



Adams 12 Five Star Schools

2013-2014 Blended Learning Study at Middle Schools

Project Summary



Adams 12 Mission: To engage and inspire all students to innovate, achieve, and succeed in a safe and supportive environment by ensuring high quality instruction in every classroom, every day.

Adams 12 Vision: Adams 12 Five Star Schools exist so the students it serves are well-prepared for the next stage of their lives and obtain the skills, knowledge, and expertise to thrive in our world.

Blended Learning in Adams 12 Five Star Schools

In Adams 12 Five Star Schools blended learning pedagogy is defined as the combination of online delivery of education content combined with the best features of classroom interaction and live instruction. Blended learning instructional strategies help educators personalize learning and differentiate instruction for all students.

In Adams 12 blended learning instructional practices include (not limited to):

- Students utilize online digital content to acquire information and practice skills.
- Students complete online research before working offline with peers to conduct inquiry projects or solve authentic problems.
- Students self-select the online course work they want to work on each day and must show a minimum level of progress.
- Teachers work with small groups of students to foster critical thinking, provide extension and reinforcement, and re-teach difficult concepts.
- Teachers utilize digital content to provide remediation for students who did not show growth or mastery of content delivered through face-to-face instruction.
- Teachers modify digital content assignments/requirements based on the needs of the learner.
- Teachers provide additional learning options, either online or offline, to provide authentic applications of skills and information.

In Adams 12 blended learning instructional practices do not include:

- Students learning only from digital content throughout an entire class period without any interactions with the teacher.
- Teachers relying on the digital content to meet all of the students' learning needs.
- Teachers assigning digital content regardless of the reading level and learning needs of the students.
- Students progressing through the digital content without monitoring and input from teachers.
- Students never being given opportunities to collaborate with peers on problems or projects.
- Students never receiving any direct instruction from a teacher.
- Students completing a course without demonstrating critical thinking related to the content standards of the course.

2013-2014 Blended Learning Study Framework

Goal: Students will demonstrate academic growth and increased engagement when given differentiated opportunities to learn using digital content in combination with direct instruction and classroom activities.

Participants: Up to four teachers from each middle school and two teachers from each K-8 school participated. Each participant received:

Hardware: Each teacher received nine Google Chromebooks; two teachers from the alternative middle school received four iPads because their classrooms already had enough computers for blended learning activities. The iPads allowed them to offer students opportunities to demonstrate understanding using additional creativity tools.

Professional development: The cohort of teachers completed one full-day and three half-day training sessions. Each blended learning teacher met individually with an Instructional Technology and Library Services team member at least twice throughout the school year, during which time blended learning instructional practices, digital content and tools, and differentiation methods were discussed.

- **First full day (summer):** The teachers came together for a full day of blended learning training prior to the beginning of the school year. During the day they explored definitions of blended learning, heard from Adams 12 teachers in the first blended learning cohort, set up their online learning community account in Schoology, and began considering how they could integrate blended learning pedagogy into an existing lesson or unit..
- **First half day (October):** Targeted instruction and support on the digital tools and resources that teachers could access and use as part of blending learning in their classrooms..
- **Second half day (December):** An in-depth consideration of the differences between tech integration and blended learning using the SAMR model and resources created by Adams 12.
- **Third half day (January):** Participants were offered the opportunity to request a half-day substitute in order to observe blended learning instruction in another classroom/building..
- **Fourth half day (April):** Participants were given time to review and provide feedback for the peers on the blended learning units they had crafter over the year.

Online learning community access: Teachers participated in an online professional learning community in Schoology, a free online learning management tool that organizes course information and resources. As part of their blended learning professional development, participants had assigned readings, reflections, and required contributions to the Adams 12 Five Star Schools middle school blended learning community:

- **Reflection 1:** After learning about the SAMR model of technology integration, participants reflected on their own instructional practices. The SAMR model, which was created by Dr. Ruben Puentedura, helps teachers infuse technology into teaching and learning. The model describes a progression from Substitution to Redefinition:
 - Substitution - Technology acts as a direct substitute, with no functional change.

- Augmentation - Technology acts as a direct substitute, with functional improvement.
- Modification - Technology allows for significant functional improvement.
- Redefinition - Technology allows for the creation of new tasks, previously inconceivable.
- **Reflection 2:** After reading an article about blended learning, participants related the article to their own classroom experiences.
- **Reflection 3:** Participants were asked to explain the differences between blended learning and tech integration and how the instructional practices were present in their instruction.
- **Reflection 4:** Based on the conversations during the previous month's professional development, participants were asked to reflect on the "aha moments" they had related to blended learning instruction and planning a blended learning unit.
- **Reflection 5:** After completing a classroom observation, each participant reflected on what they had observed and learned about blended learning.
- **Reflection 6:** In advance of writing a blended learning unit participants were asked to reflect on their blended learning instructional practices that contributed to student success and those that did not.
- **Unit:** Each participant authored a blended learning unit and contributed it to a common resource bank stored in Schoology.

Payment: All teachers who completed the assignments and attended the training sessions received a stipend of \$400 and will continue to have the Chromebooks in their classrooms during the 2014-2015 school year.

Data Results and Analysis

The original goal of the Blended Learning Study was to increase student engagement and achievement through a combination of direct instruction and the use of digital content. In spite of access to the results of several different standardized assessments, studying the impact of blended learning on student achievement was challenging. Although standardized assessment data for students in blended learning classrooms was compared to students in non-blended learning classrooms, it was difficult to establish statistical relevancy when reviewing student achievement data for the relatively small number of students in this study.

Teachers in this study were not asked to record and report each of the differentiated learning opportunities that they offered students, nor was it reasonable to ask them to repeatedly measure and record students' levels of engagement during blended learning activities. To gather information about differentiated learning opportunities and student engagement, surveys were given to both students and teachers. The surveys were completed at the end of the year and provided the best option to gather data without placing unnecessary time and reporting burdens on participating teachers and students.

In light of overall classroom demands and the unreasonableness of expecting blended learning students and teachers to constantly gather and report data, the combination of standardized assessment results, teacher and student surveys, and attendance data provides an overview of the academic impact and perceptions of the participants in the blended learning study.

Attendance:

Attendance data for students in blended learning classrooms was compared to students in non-blended learning classrooms. There was no statistical difference between the two groups.

Student achievement on standardized assessments:

Because standardized assessment data was not available for all blended learning classes, comparisons of blended learning to non-blended learning classes was smaller than the total number of participating teachers. Student achievement data from the Northwest Evaluation Association Measures of Academic Progress (NWEA MAP), Transitional Colorado Assessment Program (TCAP), and Colorado Measures of Academic Success (CMAS) standardized assessments was used to compare blended learning and non-blended learning classes.

**Blended Learning vs. Non-Blended Learning
Comparison of Student Achievement Data on Standardized Assessments**

Content area	Number of class pairs compared	MAP (comparison of average Fall 2013 RIT to average Spring 2014 RIT)	TCAP (comparison of Median Growth Percentile)	CMAS (comparison of percentage in Strong and Distinguished)
Reading	7	3 BL classes had larger increases 2 BL classes had smaller drops in scores from fall to spring scores than non-BL classes	5 BL classes had larger average MGP	
Writing	7		4 non-BL classes had larger average MGP	
Math	5	3 non-BL classes had larger increases	4 BL classes had larger average MGP 1 BL class and non-BL class had exactly the same MGP	
Science	3; not all had both MAP data and CMAS data	1 BL class had larger increases; 2 BL classes did not have MAP data		3 BL classes had larger total percentage of students scoring in the Strong and Distinguished categories
Social Studies	1			1 BL class

Summary of Data Analysis

The comparison of student achievement data did not show significant statistical differences in student achievement. However, in the comparison of standardized assessment data of the 16 blended learning classes to 16 non-blended learning classes (same grade level, school, and content area), there were 24 instances where the blended learning students averaged higher scores (MAP, TCAP, or CMAS). In that same comparison, the non-blended learning students averaged higher scores in 9 instances. While the differences of averaged scores on the standardized assessments were usually small, **the fact that the blended learning students averaged higher scores more than twice as often as the non-blended learning students is of note.**

A review of the student surveys, both the statistical data and constructed responses, shows that students have confidence that their digital literacy skills improved during the year. At the beginning of the year, an average of 73% of the middle school students in the study rated their ability to locate and use online information as a 3 or 4 with 4 indicating they were "Very Capable". At the end of the year, an average of 94% of same students rated their online information skills as a 3 or 4. **In the 21st century the ability to locate, evaluate, and use information online is critical. The students in the blended learning classrooms had many opportunities to interact with a variety of information, which helped their skills and confidence increase.**

An average of 52% of the students indicated that the Chromebooks helped them collaborate with their classmates, an additional 21st century workplace skill. An average of 62% of the students believed that the Chromebooks allowed them to understand the content that they were studying better. **The use of digital content that is differentiated to meet the instructional needs of students combined with direct instruction can help students gain academic confidence.** As reported by one student, "I really enjoyed using the Chromebooks this year because they actually did help me learn much faster. It allowed me to see all of the other sides and actually begin to learn about that topic."

The survey responses for the blended learning teachers showed that **86% of the teachers viewed the Chromebooks as the catalyst for creating new learning opportunities for their students.** During their professional learning on blended learning pedagogy the teachers developed a deep understanding that the technology is a tool that can support and extend their direct instruction. Having constant access to technology empowered the teachers to integrate additional resources and tools that could engage, challenge, and offer students choices in their learning.

Financial Review

Item	Explanation	Cost
Professional development in August: <i>before the teachers reported to their buildings for the beginning of the contract year</i>	One 8-hour day of training, Each teacher was paid to attend since it was outside of their regular teaching contract	\$12,067
Professional development during school year: <i>teachers were out of their classrooms</i>	1/2 day - collaboration & training: - Wed., October 9th, morning - Thurs., December 5th, afternoon - Fri., April 25th, morning 1/2 day - observations of peers: - participants' choice - Jan. or Feb.	\$4,645
Mobile devices - Google Chromebooks	9 devices per teacher - Google Chromebooks recommended due to reliability and cost - Cost includes Administrative Control Panel, which allows the devices to be managed	\$81,118
Mobile devices - iPads	Two teachers opted for 8 iPads, which cost the same as 18 Chromebooks - Cost includes AppleCare warranty subscriptions	\$4,784
Stipend	Flat rate stipend for creating two blended learning units of study	\$14,800
Learning Management System	One-year subscription to Schoology for 1500 students (\$6/student) plus setup fee and training	\$10,800
Wireless infrastructure updates	Some middle school blended learning classrooms did not have adequate wireless access for the Chromebooks to work; updates included adding wireless arrays and wiring	\$50,000
Ongoing training 2014-2015	Two half-day training sessions and follow-up for participants who chose to continue in the project (substitute cost)	\$4,440
Subscription for Digital Content	Blended learning teachers were encouraged to utilize the resources of World Book Online as part of their digital instruction. (Students can access the resources at school and also at home.)	\$17,000
Total cost		\$199,654

Conclusion

Blended learning offers students opportunities to develop skills that will transfer to their futures. Blended learning offers students opportunities to re-engage with school with renewed interest and motivation. As the Blended Learning Study progressed it became increasingly clear through discussions and written reflections that some students in blended learning classrooms had to relearn how to learn. As one blended learning teacher stated on the survey, “The choices and level of freedom and self-directedness in blended learning runs counter to a passive learning model and some kids need help shifting that thinking.” At the end of the year both teachers and students reported a preference for blended learning pedagogy, which was a significant shift for many.

Due to the generosity of the Adams 12 Five Star Foundation and the Adams 12 Five Star School District, many Adams 12 middle school students are having new learning opportunities that allow them to increase their technology skills, their ability to access and use information, and their confidence in themselves as learners. The professional development resources that were developed for the teachers in this study have been “repackaged” and are now offered as an online professional development course for all teachers in Adams 12. Due to the willingness of the teachers in this study to help their peers and the creation of an online blended learning professional Adams 12 Five Star Schools middle school teachers have the onsite resources and support to help them explore and integrate blended learning into their own instruction. **This study of blended learning has led to many unanticipated successes which will continue to impact Adams 12 Five Star Schools students for years.**