during the 2016–17 school year. The PERTS survey sample consisted of 4,472 students in

Grades 8–12 and took place during the 2019–20 school year. More detailed sample information is available in the technical supplements of each report: Gripshover et al. (2022) and Panorama Education (2024).

AIR considered all survey items used or adapted from external sources as potential benchmarks and then narrowed down the list to five items with published average survey responses. The specific statistics reported online differed by survey publisher. While Panorama reported averages for individual items, PERTS reported construct averages for related items, including the same item that the Coursemojo survey asked. In these cases, AIR used the construct average as a benchmark. In the field, these survey items used a 7-point scale. Survey averages were rescaled to match the 5-point scale used in the Coursemojo survey to aid interpretability.

Observation Rubric

Exhibit C3. Online Instructor (OI) Rubric Measures

Domain	Measure	Captured
Baseline expectations (Only measured on OI baseline)	Background: Distracting background that does not align with a typical classroom (Negatively scored)	All online instructor observations
	Audio: Inadequate audio set-up involving microphone, noise, and difficulty hearing students (Negatively scored)	All online instructor observations
	Technology management: Effectively sets up and manages multiple screens and platforms along with troubleshooting (Positively scored)	All online instructor observations
Technology	Audio: Students unable to respond to prompts from the OI at least twice due to audio (Negatively scored)	All online instructor observations
	Visual: More than half of students are not engaging with cameras (i.e., broken, off, pointed away) (Negatively scored)	All online instructor observations
	Lag: More than 15% of students face major lag or access issues with Coursemojo tools (i.e., Wi-Fi, hardware, blocked sites) (Negatively scored)	All online instructor observations

Domain	Measure	Captured
Classroom instruction – meaningful learning path	Clarity: The ability to effectively communicate the purpose and central ideas of a lesson in a manner that is accurate, concise, and accessible to students	All online instructor observations after the first 2 weeks
	Students make meaning: The extent to which students engage in the cognitive processes necessary to understand and apply new concepts during a lesson	All online instructor observations after the first 2 weeks
Classroom instruction – active learning community	Student engagement: The active participation and involvement of students in their learning process during a lesson including both individual and collaborative activities	All online instructor observations
	Pacing: The speed and rhythm at which an OI guides students through learning experiences during a lesson	All online instructor observations after the first 2 weeks
	Warm demanding: An OI's ability to foster a supportive but rigorous learning environment where high expectations are established by balancing encouragement with accountability	All online instructor observations
	Routines for positive momentum: Structured practices and activities implemented by the OI to encourage student connections and motivation	All online instructor observations
	Collaborative teaching team: The partnership and interactions between the OI and LC	All online instructor observations
Classroom instruction – growth-oriented feedback cycles	Criteria for success: The extent to which OIs provide clear expectations of the attributes of exemplary work	All online instructor observations after the first 2 weeks
	Feedback: The extent to which the OI provides effective feedback and fosters an environment for students to provide feedback among their peers	All online instructor observations
	Re-do and revise: The extent that OIs provide opportunities for students to improve their work and the amount of student agency to engage in this activity	All online instructor observations after the first 2 weeks

Exhibit C4. Learning Coach (LC) Rubric Measures

Domain	Measure	Captured
Baseline expectations (Only measured on LC baseline)	Tech Access: Whether or not all students have working devices (Y/N)	All learning coach observations
	OI Tech Set-Up: Whether or not the OI meets baseline expectations for technology (Y/N)	All learning coach observations
Build a positive classroom environment	Routines: The structured entry and technology procedures ensuring students efficiently log into the course from the start of class	All learning coach observations
	Connection: LC ability to make students feel acknowledged and valued in class	All learning coach observations
Facilitate student engagement	Student Engagement: The level of active participation and focus students demonstrate during the lesson	All learning coach observations
	Clear High Expectations: Ability to set and maintain a standard of participation for all students	All learning coach observations after the first 2 weeks
	Management: Ability to effectively address off-task behaviors and maintain a productive environment	All learning coach observations
Communicate With Online Instructor	Collaboration: The active engagement with the OI during class	All learning observations
	Measure	**Captured**

Appendix D. Data Collection Sample

Student Survey Data

Exhibit D1. Students Responding to the Student Survey

Survey Sample	Sept. 2023	Feb. 2024	May 2024
Total responses (*N*)	1,281	1,015	673
Response rate	74.0%	63%	43%
Number of classrooms	72	67	48
Number of districts	5	5	5
Percentage of student respondents in mathematics courses	43.3%	38.4%	46.5%
Percentage of student respondents in science courses	14.3%	17.5%	25.4%
Percentage of student respondents in world language courses	42.4%	44.1%	28.1%

Note. Response rates are based on the number of students enrolled at the time each survey was administered. Table only includes students in mathematics, science, or world language full-year courses.

Online Instructor and Learning Coach Observations Data

Exhibit D2. Characteristics of Online Instructors and Learning Coaches Observed

Observations sample	Online instructors	Learning coaches
Total observations (N)	21	32
Number teaching mathematics courses	28.6%	35.3%
Number teaching science courses	19.0%	20.6%
Number teaching world language courses	52.4%	44.1%

Note. Table only includes online instructors and learning coaches in mathematics, science, or world language full-year courses.

Appendix E. In the Spotlight: Learning Coach and Online Instructor Example

In spring 2024, AIR conducted four new class observations and two additional interviews (one with a learning coach and one with an online instructor). This learning coach–online instructor pair were using best practices for implementing Coursemojo with high quality and fidelity.

Key drivers for their success included constant communication during and outside of class (e.g., texting, chatting, and emailing about the lesson plan, required materials, student absences, student behavior, class expectations, behavior management). The learning coach was actively learning alongside students and supporting their learning of mathematics content. Both the learning coach and the online instructor believed in the Coursemojo model and believed that the expectations were achievable.

During an interview, the learning coach and online instructor partnership was compared to two parents operating on the "same level," with consistent communication and expectations and no power differences. The interviewee also shared that the learning coach and online instructor reflected on lessons and provided each other with feedback on pacing, student understanding, and when a content review was needed.

In a focus group with students in the class, students reflected positively on the organization of the class, their comfort interacting with the learning coach and online instructor based on their needs and questions, and the online tools they used to support learning (such as Desmos). The students also mentioned that the learning coach learned the content alongside students and supported them with content questions when the online instructor was not available (e.g., during a student advisory period). Students reflected constructively on the limited opportunities for student discussion and collaboration (though they did mention daily partner work); how long it takes to get an answer to a question in the Zoom chat, compared to raising a hand in an in-person and non-Coursemojo class; and the desire to interact with their online instructor in person.

One recommendation from the learning coach and online instructor was about the distribution of responsibility for outreach to parents. The learning coach mentioned how helpful it would be to share some of the outreach responsibilities—for example, following up with parents to share both praise and concerns. This was echoed by the online instructor.

"I wish there was more transparency with communicating with parents ... If a kid is acting up in my class, I want to call home. So, [LC] is overwhelmed over here, and calls home for me sometimes because they're allowed to. But if I want to call, I need to schedule a meeting with the principal and [LC], and me, and you know that's going to be impossible.

I feel like if I could have that relationship with the kids or like with the parents, then I would be able to get these kids to buy in a little bit more, just to get to know the parents or the parents to get to know me ... Sometimes I'm not calling home because your kid is bad, or maybe I'm calling home because your kid is missing an assignment because they were absent, or maybe there's a way for me to message parents on canvas to give them parent access."

–   *Coursemojo online instructor*

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