



Digital Engagement in Remote Learning: Patterns and Practices

From Microsoft Education, July 2020

Maria Langworthy, Microsoft Education

Brian Hoyt, French American School of Puget Sound

Allan Sheffield, School Information Services, Brisbane Catholic Education

Phil Neufeld, Executive Officer of IT, Fresno Unified School District



Overview

As education systems move to remote and hybrid learning due to the COVID19 pandemic, more teaching and learning is taking place in digital learning environments. This shift to digital provides rich data sources on student engagement and learning activities. At the same time, educators need research and data on how to best foster student engagement in learning in the new model. This combination of factors provides an opportunity for learning analytics to help the education community understand patterns and trends as students shift to hybrid modalities of learning.

This paper provides insights on the patterns of student and teacher engagement in the digital learning environment of O365. It uses data from Microsoft's education analytics solutions, which give teachers, schools and education systems application usage data from the O365 suite. Three school systems that are early adopters of these analytics solutions agreed to share their digital learning activity data from before, during and after school closures due to COVID19 to develop the insights for this paper. These partners include Brisbane Catholic Education (Australia), Fresno Unified School District (California) and the French American School of Puget Sound (Washington). All school, teacher and student names are blocked in this report to protect their privacy.

The three school systems that participated in this research each have unique characteristics. Brisbane Catholic Education in Australia has 142 schools supporting 75,000 students from a wide variety of backgrounds with most students having access to connected devices for learning from home. Fresno Unified School District in California has 100 schools supporting 72,000 students. A high percentage of Fresno's students are from low income households and 22% speak English as a second language. A significant portion of Fresno students did not have connected devices at home for remote learning at the onset of school closures. The French American School of Puget Sound is a single school supporting 400 students up to grade 8. Most of these students had access to connected devices at the onset of school closures.

The patterns of digital learning activities shared in this report can help schools and systems around the world better understand how data can be used to inform teaching and learning strategies going forward into the 'new normal' of hybrid learning.

Microsoft's Education's analytics solutions are currently available to early adopters.¹ These analytics empower teachers and leaders with actionable insights to support all learners. The solutions include [class insight reports](#) for teachers to understand their students' digital engagement, as well as advanced pre-built analytics and self-services analytics with Power BI reports for school and system leaders.

¹ To join the early adopter program for Microsoft education data solutions, contact DEOBT@microsoft.com.

Access and Engagement in Remote Learning

In 2020 schools and systems around the world had to quickly deploy remote learning solutions when schools were closed due to COVID19. One of the most important questions leaders asked was which teachers and students had access, including connectivity, devices, apps and training to participate in remote learning. Gathering that data was both difficult and essential to ensure equity of access for all students.

Education systems using Microsoft's analytics solutions could quickly see reports that show the digital activity of schools, teachers, and students in O365. That digital activity can only happen when individuals have access and engage in remote learning, so these reports enabled schools and systems to have an immediate picture of equity gaps in access across their system.

Our three partners shared how they used these reports to see the patterns of access and engagement. At Brisbane Catholic Education in Australia, leaders used reports to see which schools had the highest percent of active users and which schools had the lowest percent of active users. This enabled them to pinpoint schools that had low student engagement and investigate if the cause was due to lack of access. Some high schools had low percentages of active users, and Brisbane's leaders are using this data to pinpoint and target schools for extra support in the next semester.

Brisbane Catholic Education and School-Level Learning Activities

Data is displayed for the selected date range

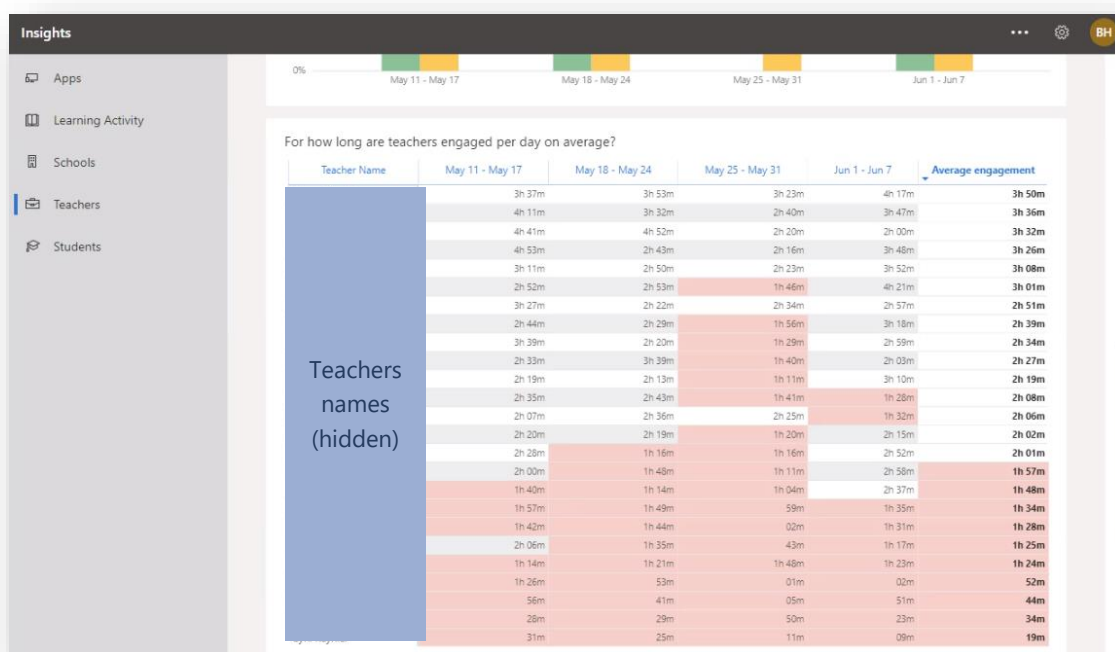
| SCHOOL | TOTAL ACTIVE USERS | | | AVERAGE DAILY ACTIVE USERS | | | |
|-----------------------|--------------------|---------|--------|----------------------------|---------|--------|-------|
| | Name | Percent | Number | Trend | Percent | Number | Trend |
| School names (hidden) | | | | | | | |
| | | 58% | 208 | N/A | 17% | 60 | N/A |
| | | 40% | 251 | N/A | 16% | 101 | N/A |
| | | 66% | 103 | N/A | 16% | 25 | N/A |
| | | 58% | 53 | N/A | 15% | 14 | N/A |
| | | 48% | 273 | N/A | 15% | 84 | N/A |
| | | 46% | 166 | N/A | 13% | 47 | N/A |
| | | 89% | 562 | N/A | 13% | 82 | N/A |
| | | 56% | 179 | 359% | 11% | 35 | 2269% |

Another way Brisbane will use the data going forward is with their change management efforts. They have a team of teachers who work with specific schools for an extended period (one semester) to implement Teams and other tools. The analytics data will be used to measure and demonstrate the efficacy of that program and will align with outcomes from

survey data they already gather. They will look at what types of professional learning different teachers or schools need based on patterns of digital engagement, and they will then design the programs around those needs. They will also be able to see which types of programs have the biggest impact, helping them refine their programs in a [continuous improvement cycle](#).

The French American School of Puget Sound used the analytics reports in a different way, to identify specific teachers and students who had higher and lower levels of digital engagement. They could then provide training and support directly to those individuals. When they found teachers who had high digital engagement, they asked those teachers what was most effective about their remote learning practices, and then paired up those teachers with teachers who had low engagement, so that they could provide peer coaching. They also provided reports to school counselors on students who were digitally engaged for too long during the day or during odd hours at night so that counselors could support student well-being.

French American School of Puget Sound and Teachers' Digital Engagement

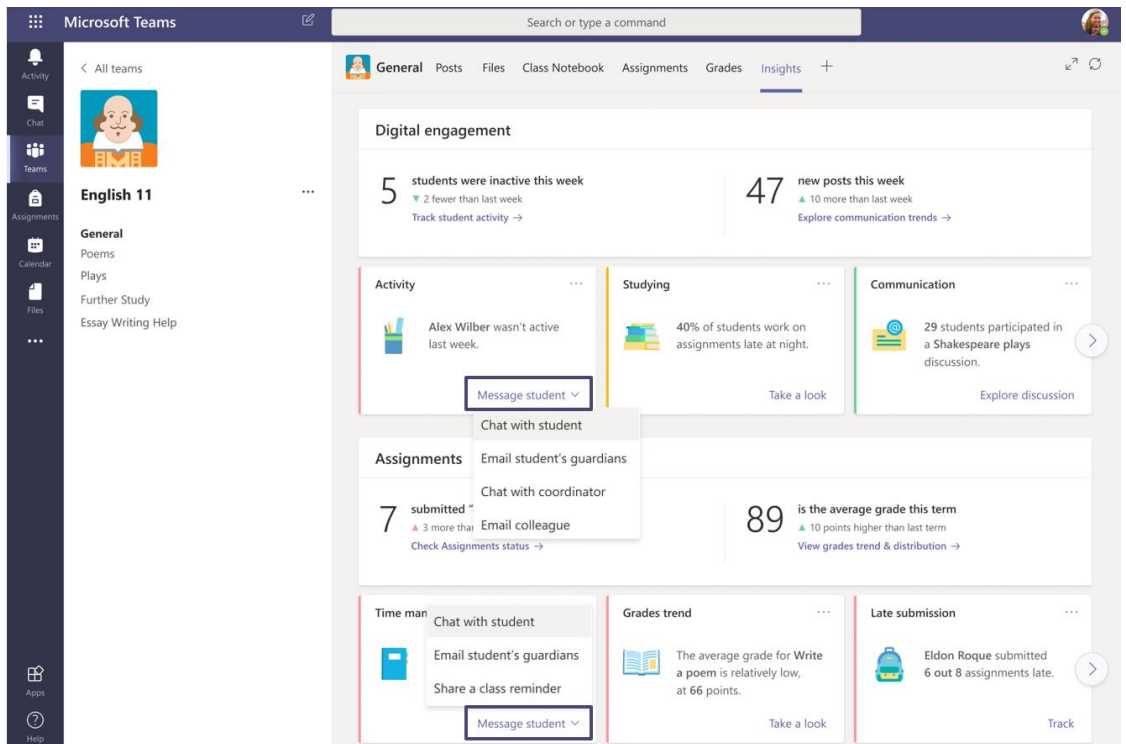
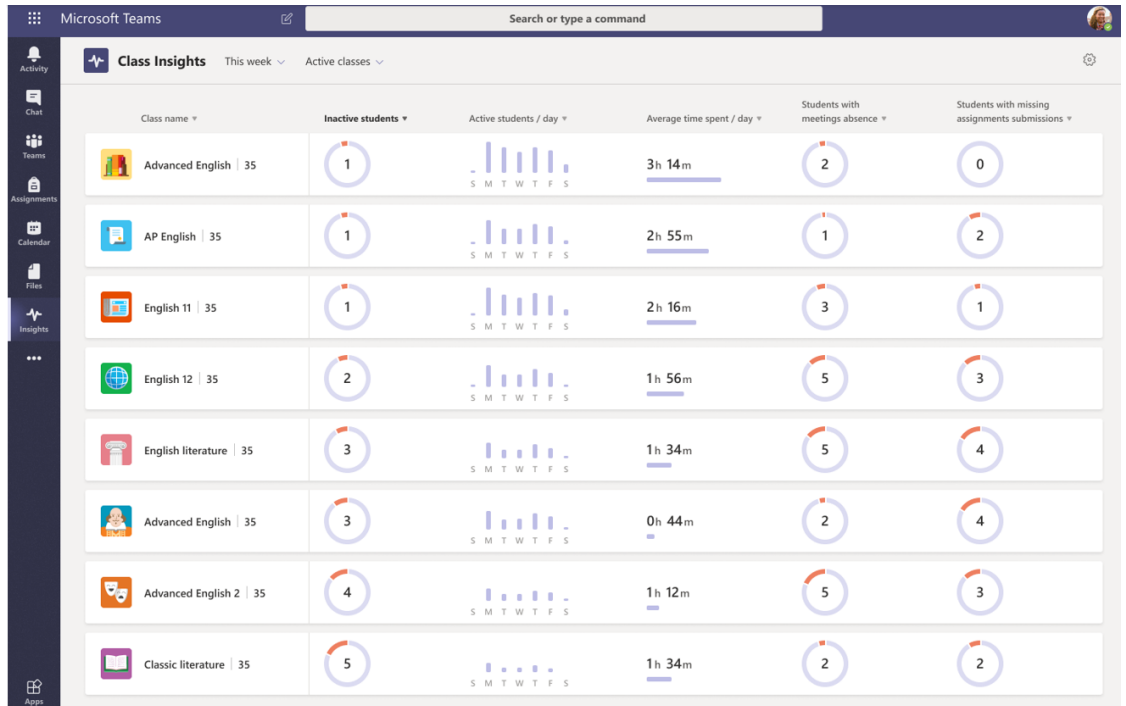


Fresno Unified School District in California is an education system with a high percentage of low-income students. When schools closed the question of access to remote learning for all students was the first concern of Fresno's leaders. They quickly purchased and deployed 30,000 devices to students in their homes, which meant that the district's IT team also managed those devices. They could combine data on Active Users on O365 with data from device management dashboards. Combining this data allowed them to learn which students might need connectivity, devices, and support for participating in the district's remote learning programs.

All three of these school systems also use [Class Insights](#) that allow teachers to see the digital engagement of their students. Using these reports, teachers can quickly identify which

students have not opened assignments, students' attendance at virtual class meetings in Teams, and students' status on assignments.

Class Insights for Teachers' View of Student Digital Engagement in Learning



Schools, teachers, and students will have different reasons for their engagement patterns in remote learning. Having the data to know who is digitally engaged and who is not is the first step towards ensuring equity and continuity of learning.

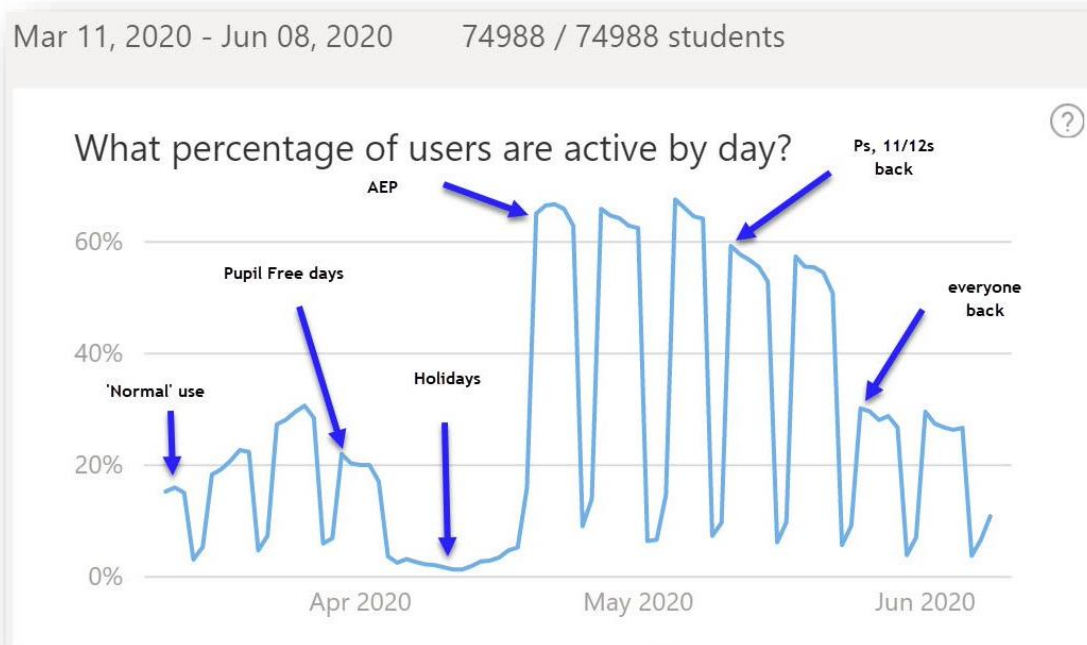
Digital Engagement Trends: Pre and Post COVID19

Another question on the minds of education leaders is what will happen to patterns of digital engagement when schools re-open. Will digital learning activities remain high or return to the levels of use prior to school closures? In the coming months and years, many schools will have a [hybrid learning model](#), where there will be a mix of face to face classrooms, synchronous digital learning, and asynchronous learning. Microsoft's analytics reports provide digital learning activity trends that address these questions.

In Australia, the government responded decisively to the COVID19 crisis, and schools closed for only a few weeks. Brisbane Catholic's schools were closed only during the month of May 2020, so they had a relatively short period of 100% remote learning. When they learned schools were going to close, teams of teachers and staff at Brisbane Catholic quickly put together 28 unique webinar courses to train teachers from across their schools in remote learning on Microsoft Teams, hosted 70 sessions of these webinars, in which 1,187 staff participated. This resulted in high levels of teacher and student engagement.

Using the analytics reports, Brisbane's leaders could see digital engagement trends. The chart below shows the percentage of the system's student population who were active by day before school closure ("Normal" use), during teacher preparation ("Pupil Free days"), during remote learning ("AEP" for "Alternative Education Provisions"), and as specific grades came back to school (11/12s back).

Brisbane Catholic Education Digital Engagement Pre and Post School Closures



After everyone came back in June, digital activities decreased, but were still 10 to 15 percent higher than before school closures. While the chart above shows over 60% of active users by day, not all students participated every day, so overall usage of the student population was higher.

Education systems will need this type of data, and the ability to review patterns by individual schools or student groups, to ensure remote and hybrid learning strategies are being adopted equitably, and later, to be able to assess the impact of these strategies on learning outcomes.

Intentional Pedagogies for Remote Learning

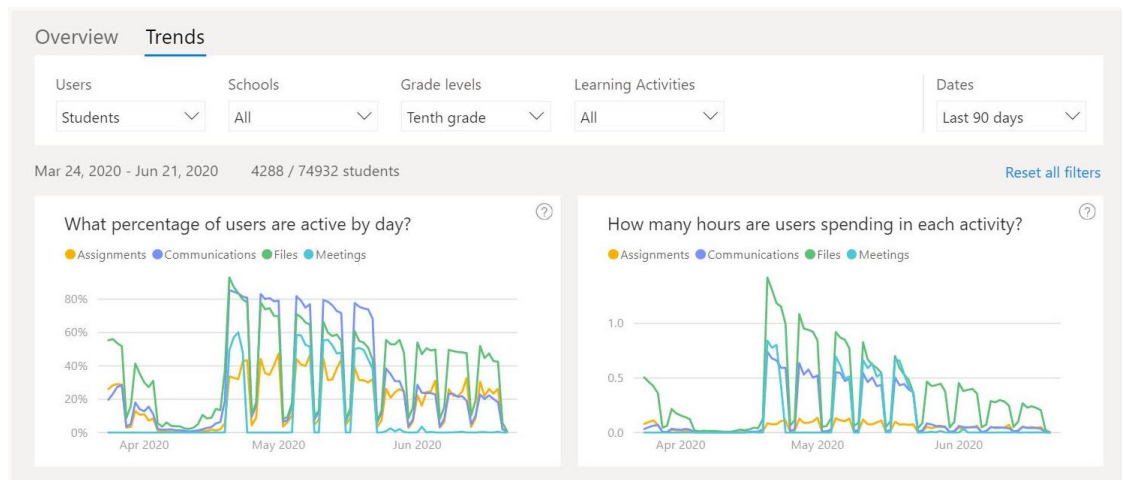
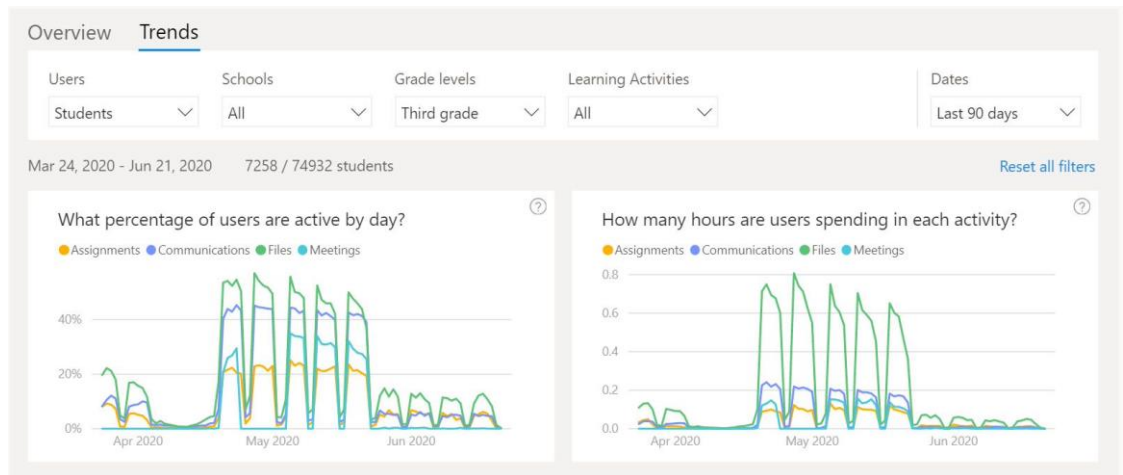
The speed with which schools closed during the pandemic did not allow time for deep planning or training for remote learning. Many schools focused training only on how to use digital tools for remote learning, but they did not address innovative teaching strategies that could be implemented with digital tools. For example, should teachers be asking students to focus on delivering content and assignments? Should they ask students to collaborate or chat through asynchronous communications or during virtual class meetings? Should teachers do 'check-ins' to assess students' well-being? Should they design project-based learning that involves students doing extended projects? Depending on the teaching strategy, use of different digital tools might be expected to have higher levels of use.

Microsoft education analytics provides data that reflects the implementation of different teaching strategies based on the array of apps used in the O365 digital learning environment. High use of meeting and communications apps could reflect a focus on social and emotional competencies such as collaboration. Assessment app use, like Microsoft Forms, can be an indicator of formative assessment practices.

As an example of this, below are 2 visualizations that show how different grades used digital tools differently. In the first chart, third grade students were most active in Files, followed by Communications (Teams posts). In the second chart, tenth grade students were more active in Communications during remote learning, followed closely by Files and Meetings. This suggests tenth graders were encouraged to collaborate somewhat more during remote learning than third graders. Both grades also participated in class meetings, but tenth graders participated more frequently in these than third graders.

In both classes, students spent the most hours per day using files, suggesting most of their work was independent learning on files assigned (e.g. Word writing docs, PowerPoint, Excel). Also, as might be expected, a smaller percentage of third grade students were active by day (roughly 50%), while almost 80% of tenth grade students were active by day. Reviewing such data to ensure the daily workloads of students are appropriate will also be important to ensuring student well-being during remote and hybrid learning going forward.



Teaching Strategies as Reflected by Patterns of Digital Learning Activities (Third Grade and Tenth Grade)



This shows how data from digital learning ecosystems can be used to provide insights into pedagogy for school and system leaders. As schools re-open, they have [opportunities to re-imagine their teaching and learning strategies](#) and may be able to [better leverage digital tools as part of the learning process](#). However, education systems need to develop clear and intentional pedagogical models and invest in the capacity-building, change management and data platforms to support schools and educators in making those shifts effectively.

For example, Fresno Unified developed a [“Personalized Learning Initiative” \(PLI\)](#) that had been operating for 4 years before the COVID 19 crisis. The PLI included an intentional pedagogical model that combined a focus on teacher and student collaboration and agency with the use of specific digital tools. When schools closed, Fresno’s teachers were able to focus more specifically on how to adapt the PLI pedagogical model for remote learning. Fresno conducted 100 webinars for over 1,700 educators, with teachers on average attending 3-5 sessions. In their training for remote learning, they were able to move quickly to specific supports for the needs of Fresno students, such as those who speak English as a second language.

Considerations for English Language Learners

| Type of Cyber Learning | Definition | Advantages for ELs | Disadvantages for ELs |
|--|--|--|--|
|  <p>Synchronous</p> | <p>Real-time virtual interaction</p> | <ul style="list-style-type: none"> • Focus on oral language skills development through social cues and modeling • Interaction with peers and teachers • Negotiated meaning opportunities • Allows more student-to-student interaction than only student-to-teacher | <ul style="list-style-type: none"> • Pace of conversation and instruction may be too fast for needed processing time • Scheduling virtual class time may cause confusion |
|  <p>Asynchronous</p> | <p>Not-in-real-time virtual interaction</p> | <ul style="list-style-type: none"> • Focus on literacy development • Time to process content and respond • Time to translate words or phrases • Students can repeat videos as needed • Students can repeat listening to audio • Allows more student-to-teacher interaction for clarification or meeting ELs' needs | <ul style="list-style-type: none"> • Loss of social cues and negotiated meaning opportunities that help develop a second or additional language |

As Fresno schools re-open in August, there will be a mix of schooling options using both face to face, virtual school (eLearn Academy) and hybrid. Phil Neufeld, Executive Director of Information Technology from the district says, "The school, teacher and student level data from Microsoft will be essential for our online eLearn Academy as well as our hybrid face-to-face learning. Our leaders will be able to explore patterns of engagement to determine what's working, for whom it's working, and where interventions are necessary."

Remote and hybrid learning offers opportunities to enhance collaboration and relationship-building between educators and students through use of digital platforms. These platforms can enable more frequent formative assessments and class check-ins on well-being. Such teaching strategies are known to improve learning outcomes. In the first phases of remote learning during the pandemic, these opportunities often went unrealized. As systems plan for the months and years ahead, developing clear pedagogical models that leverage digital tools can dramatically enhance both the experience and impact of learning in the new normal.

Leveraging the rich data signals offered by the shift to digital learning platforms will be incredibly important to parents, teachers, school, and system leaders. This will help them ensure that every student has equitable learning opportunities, see how specific teaching strategies are being adopted across their systems, and understand where and how to support all learners.

To join the early adopter program for Microsoft education data solutions, contact DEOBT@microsoft.com.