Measuring Strategic Framework Goal #2

Note: This document mirrors much of the content from the previous version presented to the Board at the Feb. 21 Retreat. The organization has changed, but the content remains the same. Any new content included in this paper has been noted in *italics*. The paper also includes an *Appendix: Response to Feb. 21 Board Questions* at the end.

Goal 2 of MMSD's Strategic Framework states that "every student has access to a challenging and well-rounded education as measured by programmatic access and participation data." To this point, this goal has informed our work, but we have not decided how to measure progress on this goal. In this document, we outline our recommendations for measuring Strategic Framework Goal #2. Our recommendations are designed to answer three questions:

- What areas should be reflected in a challenging and well-rounded education?
- What metrics/goals should we use to measure a challenging and well-rounded education?
- What components should be included in a challenging and well-rounded profile?

We then conclude with implications for Strategic Framework and SIP reporting.

Current Research and Requirements

Challenging Education

Research exists describing the benefits of taking challenging coursework, citing student effects such as better grades, increased graduation rates, and higher postsecondary enrollment rates, as well as school-level effects such as increased expectations for students and a stronger college-going culture. However, researchers also argue that raising academic rigor without also increasing supports will not yield the best possible improvements. Rigor remains an ambiguous term, with a general understand that it is associated with course difficulty but no consistent definition, leaving room for districts to determine their own guidelines for rigor. The most heavily researched and popular policy option for advanced coursework is the expansion of AP coursework. While the percentage of students taking AP coursework has risen nationwide, pass rates for AP exams have declined, and the research community is mixed on the effectiveness of increased AP participation. This debate suggests that districts should consider a broader definition than just AP participation when trying to capture the effects of increasing challenging coursework for student success.

There is no consistent high school graduation requirement in MMSD regarding advanced coursework. No schools in the UW System require a certain amount of advanced coursework for admission, although most of the four-year campuses require the completion of math coursework that would include courses designated as "Advanced" in MMSD. Therefore, existing requirements are not a good source for determining a metric.

Well-Rounded Education

Research linking a well-rounded education with student outcomes is limited. Researchers have demonstrated that students participating in the arts have better academic outcomes, including higher graduation rates, higher standardized test scores, and higher college enrollment rates. But these researchers also consistently note that this only indicates an association between well-roundedness and academic performance, not that well-roundedness causes better performance. Likewise, there are many studies showing the benefits of learning a second language, but little causal evidence linking language learning to specific academic outcomes. Studies that do show associations between studying these areas and positive outcomes do not go so far as to lay out a minimum amount of participation that matters. In contrast to fine arts and world languages, research on extracurricular participation largely has found positive effects, citing student benefits ranging from increased engagement, stronger connections to the school, higher attendance, and higher levels of achievement. Some studies have even found more pronounced results for students of color and low-income students.

Because there is no strong research basis for what should constitute a well-rounded education, we turned next to school and state requirements for guidance. However, there is no consistent requirement for world language and fine arts participation across MMSD high schools. There also is no consistent admissions requirement for UW System colleges and universities in these areas. Therefore, given the absence of either a research-based or existing policy-based way of measuring well-roundedness, we chose to explore MMSD data to develop our recommendations.

Summary

Overall, there is no existing and specific research-proven way to measure a challenging and well-rounded education. Efforts to measure this type of student experience have been, to this date, extremely limited. Therefore, figuring out a way to measure and

operationalize a challenging and well-rounded education truly places MMSD at the cutting edge of work in this area. We are choosing to use data from MMSD to produce our recommendations, ensuring that what we suggest is guided by the existing research base but can be demonstrated to hold true for our own students in our own context.

Decision 1: What areas should be reflected?

Advanced Courses: For a February 2015 presentation to the Board of Education's Instructional Work Group, advanced coursework was presented for high school students in five areas: Advanced Placement, Honors, Advanced, Dual Transcripted, and Youth Options. We recommend measuring advanced coursework at the high school level based on three course designations that appear on high school transcripts (Advanced Placement, Honors, and Advanced), as well as Dual Transcripted, Youth Options*, and youth apprenticeships*. This expanded definition of advanced coursework allows the district to account for a variety of advanced options aimed at both college and career readiness. It is intentionally broad and includes specialized courses outside the traditional core subjects designed as "Advanced," which allows students with different interests and on different pathways to pursue high-level options that are relevant to them and also contribute to school and district advanced coursework participation goals. The broader definition of advanced coursework is grounded in the idea that every student, no matter their abilities and interests, is capable of accessing advanced coursework in some way every year. *This is possible in part because advanced courses, which are designated by Curriculum & Instruction through a defined course-vetting and review process, exist across disciplines, including in the fine arts, physical education, and career and technical education.* Increasing participation in advanced courses is not just about finding students with a certain academic profile who are not yet participating and encouraging them to participate; instead, it is about using a definition of advanced courses that reflects every student's unique needs, is attainable for every student, and makes a goal of 100% completion by graduation aspirational but possible. It also includes advanced coursework designations that often are perceived as more objective and based on national standards (such as Advanced Placement) and those that are local decisions (such as Honors or Advanced course designations).

We do not recommend measuring advanced coursework at the middle or elementary school level given that there is no data available to distinguish advanced courses at these levels and less course-taking variation across students. *Although we considered using middle school participation in algebra and geometry, which also is highly correlated with positive outcomes later on, we elected not to use this measure for two major reasons. First, unlike the advanced course definition we use for high school, this approach privileges one discipline above others by saying that only access to higher-level math is a priority. Second, research indicates that universal early algebra is most successful when accompanied by intensive support and increased instructional time, so asking our schools to increase participation in this area likely would require substantial changes to the structure of the school day and the support systems provided.*

Another option at the elementary and middle school level would be tracking and setting goals around the percent of students who are designated as advanced learners or the percent of students receiving Tier 2 or Tier 3 interventions to increase the rigor of their academic experience. However, we do not believe that these metrics are appropriate for several reasons. Our largest concern is that Tier 2 and Tier 3 interventions are by definition designed for students for whom the core is not meeting their needs. Increasing participation in these areas means increasing the number of students whose needs are not fulfilled by the core, which seems like a problematic message. Second, advanced learners are students, not student outcomes. Every Strategic Framework milestone and metric to date has focused on the percent of students achieving a certain goal, so a metric that focuses on the percent of students classified in a certain way does not align to the overall approach. Finally, Advanced Learners already are a focus group that will be part of district-level goal-setting and reporting, as well as an option for schools to select as a focus group in their SIP. As such, we already are illustrating our commitment to tracking data on and improving outcomes for this group across all goals, measures, and metrics for Strategic Framework Goals #1, 2, and 3.

Finally, it is important to draw a distinction between advanced courses and rigorous courses. Advanced courses as we have defined them represent high-level and specialized content across a variety of disciplines. We expect every course in MMSD, however, to be rigorous, designed to prepare all of our students to be college, career, and community ready.

Fine Arts, World Language, and Extracurriculars: For a November 2014 presentation to the Board of Education's Instructional Work Group, data on well-roundedness encompassed visual arts, music, theater, dance, world language, and extracurricular activities. Therefore, when defining well-roundedness in MMSD, we must decide in which areas our students should participate, if any areas should be combined, and how involved a student must be to count as a participant. We recommend measuring well-roundedness in three areas: fine arts (to include a combination of visual and performing arts), world language, and extracurriculars/co-curriculars. *For all three areas, course participation will include receiving course credit (e.g., grade of D or better) for any course designated as fine arts (multiple course codes), world*

language (course codes starting with FOR), and extracurricular (course codes starting with XTRA). These course designations are made in Infinite Campus and reflected on student transcripts. In addition, content area leaders have vetted the approved course list to ensure it includes all appropriate courses and will do so every year to make sure new courses are captured appropriately. Some courses are classified as both advanced and another area (e.g. AP Music Theory is advanced and fine arts, Spanish 4 is advanced and world language). A student taking a course that fits into both categories will be counted as fulfilling both. It is likely that some extracurricular activities captured by MOST are not recorded in school data systems, so these activities will not be captured in Goal #2 reporting for 2015-16. The extracurricular participation rates we track and report will reflect activities associated with either schools or MSCR, more than 650 opportunities in total, which is as much as we can realistically capture for logistical reasons.

Decision 2: What metrics/goals should we use for measurement?

We considered annual participation rates as well as completion of a profile of courses or activities by graduation for advanced courses, fine arts, world language, and extracurriculars. We also considered measuring each of these areas separately versus merged together as an aggregate measure of participation.

Advanced Courses: We recommend using the completion of an advanced high school course profile by the end of Grade 12. Using this approach, students earning credits*(e.g., grade of D or better)* across the areas indicated as advanced at any point during their high school careers would count as meeting the profile of advanced coursework; a student could complete some advanced credits each year or complete them all during their senior year, for example, and still meet the goal. Like the well-rounded profile discussed earlier, this gives schools a clear goal while allowing flexibility in how best to meet that goal. We recommend the advanced profile instead of annual participation rates because our data shows this profile to be highly predictive of graduation and postsecondary enrollment, as discussed in Decision 3 below. In addition, using annual participation rates across grades would imply that students in grade 9 should all access advanced coursework, but schools may believe that advanced coursework is better accessed in later grades.

We intentionally chose to count a student as completing an advanced course if they simply passed the course rather than meeting a higher bar, such as a C or B grade. Research and programmatic evidence exists that shows that putting students in accelerated coursework with the proper supports can lead to better student outcomes both during K-12 schooling and after, as well as promoting an environment of high expectations and college-going culture. Programs like AVID are built on this concept, and high expectations for students undergird our district's approach to student achievement. For students to be successful in more advanced coursework, we must provide them with scaffolded supports to ensure success. Although the evidence is mixed on the benefits of advanced coursework for students receiving only a D grade, students with a D do still earn credit toward graduation, and the requirement of earning credits in a course versus earning a specific letter grade better aligns to the needs of our innovative and alternative programs, many of which do not assign letter grades.

Fine Arts, World Language, and Extracurriculars: We recommend using a combination of annual participation rates and completion of a course profile, outlined below:

	Elementary	Middle	High
Fine Arts	Annual participation rate	Annual participation rate	Profile completion by grade 12
World Language	N/A	Annual participation rate (7-8)	Profile completion by grade 12
Extracurriculars	Annual participation rate	Annual participation rate	Annual participation rate

Using annual participation rates in fine arts at the elementary and middle school levels, world language at the middle school level (grades 7-8 only), and extracurriculars at all levels has implications for policy and practice, but participation rates are relatively straightforward and commonly-used metrics. *It is critical to include metrics at all levels because of the systems-level implications of early coursetaking in these areas. Elementary and middle school provide early exposure that can lead students to engage in these subject areas later in their academic careers, when they become electives that students can choose; as such, having robust, consistent experiences may pave the way to a well-rounded education later in schooling. And given the benefits of participation in these areas that we demonstrate later, under Decision 3, positive early participation that leads to later participation matters.*

Data from 2014-15 will be used as a baseline for future goal setting. For context, 2013-14 participation rates in these areas were as follows (discussion of the well-rounded profile with contextual data appears below):

2013-14 Participation Rates			
	Elementary	Middle	High
Fine Arts	100%	97%	See below
World Language	N/A	63% (Grades 7-8)	See below
Extracurriculars	21%	80%	67%

Decision 3: What components should be included in a challenging and well-rounded profile?

As noted above, in Decision 2, we recommend using an advanced course profile and a fine arts & world language profile as metrics to measure Goal #2. In this section, we discuss our recommendations for how to measure these profiles.

Advanced Courses: We recommend using the completion of **four credits** in the course areas indicated as advanced by the end of Grade 12. The table below shows the variation in four-year high school completion and postsecondary enrollment rates across the classes of 2011 through 2013 based on whether they completed four advanced credits during high school. Across all groups, students completing four advanced credits completed high school and enrolled in postsecondary education at noticeably higher rates.

	High School Completion and Postsecondary Enrollment Rates					
	Did not complete four advanced credits			Completed four advanced credits		
Group	Students	Completed HS	Enrolled in PSE	Students	Completed HS	Enrolled in PSE
Overall	3120	59%	38%	2602	98%	90%
Native American	21	57%	29%	8	100%	75%
Asian	251	67%	44%	280	99%	89%
African-American	968	47%	30%	174	96%	89%
Hispanic	544	51%	26%	239	98%	81%
Multiracial	175	67%	51%	150	95%	89%
White	1157	69%	48%	1749	99%	92%
Free/reduced lunch	1714	45%	27%	511	97%	82%
Special Education	949	43%	26%	91	89%	80%
ELL	681	55%	33%	391	98%	83%

This profile also stands as predictive using more rigorous methodology. We developed a logistic regression model, controlling for demographics, middle school GPA, high school GPA, total high school credits earned, attendance, and behavior, to see if completing four advanced credits was predictive on on-time high school completion or postsecondary enrollment. We found that students completing the profile of four advanced courses earned had *odds of on-time high school completion more than four times higher and odds of postsecondary enrollment more than two times higher than those who did not*, holding other characteristics constant. See the Appendix for more detailed results.

Across the classes of 2011 through 2013, 45% of students completed four or more advanced credits. The table below shows these rates by group, illustrating that we have both large disparities and room to grow across student groups:

Percent Completing 4 Advanced Credits	
Group	Percent Completing
Overall	45%
Asian	53%
African-American	15%
Hispanic	31%
Multiracial	46%
White	60%
Free/reduced lunch	23%
Special Education	9%
ELL	36%

While we believe the advanced profile is the best way to measure Goal #2, we acknowledge that there are several caveats to this recommendation. First, any observed differences between students accessing advanced coursework and those not doing so may be due to other factors that predict success; therefore, it is difficult to isolate whether advanced coursework caused this difference, or if students who self-select into advanced courses are already primed to succeed.

Second, it is possible to increase advanced coursework completion simply by classifying more existing courses as advanced or Honors while making no efforts to encourage students to pursue an additional challenge. However, the new course vetting by Curriculum & Instruction should help alleviate this concern. Finally, as with the well-roundedness areas discussed earlier, formalizing four advanced credits as a goal has likely implications for staffing, scheduling, course creation, and graduation requirements.

Fine Arts and World Language: After exploring the data, we settled on a fine arts and world language profile of **2 world language credits and 1 fine arts credit earned.** About 50% of students from the classes of 2011-13 completed this profile, so we have very large sample sizes for completion and non-completion that allow us to argue that completing this profile is highly associated with on-time high school completion and pursuing postsecondary education (PSE) overall and across student groups:

	High School Completion and Postsecondary Enrollment Rates					
	Did not complete profile			Completed profile		
Group	Students	Completed HS	Enrolled in PSE	Students	Completed HS	Enrolled in PSE
Overall	2886	58%	39%	2836	96%	85%
Native American	19	53%	26%	10	100%	70%
Asian	253	70%	47%	278	96%	86%
African-American	911	45%	29%	231	89%	78%
Hispanic	510	51%	27%	273	92%	71%
Multiracial	149	66%	52%	176	93%	84%
White	1041	68%	50%	1865	97%	88%
Free/reduced lunch	1582	44%	27%	643	90%	73%
Special Education	855	40%	23%	185	81%	68%
ELL	647	56%	34%	425	93%	76%

Advanced learners will be included as a student group in future data; this designation was unavailable for students prior to the 2014-15 school year.

We used the same rigorous methodology as we did for the advanced profile to test whether completing the well-rounded profile credits was predictive of on-time completion or postsecondary enrollment, controlling for student demographics, a variety of middle school characteristics including middle school fine arts and world language credits attempted, and other high school outcomes like cumulative GPA and total credits earned. We found that students completing the profile of two world language credits and one fine arts credit earned had *odds of on-time high school completion more than two times higher and odds of postsecondary enrollment more than 1.5 times higher than those who did not*, holding other characteristics constant. See the Appendix for more detailed results.

We recognize that two world language credits and one fine arts credit may not seem like a high bar for students. However, we know that only about 50% of our students actually completed that combination of credits across the classes of 2011-13 (even lower for some student groups), so we have significant room to grow:

Percent Completing 2 WL and 1 Fine Arts Credits	
Group	Percent Completing
Overall	50%
Asian	52%
African-American	20%
Hispanic	35%
Multiracial	54%
White	64%
Free/reduced lunch	29%
Special Education	18%
ELL	40%

Across schools, this figure ranged from a high of 60% at La Follette to a low of 42% at East.

While this profile remains the best way we can see to measure well-roundedness at high school, there are several caveats to this recommendation. Because the profile is centered around completion of a set of credits by the end of grade 12, this approach implies that it does not necessarily matter when during high school students take these courses. Because only two world language and one fine arts credit are included, it also implies that these courses do not need to be taken every year and that even relatively small exposure in these areas will be helpful. Finally, we acknowledge that

the extremely high observed graduation and postsecondary enrollment rates for students completing this profile are not likely to remain as high when more students complete the profile; when an educational choice that is associated with positive outcomes moves from a choice to a policy or strong recommendation, that positive association is likely to weaken, as evidenced by research on initiatives like universal 9th grade algebra or mandatory SAT completion. Therefore, using this profile approach requires a belief that world language and arts participation have an inherent value even if the distinction in outcomes between students completing and not completing the profile narrows.

This decision also has consequences for scheduling, course creation, staffing practices, *and building infrastructure*. If world language and fine arts participation become areas in which schools must set goals, resources likely will be allocated to these areas in new ways. It is also likely that the spectrum of available world language and fine arts courses will expand to accommodate those students who do not currently participate, perhaps both in terms of difficulty and topics available. *There may also be a need to increase or enhance the facilities to accommodate increased requests for specialized equipment in areas like visual arts.* Finally, world language and fine arts requirements might become part of official graduation requirements.

Extracurriculars: We also considered incorporating extracurriculars into the profile above or developing a separate profile for extracurricular participation. However, when looking at the variance in student outcomes by number of extracurriculars during high school, we saw that student outcomes appeared to improve around five or six extracurriculars, which is not intuitive or simple for goal-setting. We also looked at years of extracurricular participation and found that four years of participation yielded noticeably better results than any other number of years, so using annual participation is a fine solution. See the Appendix for more detailed results of our research. The table below illustrates high school completion and postsecondary enrollment rates across the classes of 2011-13 for students with four years of extracurricular participation:

	High School Completion and Postsecondary Enrollment Rates					
	Not four years of extracurriculars			Four years of extracurriculars		
Group	**Students**	**Completed HS**	**Enrolled in PSE**	**Students**	**Completed HS**	**Enrolled in PSE**
Overall	3776	67%	48%	1946	96%	88%
Native American	21	57%	33%	8	100%	63%
Asian	321	76%	56%	210	95%	84%
African-American	924	47%	31%	218	86%	75%
Hispanic	580	55%	31%	203	94%	75%
Multiracial	194	71%	56%	131	94%	88%
White	1732	79%	61%	1174	99%	94%
Free/reduced lunch	1753	49%	30%	472	88%	76%
Special Education	889	40%	24%	151	85%	75%
ELL	756	62%	39%	316	93%	79%

Implications for Strategic Framework and SIP

Measuring Goal #2 has implications for both the Strategic Framework (via the Annual Report) and SIPs. In the table below, we outline the new Strategic Framework milestones and corresponding SIP goals that would be created if these recommendations moved forward. For Goal #2, the Strategic Framework Milestones and SIP Goals would be identical.

Strategic Framework Milestones	SIP Goals
Elementary (K-5)	
Grades K-5 Fine Arts Annual Participation Rate	
Grade K-5 Extracurricular Annual Participation Rate	
Middle (6-8)	
Grades 6-8 Fine Arts Annual Participation Rate	Grades 6-8 Fine Arts Annual Participation Rate
Grades 7-8 World Language Annual Participation Rate	Grades 7-8 World Language Annual Participation Rate
Grades 6-8 Extracurricular Annual Participation Rate	Grades 6-8 Extracurricular Annual Participation Rate
High (9-12)	
Grade 12 Fine Arts & World Language Profile	Grade 12 Fine Arts & World Language Profile
Grades 9-12 Extracurricular Annual Participation Rate	Grades 9-12 Extracurricular Annual Participation Rate
Grade 12 Advanced Course Profile	Grade 12 Advanced Course Profile

In total, our recommendation would add eight new goals to report on for the Annual Report on the Strategic Framework. *Based on feedback from district leadership and schools, elementary schools will not be expected to set any goals as part of the SIP process, although they can choose to strategize in these areas. For middle and high schools, middle and high schools would choose one of the three goal options for which to set goals but would not be expected to set goals for all three. Therefore, this recommendation would lead to no additional goals at the elementary level and one additional goal at the middle and high school levels. Although schools would not have to set goals connected to each Strategic Framework Milestone, we would still report on all eight milestones as a district each year.*
Schools would set an overall goal *for the area where they choose to focus* as well as a goal for up to two focus groups, similar to the SIP Goals connected with Goal #1. We are working to develop recommendations for year-to-year improvement, which likely will follow the same structure as the achievement goals (either 2%-5% or 5%-10%, depending on performance relative to district averages).

To move these metrics, we would need students to access more courses in these areas. Although students have begun the process of signing up for classes for 2015-16, schedules are not finalized until May after allocation decisions have been made, and second semester schedules have even more time to be modified if needed. Therefore, it is not too late to set goals that require slightly different course-taking decisions. This concern is a primary reason we are setting the district improvement goal to be 2% overall, which is an incremental change that can be achieved with only minor changes in practice, especially because not every seat in every fine arts class, world language class, and extracurricular activity is full.

We also tested the reasonableness of each metric, summarized below:

- *Advanced coursework: In total, 45% of students across the classes of 2011 through 2013 completed the advanced course profile of four advanced credits. However, another 6% of students completed between three and four advanced credits, suggesting this measure could move six percentage points in a year with students taking just a single additional advanced course.*
- *Fine arts & world languages: A total of 50% of students completed the fine arts & world language profile. However, another 12% completed the world language portion of the profile without completing the fine arts portion, and another 7% completed the fine arts portion of the profile while earning between 1 and 2 world language credits, suggesting this measure could move 19 percentage points with students taking just a single additional course in either fine arts or world language to complete the profile. Based on this evidence, the 2% district goal for each profile is modest and reasonable.*
- *Extracurriculars: For extracurricular participation, it is reasonable to expect a 2% improvement as a district given that most extracurricular activities do not have prerequisite requirements, and can accommodate more students. Part of any goal-setting exercise is discovering the root cause of the problem and identifying the structural barriers that are in the way of achieving the goal. Being able to identify those barriers now will only help us move faster towards solutions. We already know that transportation and MSCR activities are barriers to participation, but schools can increase extracurricular participation in many other ways, including school-based activities like homework clubs or lunchtime reading groups that do not require MSCR involvement or transportation to make happen. In addition, elementary schools will not have to set goals in this area, and middle and high schools will only set goals in this area if they choose it as their Goal #2 focus area.*

Similar to Goal #1, schools would not be provided any additional funding in 2015-16 explicitly to achieve Goal #2. Instead, it is our assumption that the steps needed to undertake to fulfill these goals are the same ones outlined in the School Improvement Plans, and therefore are critical foundations of all work within the schools. They are not an additional body of work, but integral to everything a school does. For the 2013-14 school year, schools were asked to set goals for Strategic Framework Goal #1, and we saw significant progress on these measures districtwide and even more at individual schools, without the specific provision of an additional "Goal #1 allocation." As we move forward, we will monitor our progress, maximize our current investments, and make additional strategic investments as needed.

Appendix: Response to Feb. 21 Board Questions

What research proof exists to support these as the best measures for Goal #2?

As outlined earlier in this paper, the existing research base and best practices nationwide are slim; therefore, to take on this kind of cutting-edge work, we needed to use our own data to explore the best possible options. For the advanced coursework profile, fine arts and world languages profile, and the extracurricular four year participation goal, we have chosen to move beyond simple correlations and associations to test the predictive power of these metrics on two outcomes: on-time high school completion and postsecondary enrollment. We should emphasize again that work of this nature puts MMSD at the forefront of measurement at the school district level, as we are not only proposing metrics that are new and unique, but using advanced statistical analysis with local data to confirm these metrics are predictive and meaningful not just within a national research context, but for our students, in our schools, in the past few years.

The full regression tables showing the predictive power of the advanced coursework and fine arts & world languages profiles for recent MMSD students appear below. When reviewing these regression tables, please focus ONLY on the rows associated with each metric, shaded in orange. The other variables are controls provided for reference only and should not be interpreted independently.

Outcome Variable: Four-Year High School Completion						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Advanced Course Profile	**4.38**	**0.89**	**7.30**	**0.00**	**2.95**	**6.52**
African-American	1.31	0.20	1.78	0.08	0.97	1.75
Hispanic	1.12	0.25	0.50	0.62	0.72	1.73
Asian	1.55	0.42	1.60	0.11	0.91	2.65
Multiracial	1.33	0.30	1.28	0.20	0.86	2.07
Female	1.41	0.15	3.15	0.00	1.14	1.74
Special Education	0.36	0.04	-8.82	0.00	0.28	0.45
Free/Reduced Lunch	0.37	0.04	-8.43	0.00	0.29	0.46
English Language Learner	0.75	0.16	-1.33	0.19	0.50	1.14
High School Cumulative GPA	2.44	0.27	8.16	0.00	1.97	3.02
Total High School Credits Earned	0.99	0.01	-0.60	0.55	0.97	1.02
High School Attendance	135.25	109.08	6.08	0.00	27.84	657.06
Total High School OSS	0.90	0.03	-2.88	0.00	0.84	0.97
Total High School Behavior Events	1.02	0.01	2.50	0.01	1.00	1.04
Middle School GPA	1.40	0.18	2.58	0.01	1.08	1.80
Constant	0.00	0.00	-7.63	0.00	0.00	0.02

Outcome Variable: Postsecondary Enrollment						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Advanced Course Profile	**2.12**	**0.24**	**6.65**	**0.00**	**1.70**	**2.65**
African-American	1.73	0.23	4.07	0.00	1.33	2.25
Hispanic	0.76	0.13	-1.59	0.11	0.54	1.07
Asian	1.12	0.23	0.58	0.56	0.75	1.68
Multiracial	1.79	0.33	3.15	0.00	1.25	2.57
Female	1.09	0.10	0.92	0.36	0.91	1.29
Special Education	0.51	0.06	-6.21	0.00	0.41	0.63
Free/Reduced Lunch	0.54	0.05	-6.11	0.00	0.44	0.66
English Language Learner	0.94	0.16	-0.37	0.71	0.68	1.31
High School Cumulative GPA	2.58	0.24	10.08	0.00	2.15	3.11
Total High School Credits Earned	0.98	0.01	-2.06	0.04	0.96	1.00
High School Attendance	82.82	68.69	5.32	0.00	16.30	420.88
Total High School OSS	0.86	0.04	-3.68	0.00	0.79	0.93
Total High School Behavior Events	1.02	0.01	2.46	0.01	1.00	1.04
Middle School GPA	1.59	0.18	4.09	0.00	1.27	1.99
Constant	0.00	0.00	-8.80	0.00	0.00	0.01

We found that students completing the profile of four advanced courses earned had *odds of on-time high school completion more than four times higher and odds of postsecondary enrollment more than two times higher than those who did not*, holding other characteristics constant.

Outcome Variable: Four-Year High School Completion						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Fine Arts & World Language Profile	**2.36**	**0.33**	**6.20**	**0.00**	**1.80**	**3.09**
African-American	1.51	0.23	2.70	0.01	1.12	2.05
Hispanic	1.43	0.33	1.55	0.12	0.91	2.23
Asian	1.83	0.51	2.19	0.03	1.06	3.16
Multiracial	1.37	0.31	1.38	0.17	0.88	2.15
Female	1.27	0.14	2.21	0.03	1.03	1.58
Special Education	0.40	0.05	-7.36	0.00	0.31	0.51
Free/Reduced Lunch	0.37	0.04	-8.33	0.00	0.29	0.46
English Language Learner	0.77	0.17	-1.22	0.22	0.50	1.17
High School Cumulative GPA	2.86	0.30	9.87	0.00	2.32	3.52
Total High School Credits Earned	0.98	0.01	-1.36	0.18	0.96	1.01
High School Attendance	93.80	77.10	5.52	0.00	18.73	469.74
Total High School OSS	0.91	0.03	-2.74	0.01	0.84	0.97
Total High School Behavior Events	1.02	0.01	2.49	0.01	1.00	1.04
Middle School GPA	1.44	0.19	2.76	0.01	1.11	1.87
Middle School Fine Arts Credits Attempted	1.03	0.08	0.37	0.71	0.88	1.21
Middle School World Language Credits Attempted	1.29	0.08	3.85	0.00	1.13	1.46
Constant	0.00	0.00	-7.87	0.00	0.00	0.01

Outcome Variable: Postsecondary Enrollment						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Fine Arts & World Language Profile	**1.58**	**0.15**	**4.68**	**0.00**	**1.30**	**1.91**
African-American	1.96	0.27	4.89	0.00	1.50	2.56
Hispanic	0.89	0.16	-0.65	0.52	0.63	1.26
Asian	1.24	0.25	1.05	0.29	0.83	1.85
Multiracial	1.80	0.34	3.17	0.00	1.25	2.60
Female	0.98	0.09	-0.22	0.82	0.82	1.17
Special Education	0.56	0.07	-4.87	0.00	0.45	0.71
Free/Reduced Lunch	0.55	0.06	-5.84	0.00	0.45	0.67
English Language Learner	0.98	0.17	-0.10	0.92	0.70	1.37
High School Cumulative GPA	2.96	0.27	11.91	0.00	2.48	3.54
Total High School Credits Earned	0.97	0.01	-2.31	0.02	0.95	1.00
High School Attendance	57.09	47.99	4.81	0.00	10.99	296.51
Total High School OSS	0.86	0.04	-3.62	0.00	0.79	0.93
Total High School Behavior Events	1.02	0.01	2.50	0.01	1.00	1.04
Middle School GPA	1.63	0.19	4.24	0.00	1.30	2.04
Middle School Fine Arts Credits Attempted	1.18	0.08	2.43	0.02	1.03	1.35
Middle School World Language Credits Attempted	1.22	0.07	3.34	0.00	1.08	1.37
Constant	0.00	0.00	-9.19	0.00	0.00	0.00

We found that students completing the profile of two world language credits and one fine arts credit earned had *odds of on-time high school completion more than two times higher and odds of postsecondary enrollment more than 1.5 times higher than those who did not*, holding other characteristics constant.

The regression tables below show the predictive power of completing four years of extracurricular participation. When reviewing these regression tables, please focus ONLY on the rows associated with each metric, shaded in orange. The other variables are controls provided for reference only and should not be interpreted independently.

Outcome Variable: Four-Year High School Completion						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Four Years Extracurricular Participation	**2.99**	**0.46**	**7.14**	**0.00**	**2.22**	**4.04**
African-American	1.19	0.18	1.12	0.26	0.88	1.60
Hispanic	1.11	0.25	0.47	0.64	0.72	1.72
Asian	1.36	0.37	1.12	0.26	0.80	2.31
Multiracial	1.22	0.28	0.87	0.38	0.78	1.91
Female	1.43	0.16	3.27	0.00	1.15	1.77
Special Education	0.31	0.04	-10.05	0.00	0.24	0.39
Free/Reduced Lunch	0.35	0.04	-8.82	0.00	0.28	0.44
English Language Learner	0.71	0.15	-1.61	0.11	0.47	1.08
High School Cumulative GPA	2.98	0.31	10.38	0.00	2.43	3.67
Total High School Credits Earned	0.98	0.01	-1.35	0.18	0.96	1.01
High School Attendance	79.56	64.78	5.37	0.00	16.13	392.44
Total High School OSS	0.92	0.03	-2.42	0.02	0.85	0.98
Total High School Behavior Events	1.02	0.01	2.32	0.02	1.00	1.04
Middle School GPA	1.46	0.19	2.91	0.00	1.13	1.88
Constant	0.01	0.00	-7.14	0.00	0.00	0.02

Outcome Variable: Postsecondary Enrollment						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Four Years Extracurricular Participation	**2.41**	**0.24**	**8.82**	**0.00**	**1.98**	**2.94**
African-American	1.57	0.22	3.29	0.00	1.20	2.05
Hispanic	0.73	0.13	-1.77	0.08	0.52	1.03
Asian	1.02	0.21	0.12	0.90	0.69	1.52
Multiracial	1.61	0.30	2.53	0.01	1.11	2.32
Female	1.12	0.10	1.24	0.22	0.94	1.33
Special Education	0.46	0.05	-7.10	0.00	0.37	0.57
Free/Reduced Lunch	0.53	0.05	-6.32	0.00	0.43	0.64
English Language Learner	0.92	0.15	-0.49	0.63	0.66	1.28
High School Cumulative GPA	2.94	0.27	11.97	0.00	2.47	3.51
Total High School Credits Earned	0.97	0.01	-2.55	0.01	0.95	0.99
High School Attendance	43.29	36.00	4.53	0.00	8.48	220.98
Total High School OSS	0.87	0.04	-3.23	0.00	0.80	0.95
Total High School Behavior Events	1.02	0.01	2.19	0.03	1.00	1.04
Middle School GPA	1.63	0.19	4.28	0.00	1.30	2.03
Constant	0.00	0.00	-8.23	0.00	0.00	0.01

We found that students completing four years of extracurricular participation had *odds of on-time high school completion around three times higher and odds of postsecondary enrollment almost 2.5 times higher than those who did not*, holding other characteristics constant.

Will schools goal set around each of these metrics, or will they be combined into a combined measure?
Based on our research using MMSD data, we do not believe that combining extracurricular participation, completion of the advanced course profile, and completion of the fine arts & world language profile into a single metric rather than three separate metrics is the right course of action. The regression tables below show the predictive value of these three metrics not on their own, but as part of the same model, on both on-time high school completion and postsecondary enrollment. Each metric is a significant predictor of the desired outcome being modeled even when the other metrics are included, suggesting that each one of these metrics has predictive power above and beyond the other two. This means that each metric is worth considering independently, as each one has measurable additional value regardless of whether the other two are fulfilled.

When reviewing these regression tables, please focus ONLY on the rows associated with each metric, shaded in orange. The other variables are controls provided for reference only and should not be interpreted independently.

Outcome Variable: Four-Year High School Completion						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Advanced Course Profile	**4.16**	**0.75**	**7.91**	**0.00**	**2.92**	**5.93**
Fine Arts & World Language Profile	**2.16**	**0.27**	**6.21**	**0.00**	**1.70**	**2.76**
Four Years Extracurricular Participation	**2.61**	**0.38**	**6.56**	**0.00**	**1.96**	**3.47**
African-American	1.17	0.15	1.25	0.21	0.92	1.49
Hispanic	1.10	0.20	0.53	0.60	0.77	1.56
Asian	1.51	0.33	1.89	0.06	0.99	2.31
Multiracial	1.07	0.22	0.35	0.73	0.72	1.60
Female	1.66	0.15	5.52	0.00	1.39	1.99
Special Education	0.38	0.04	-9.46	0.00	0.31	0.46
Free/Reduced Lunch	0.38	0.04	-9.73	0.00	0.31	0.46
English Language Learner	0.65	0.11	-2.62	0.01	0.47	0.90
High School Cumulative GPA	1.58	0.11	6.26	0.00	1.37	1.82
Total High School Credits Earned	1.05	0.01	5.29	0.00	1.03	1.06
High School Attendance	55.10	33.38	6.62	0.00	16.80	180.67
Total High School OSS	0.93	0.03	-2.42	0.02	0.87	0.99
Total High School Behavior Events	1.01	0.01	1.69	0.09	1.00	1.03
Constant	0.01	0.01	-9.11	0.00	0.00	0.03

Outcome Variable: Postsecondary Enrollment						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Advanced Course Profile	**2.77**	**0.27**	**10.49**	**0.00**	**2.29**	**3.35**
Fine Arts & World Language Profile	**1.59**	**0.13**	**5.53**	**0.00**	**1.35**	**1.87**
Four Years Extracurricular Participation	**2.74**	**0.25**	**10.93**	**0.00**	**2.29**	**3.28**
African-American	1.35	0.15	2.68	0.01	1.08	1.68
Hispanic	0.72	0.10	-2.29	0.02	0.55	0.95
Asian	0.93	0.14	-0.45	0.65	0.69	1.26
Multiracial	1.54	0.25	2.60	0.01	1.11	2.13
Female	1.29	0.10	3.37	0.00	1.11	1.49
Special Education	0.49	0.05	-7.28	0.00	0.40	0.59
Free/Reduced Lunch	0.54	0.05	-7.21	0.00	0.46	0.64
English Language Learner	0.81	0.10	-1.64	0.10	0.63	1.04
High School Cumulative GPA	1.44	0.08	6.48	0.00	1.29	1.61
Total High School Credits Earned	1.10	0.01	14.54	0.00	1.09	1.12
High School Attendance	12.95	8.25	4.02	0.00	3.71	45.15
Total High School OSS	0.89	0.03	-3.17	0.00	0.83	0.96
Total High School Behavior Events	1.01	0.01	1.82	0.07	1.00	1.03
Constant	0.00	0.00	-10.32	0.00	0.00	0.01