



Progress Memo

To: Advisory Council on Teaching and Learning & APS Department on Teaching and Learning

From: Math Advisory Committee

cc: Shannan Ellis

Date: December 4, 2020

Re: Progress memo on Mathematics Distance Learning

Schools surveyed: ATS (1 parent), Claremont ES (18 parents), Gunston MS (PTA discussion + several teachers), Key ES (5 parents, 1 teacher), Oakridge ES (2 parents), Randolph ES (5 parents, 4 teachers), Swanson MS (2 parents), Wakefield HS (8 parents), W-L HS (8 parents), Williamsburg MS (several teachers)

What is working well for teaching and learning?

<p>Topic: Use of manipulatives and paper packets for ES (where schools have offered these tools)</p>	<p>Information source: [ATS, Claremont, Key, Oakridge, Randolph]</p>
<p>Description: Hands on learning is crucial for younger students; provision of manipulative kits to students has been very helpful. Where provided, asynchronous math work on paper has been great in getting students off the screens and providing something that parents can review and discuss with their children.</p>	
<p>Topic: Office hours have been useful for students willing to seek them out.</p>	<p>Information source: [Randolph, Wakefield HS, W-L HS]</p>
<p>Description: Teachers have been very willing to discuss topics in office hours. Consider offering more office hours in HS, as there appears to be high demand for each teacher so students can't get all their questions answered.</p>	

Topic: Useful Math Technology Packages	Information source: [Claremont, Key, Randolph]
--------------------------------------------------	----------------------------------------------------------

Description:

Where utilized, Nearpod has been helpful to teachers and allows them to see student’s written work and thus gain a better understanding of student comprehension. IXL received positive teacher and student reviews. Dreambox gets mixed reviews – some students enjoy playing it like a video game, others feel like it is second best to working with their teacher. In contrast, we only heard negative feedback about Reflex -- several parents said their students find its timed element to be stressful. .

Topic: When utilized, breakout rooms have been helpful. Parents and teachers desire to use these more.	Information source: [Key, Oakridge, Randolph]
------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------

Description:

Break out rooms provide a needed chance for students to interact with each other and the teacher. Parents hope that teachers can begin meeting with students in need of enrichment, similar to the meetings that are occurring for students who are struggling.

Topic: Teachers are posting videos and notes for asynchronous use which is helpful	Information source: [All schools surveyed]
----------------------------------------------------------------------------------------------	------------------------------------------------------

Description:

Parents said teachers have done a great job posting videos & links on their class sites. It is particularly appreciated when teachers post their class notes online as well. One caveat: One HS parent said their student was in a fully flipped class & found it difficult; the student couldn’t ask questions during the asynchronous lesson and was too embarrassed to ask questions in the synchronous question period. (*This might argue for hybrid flipped classes versus pure flipped classes.*)

What is not working well for teaching and learning?

Topic: Not Enough i) Use of Pencil & Paper, ii) Chance to Show Work & iii) Feedback on Problem-Solving – all levels, schools surveyed	Information source: [ATS, Claremont, Gunston, Key, Wakefield, W-L]
-------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------

Description:

This is the number one critique MAC received across all divisions. Respondents said students are on their devices a lot during the day & need a break with more pencil & paper assignments. Multiple parents noted that most tests/asynchronous work are multiple choice & online which is problematic since students are i) not getting feedback on how they solved the problem and ii) are stressed & losing all credit on multiple choice questions because of careless errors even when they know how to do problem. Several ES parents expressed the desire for workbooks/textbooks/packets to pick up at school or print at home. Some ES offer paper packets; parents at other schools would appreciate this also. It is important, however, that students receive feedback on their written work so they can learn from their mistakes.

One caveat. One HS parent expressed the opposite view: i) their student prefers Delta Math to paper because it shows him the solution immediately after he submits so he can learn from his mistake & ii) student sometimes forgets to photograph & submit HW done on paper.

Topic: Not Enough Differentiation in Classes – ES & MS	Information source: [ATS, Claremont, Gunston, Key, Randolph]
------------------------------------------------------------------	------------------------------------------------------------------------

Description:

Many ES parents are reporting that their student is bored by the slow pace of instruction.

Elementary schools – Parents report that teachers are waiting until all students master a concept before moving on, leaving most students bored. There are no break-out groups for students needing additional math challenge. In some schools, gifted resource teachers have been handing out paper packets for enrichment (to students both with and without gifted designation). The latter has been appreciated but parents wish there was live teacher extension as well. In some schools, students are sent to Dreambox for the majority of their asynchronous math work and for enrichment; there are mixed views as to whether this is a desirable source of the majority of student math work or enrichment.

One ES parent said it would help to group students in math classes according to their math needs; have math classes for students needing more reinforcement where teachers could spend more time on each topic, deepening understanding & making students less hesitant to say they don't understand something, while students that have already mastered topics could move on to more challenging material.

Middle schools – Parents are worried about how Math 6E differentiation will work since some students will go into Algebra I in 7th grade, others in 8th grade. Will the former receive sufficient additional instruction?

Topic: Students are often shy/afraid to ask for help. For struggling students, this has been very problematic.	Information source: [Claremont, Key, Wakefield, W-L]
--------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------

Description:

Parents said their students are often shy and hesitant to ask for help in office hours or during class. Thus, they are not receiving support when they struggle despite the availability of office hours. It is hard for parents to make their student avail themselves of school help. While some parents have hired tutors to bridge the gap, other parents report their children are falling further and further behind.

Topic: Teachers are frustrated students don't use cameras & are deluged with parent emails.	Information source: [Gunston, Williamsburg]
-------------------------------------------------------------------------------------------------------	-------------------------------------------------------

Description:

Nearly all teachers voiced frustration with students not using their cameras. They said that facial expression is key to knowing if a student is understanding the topic. One noted that their school is piloting standards-based grading and this is very tricky without cameras. Teachers wished that APS would require students to use cameras. Teachers report working very long days and one receives up to 100 emails per day. Some teachers feel that they are reinventing the wheel when preparing materials for their class. (*This might argue for using a formal, textbook-linked curriculum with associated, pre-prepared classroom materials.*)

Topic: Concerns over student placement in MS math classes	Information source: [Gunston, Swanson]
---------------------------------------------------------------------	--------------------------------------------------

Description:

The main issue for many MS parents is student placement and how this will affect their math path trajectory. They are confused as to how APS is making placement decisions and MS teachers are getting queried a lot about this. Shannan Ellis has been very proactive here, attending MS PTA meetings to discuss placement decisions and implications.

Topic: Concern over online testing strategies – all divisions	Information source: [ATS, Claremont, Key, Swanson, Wakefield, W-L]
-------------------------------------------------------------------------	------------------------------------------------------------------------------

Description:

Parents wished that students could show their work on test questions; for instance, taking photo of their written calculations and sending to teacher. Online testing is adding to stress and poor performance: i) Delta Math does not let students return to a question that they initially skip which is problematic (Canvas quizzes do let students return to a problem later), ii) many online tests are multiple choice so students are losing full credit on a problem if they make a small careless error even if they know the concept, iii) Reflex got particularly poor reviews due to its stress-inducing, timed nature.

Parents also report that teachers are changing the length of tests under DL. One HS parent said their student’s teacher is making tests longer to discourage cheating; however, students feel defeated if they are unable to finish the test in the allotted time. Another HS parent said their child’s school appears to be shortening tests under DL, however, this means that only a few careless errors on a multiple-choice quiz/test can hurt a student’s grade significantly. A third HS parent observes student anxiety caused by time limits set for each test question.

Improvements could be: i) using testing software that allows students to return to questions to check their work before submitting their test and ii) finding ways for students to show their work on tests so they can receive partial credit.

Topic: Online instruction decreases parent awareness of how student is doing & what they are studying.	Information source: [Claremont, Key, Randolph]
------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------

Description:

With i) school online, ii) limited paper/pencil assignments, and iii) content skipping in this year’s curriculum, parents are less aware of what their student is doing/learning than usual. ES parents wondered if APS could publish weekly/monthly syllabi which would allow parents to be more of a partner with their student since they would know what was being covered.

What are implications and/or solutions for teaching & learning for the longer term?

Continue Use of Asynchronous Learning Resources

Continue and encourage the posting of lecture videos/notes on class webpages, along with answers to asynchronous work (including practice tests) so students can learn from what they missed. Ensure students receive feedback on their work/tests so they understand and learn from their mistakes.

Expand Office Hours

Expand office hours in high school so students are able to get all of their questions answered. Consider forming virtual break-out rooms within the office hour meetings where students can meet and discuss problems on their own as they wait for their turn with the teacher (providing social interaction and peer collaboration). Continue offering virtual office hours even when school returns to normal, since it is easier for some students to attend virtually.

Encourage Paper/Pencil Work

Increase amount of paper/pencil work throughout all divisions to emphasize problem-solving over answers and decrease screen time. Feedback should be provided to students on this written work.

Help Students Overcome Reluctance to Ask for Help

Look for ways to overcome student reluctance to seek out help: i) have teachers proactively reach out & invite a student to office hours, ii) encourage teacher collaboration on what language/approaches are most successful during office hours in promoting student comprehension and making them feel comfortable enough to ask questions, and iii) ask students to give testimony to their classmates as to how useful office hours were to them.