Small-Group Instruction through Blended Learning at Orchard STEM K–8

CLEVELAND METROPOLITAN SCHOOL DISTRICT

What is blended learning? Blended learning uses technology to enable personalized learning. Leveraging technology for this purpose tailors content to students' needs, gives them greater control over pace of learning, and/or enables teachers to target time to smaller groups of students. It can also be used to generate the data needed to make appropriate and timely student interventions.

Context: Principal Francis and her staff have incorporated technology at Orchard STEM to improve individualized attention for students. In 2014 they began to transition away from traditional instructional methods, which had relied heavily on the teacher to deliver content through direct instruction. Students and teacher are now moving toward a model where instruction takes place largely through learning centers. Through these centers, and the small-group instruction they enable, students have greater agency to investigate and solve problems as active learners.

Orchard STEM's blended-learning model currently relies on a variety of online tools to support learning centers, including Reading A-Z, NWEA skills navigator, Raz-Kids and Khan Academy. Students rotate between these tools and small-group instruction with teachers during the majority of core instruction. In 2016 the school plans to introduce 1:1 technology for students and will rely on a new blended-learning curriculum called eSpark to continue personalization for students.

Orchard STEM Fast Facts (2015)

- Student enrollment: 458
- Special education: 19%
- ELL: 8%
- FRPL: 100%

- Budget: $4.8M
- Dollars per pupil: $10.5K
- Student : Teacher ratio: 17:1
- Student : Instructional staff ratio (teacher + TA): 13:1

- Grade 3 ELA proficiency: 52%
- Grade 3 math proficiency: 45%

MAKING IT WORK: RESOURCE IMPLICATIONS

PEOPLE

- **Implementation Team:** A core group of staff members, known as the Apple Team, have worked together to design how technology would be used at Orchard. This team includes:

  o Principal
  o Assistant principal
  o Teacher representatives across Grades 8, 5, and K

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ERS

- Intervention teacher
- Instructional coach
- Custodian, who supports the infrastructure related to technology

- **Grade-level teaching teams:** These teams meet once per week for 50 minutes to co-analyze the data that results from online tools, and to determine how to regroup students. They also participate in ongoing training to support the development of new lesson plans that complement the use of learning centers and small-group instruction.

- **Expert support:** School administration facilitate grade-level teaching teams' work each week and provide ongoing training as needed. Administrators also review the student data that results from online tools so they are able to support teachers in interpreting it.

TIME

- **Student time with technology:** Currently students spend approximately 80 percent of core instruction in learning centers, which includes time to work with the teacher in a small group and with online tools at their own pace. Looking ahead to 2016 and the incorporation of 1:1 technology, students will spend approximately 20 to 40 minutes on eSpark in math and reading each day. In each hour-long block, five 20-minute rotations will give students opportunities to work on eSpark in a small group with the teacher, and in other self-directed learning stations. Less time on teachers' direct instruction frees the time needed for blended learning during rotations.

- **Planning before implementing:** The school's Apple Team has invested time prior to implementing blended learning to ensure that a strong plan is in place for exactly how the technology will be used. In the year prior to full implementation, the team is staying after school once a month for a two-hour planning meeting. This additional time outside the school day is voluntary and comes with no additional pay.

- **Targeted teacher training:** Before teachers were asked to implement technology rotations, they attended a three-day training at the University of Akron for targeted professional development. Principal Francis also plans to supplement this training with in-house training over the summer, as well as a three-day training that Apple staff will delivery directly.

- **Ongoing professional development:** Fifty minutes are set aside Monday through Thursday for schoolwide professional development. During this time, teachers receive professional development directly from Apple, CMSD's STEM Flexpert, and/or administrators. This time is used to increase expertise on teachers' digital literacy and to model the types of complex problems they should be pursuing with their students.

- **Additional weekly planning period for homeroom teachers:** Principal Francis added one 50-minute teacher planning period per week to the schedule to increase teacher time on lesson planning and other work related to the shift to blended learning. Because the new technology rotations required teachers to deliver instruction in fundamentally different ways, the structure of lesson plans also needed to shift considerably. Teachers also use this time for a combination of collaborative and independent lesson planning, data analysis, and supplemental training as needed. Note that the data reports resulting from online tools now reduces the time that teachers must spend organizing data; they can now target more time to interpreting and deciding how to act on that data.

  The addition of the planning period for homeroom teachers was cost neutral. Principal Francis was able to provide it through increasing the utilization of encore teachers, who previously had open periods in their schedules. Targeted, incremental class sizes were also made in order to add the extra planning period.

MONEY

- **Targeted teacher training:** The three-day training teachers attended at the University of Akron prior to implementing blended learning came at a cost of $12,000 to the school.

- **Assessments:** The student data collected from online tools can be aligned with NWEA, which allows for the creation of detailed reports that teachers can use to gauge student progress and identify necessary interventions. NWEA assessments are provided by CMSD and come at no additional cost to Orchard STEM.

- **Hardware:** Students at Orchard STEM currently have access to a computer lab to use online tools, but in 2016, students will have 1:1 technology made possible through a competitive grant to ConnectEd.

- **Software:** Online tools cost between $6 to $9,000 schoolwide, which comes out of Orchard STEM's budget.

LEARNING FROM IMPLEMENTATION

- The planning time spent prior to implementation was critical for ensuring technology would be fully maximized to support instruction.

- Teacher buy-in was increased through the addition of a daily planning period, which gave them the time needed to become comfortable with new lesson plans and instructional methods.

RESULTS

Between fall and winter NWEA assessments, mean RIT scores in reading have increased by an average of 5.4 points across grades 1-8, including 9.8 points in grade 1. Meanwhile, RIT scores in math across grades 1-8 have increased by an average of 7 points.

Artifacts

1. Orchard STEM's ConnectEd Grant Application