

Equity Plan Schedules vs. Traditional Schedules in Health, Music,  
Physical Education, and Visual Art Courses for English as a New Language  
Students, Students with Disabilities, and Students by Gender and Ethnicity

by

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## ABSTRACT

This study compares course enrollment data for student-group equity variables for a newly developed and implemented schedule: the Equity Plan, with implemented traditional alternating day schedules. The study compares two implemented Equity Plan schedule frameworks and twenty traditional alternating day schedules over 11 years. The school-based schedule data were from two diverse New York public middle schools in the same school district, a total of 22 complete schedule data sets. Courses analyzed include health, music, physical education, and visual arts. The represented student variables were: all students, English as a new language (ENL), students with disabilities (SWDs), gender, and ethnicity. The compiled data included 255,365 rows and 13 columns for a total of 3,319,745 cells of data, representing 19,822 student schedules. Equitable course enrollment was defined as no more than a 5% difference of enrollment between student groups.

The data analysis revealed that ENL students and SWDs were consistently excluded from health, music, and visual arts courses. The Equity Plan schedule was the only implemented schedule framework that has equitable course enrollment for ENL students and SWDs in health, music, physical education, and visual arts. Physical education almost always had equitable enrollment for all student groups. Females and males were equitably represented in band, while females were overrepresented in chorus and orchestra. Students grouped by American Indian/Alaska Native, Asian, Multiracial, and Native Hawaiian/Other Pacific Islander generally had low enrollment representation in school populations and were often not equitably included in courses. ENL students and SWDs may be disproportionately excluded in many schools due to additional mandates

for these groups. This identified issue may be widespread throughout the nation. The author recommends that all schools conduct an equitable course analysis using the 5% standard to determine if student groups are disproportionately being excluded from courses. Implementation of an intentional administrative strategy focusing on equitable course enrollment such as the Equity Plan schedule framework is recommended to address equity and inclusion challenges.

## DEDICATION

I am dedicating this work to my son Liam. A person is measured by what one helps others to achieve.

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## CHAPTER 1

### INTRODUCTION

A school schedule has the power to offer or limit educational opportunities (Abril & Gault, 2006; Cronenberg, 2020). Throughout my career I noticed that health, music, physical education, and visual arts are not consistently offered for all students in K-12 public schools. Health, music, physical education, and visual arts are all required courses in middle school according to the New York State Education Department (2012; 2019b). Health and physical education courses have three standards: Personal Health and Fitness, A Safe and Healthy Environment, and Resource Management (New York State Education Department, n.d.-d). Physical education and health courses provide opportunities to gain knowledge and skills to live a healthy lifestyle. The New York State Education Department's goal is "Artistic Literacy for All Students in New York State" (2017b, p. 4). "Arts" is an umbrella term in New York State which includes dance, media arts, music, theater, and visual arts. There is evidence that Arts focused high schools in New York City had higher graduation rates than high schools not focused on the arts (Dosman, 2020, p. 329). Research suggests that long term systematic music instruction can have a positive impact on verbal sequencing scores, vocabulary, early childhood motor skills, melodic/rhythmic discrimination, neuroplasticity (brain flexibility to reorganize synaptic connections), memory, and can be used as a therapeutic tool for language training as well as improve mood (Ferreri & Verga, 2016; Mateos-Aparicio & Rodríguez-Moreno, 2019; Piro & Ortiz, 2009; Shenker et al., 2021).

In New York State there can be conflicting academic programs, which can make schedules impossible to include all required courses in a student's schedule. Educators

must advocate for programming at the school, district and state levels because the regulations often allow too much scheduling flexibility combined with mandated services. New York State Commissioner’s Regulation Part 100.3 Program Requirements state that: During grades one through four, all students shall receive instruction that is designed to facilitate their attainment of the State elementary learning standards in:… the arts, including dance, music, theatre and visual arts… health education, physical education and family and consumer sciences.” (New York State Education Department, 2019a). While it is encouraging that Arts and health are included, mandated minutes are not listed in the regulation. There are no state assessments for health, music, physical education or Arts at the elementary or secondary levels to measure standards achievement, unlike what occurs with math and English (grades 3–8) and science (grades 4 & 8) (New York State Education Department, 2021). The same is true for grades 5 and 6 (New York State Education Department, 2019b). Grades 7 and 8 require a total of 0.5 unit of study (54 hours) for health, music and visual arts, while English, science, social studies and math require 2.0 units of study (216 hours) each (New York State Education Department, 2019b) Physical education is required daily for grades K–3 and three times a week for grades 4–6 for a total of 120 minutes weekly (State of New York, 2021, April 15). In grades 7–12 physical education is required three periods per calendar week during one semester and two periods during a second semester, or “a comparable time each semester if the school is organized in other patterns (State of New York, 2021, April 15). High school students are required to have ½ credit (54 hours) in health and one credit (108 hours) in Visual Arts, Music, Dance, and/or Theatre (New York State Education Department, 2019c). Participation in physical education is expected each semester for at

least 1/4 credit each semester, totaling 2 credits (New York State Education Department, 2019c). The only mandated seat time explicitly for music is 54 hours in grades 7–8. High schools have the option to offer non–music arts courses, and pre-kindergarten through grade 6 have the indeterminate “arts” umbrella that may or may not include music for an unclear amount of time. It is critical that teachers advocate for arts programs, and that they seek out administrative roles to promote music learning and teaching experiences. The impact of other educational priorities becomes apparent when reviewing the federal law for K–12 public education and available music enrollment data.

Elpus and Abril (2011) determined that only 21% of a nationally representative sample of 16,400 grade 12 students in the United States participated in band, choir, and/or orchestra in 2004, according to the National Center for Education Statistics (NCES.) Native English speakers had a higher representation than native Spanish speakers by a ratio of 2:1. Elpus (2014) examined nationally representative data from the National Center for Education Statistics (NCES) and National Assessment of Educational Progress (NAEP) data from student cohorts during the period 1982–2009. The data suggest that student participation in high school music courses declined for English language learners (ELLs) and students with Individualized Education Programs (IEP for students with disabilities) since the enactment of No Child Left Behind (NCLB) through 2009. According to Elpus (2014), “Future research examining within-school variation in course-taking patterns would help to elucidate the mechanism through which NCLB negatively affected the music enrollment of Hispanic students, ELLs, and students with IEPs.” The recommendation from Elpus would be valuable to research also include enrollment information in health, physical and visual arts courses. The Every Student

Succeeds Act (ESSA) accountability measures include: “student academic achievement; student growth and school progress; progress of ELLs; chronic absenteeism; and for high schools, graduation rates and preparing students for college, career and civic engagement” (New York State Education Department, 2019d). Health, music, physical, and visual arts education are not included in these measures. A decline in music enrollment may be affected by disparate academic outcomes in reading and mathematics between demographic groups.

Collins (2011) analyzed Florida Department of Education data and identified that Black students were overrepresented in intensive reading courses by more than double than the state population, while Hispanic/Latino students were overrepresented by almost double than the state population (p. 134). The United States and New York State both have unequal outcomes for students by race in grades 4 and 8 according to the Nation’s Report Card from the National Assessment of Educational Progress (NAEP.) Students who are identified as White, Asian/Pacific Islander and Asian tend to outperform Black, Hispanic, Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, ELLs and students with disabilities (SWDs) in reading and mathematics (NAEP, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2019g, 2019h).

To understand where we are today, we need to take a look at historical education changes related to academics and scheduling. This chapter includes information on the Committee of Ten’s influence on course offerings in 1893, the shift to the Standard (Carnegie) Unit in 1909, Middle School Requirements in New York State public schools in 2022, and schedule frameworks a school scheduler may consider. Additionally, research in Chapter 2 describes the impact of schedule frameworks on student

achievement, attendance, discipline and dropout data; perceptions of administrators, teachers and students related to schedule frameworks and scheduling impact on student enrollment in music.

The schedule framework selected and implemented in a school has a profound impact on equity and inclusion in each child's education (Abril & Gault, 2006; Cronenberg, 2020). Common secondary schedule frameworks include a traditional schedule, a 4 x 4 block schedule, an alternating-day block schedule and a modified block schedule (Blocher, 1997; Canady & Rettig, 1995; Great Schools Partnership, 2013; Rettig & Canady, 2000; Williamson, 2010). A traditional or traditional fixed schedule framework has instructional periods that are typically equal in length (Williamson, 2010, p. 4). Periods in a traditional schedule are between 40 minutes and one hour in length. The traditional schedule will typically contain six to eight instructional periods and a lunch period. If an alternating A/B rotation is used, the schedule flexibility can double the available courses from A day to B day. The pattern would be Monday "A Day", Tuesday "B Day", Wednesday "A Day", Thursday "B Day", and this pattern would continue until the end of the school year. One can offer courses for a full year or a semester. "The Basic 4/4 or 4 x 4 Block Schedule" has four courses that are longer than the traditional schedule (typically 90 minutes) with two semesters. An A/B block schedule rotation can be used in this schedule as well, instead of a semester pattern (Great Schools Partnership, 2013; Williamson, 2010, p. 4). Research indicates that there are benefits to using specific frameworks and that there are differences in music-course enrollments trends based on the selected framework. There are several other schedule frameworks that include: the five block, the 5 x 5 block, the 5-period trimester schedule, the 75-75-30 plan and the



Copernican plan, to name a few (Bair & Bair, 2011; Canady & Rettig, 1993; Carroll, 1989; Great Schools Partnership, 2013; Merenbloom & Kalina, 2013; Rettig & Canady, 2000). Research is generally available related to the traditional schedule, 4 x 4 block and the alternating day block, and does not represent all labeled frameworks.

**Traditional Alternating Day-versus the Equity Plan**

The aim of this research is to determine how an intentional administrative scheduling strategy focusing on equity in public middle schools in New York State, and a newly-developed school schedule framework (the Equity Plan) created by the researcher will impact health, music, physical education, and visual arts course enrollment for the total student population and student groups compared with variations of the traditional alternating-day schedule. Traditional schedule alternating-day variations in this study include A/B, A–D and A–F. These renditions of the traditional alternating-day function almost completely as an A/B alternating-day (using a pattern of (ACE Days or BDF Days) , however the A–D and A–F schedules permit the scheduler to add a course on any combination of days as needed (Table 1 & Table 2).

**Table 1**

*Traditional Alternating-day: A/B & A–F*

A	B		A	B	C	D	E	F
English			English					
Phys. Ed.	Health		Phys. Ed.	Health	Phys. Ed.	Health	Phys. Ed.	Health
Math			Math					
Lunch			Lunch					
Science			Science					
Social Studies			Social studies					
Language			Language					
Music	Art		Music	Art	Music	Art	Music	Art

**Table 2**

*Traditional Alternating-day: A–D & The Equity Plan*

A	B	C	D		A	B	C
English					English		
Phys. Ed.	Health	Phys. Ed.	Health		English Block	Math Block	<u>Phys. Ed.</u>
Math					Math		
Lunch					Lunch		
Science					Science		
Social Studies					Social studies		
Language					Language		
Music	Art	Music	Art		Music	Art	Health

An administrative strategy focusing on equity is a feature that must be included to be considered an Equity Plan schedule. Bell schedules, instructional period count, period length, student schedules, teacher schedules, participation rates in music courses and participation rates in courses overall will be analyzed and compared for student groups. The student groups to be analyzed include English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity. Data was compared from two middle schools in the same school district with comparable enrollment and demographics. Specific demographic enrollment information for both schools can be found for ENL students, SWDs, gender, and ethnicity respectively in the following tables: Table 45, Table 54, Table 63, and Table 72.

“Since performing arts classes are generally classified as elective and are dependent on students’ continuous participation throughout their school years, it is vital that school administrators understand the need to schedule students into performing arts courses first. Other courses should be scheduled around the time slot of these performing classes if all are to benefit, regardless of the type of scheduling to be used” (Connors,

1997, p. 65). This strategy will likely reduce the chance of a course conflict if band for example is offered during a time when all student groups have an elective course option in their schedules. The Three-Day rotation permits flexibility with 21 instructional periods over three days (seven periods per day.) According to Miles & Blocher (1996):

The potential conflict with other classes that meet simultaneously for an eighth-period day is 12.5% or a ratio of a one-to-eight potential. The conflict with a four-period day is 25% or a ratio of one-to-four. When students must choose 25% of their total class time devoted to music in a single grading period, the potential for conflict has obviously increased. With a student who may participate in band and orchestra, band and chorus, chorus and orchestra, etc., the conflict has increased to a 50% potential. Therefore, the more class choices a student has simultaneously (the eight period form) the greater the potential for the student to enroll with less conflict (p. 19).

The conflict percentages indicated by Miles and Blocher do not consider services for students who are ENL, SWDs, or students requiring academic intervention. According to Merenbloom and Kalina (2013),

Besides RTI [response to intervention] considerations, accommodations to other special programs challenge the construction of a school's schedule: special education, gifted and talented, credit recovery, and small learning communities. To ensure effective implementation, these programs need to occur within a contractually determined time (p. 9).

Additional courses required for these groups of students would increase specific student conflict percentages. A student requiring daily resource room as a mandated special

education service for example would only have three additional courses in a 4 x 4 block schedule, increasing potential conflicts to 33.3%, or one-to-three. The Three-Day Rotation conflicts are reduced to 7.7% (one-to-thirteen) for a student with a standard course education program and 11.11% (one-to-nine) for a student requiring daily resource room. This scheduling framework theoretically permits all student groups to have access to two years of general music or three years of band, chorus and/or orchestra in addition to mandated services. Music teachers would have several periods in their schedules for music lessons/small-group pull-out instruction in addition to ensembles and general music. Additional benefits of the Equity Plan include: (1) The Three-Day Rotation provides an increase in instructional time beyond New York state mandates. New York state requires 1.0 units of study for math, science, English and social studies, and this schedule provides at least 1.5 units of study a year for all students; (2) Additionally, a total of 2.0 units of study are offered to the majority of students in English and mathematics in the form of English and math blocks; (3) All teachers have subject-area departmental common planning time every three days; (4) All SWDs and ENL students receive mandated services; (5) Students taking Regents level classes (high school courses) can also enroll in ensembles; and (6) Music teachers have “lessons” built into their schedules, allowing them to meet with students for small group-sectionals.

The current research available tends to be survey based, and indicates whether there is an increase or decrease in enrollment according to the surveys. Baker (2006) said, “few if any researchers have examined the relationship between retention and scheduling in a data-based manner (p. 8). The current study seeks to determine if there is a change in enrollment opportunities utilizing the Equity Plan Schedule Framework according to

school music enrollment data for all students and specific groups of students. This study reviewed music course enrollment participation rates using descriptive statistics for 11 years of scheduling data between two similar middle schools in the same diverse New York State public school district. Participation rates will be analyzed by population, including ENL, SWDs, gender, and ethnicity. Incorporating the Equity Plan has the potential to increase student opportunities for enrollment in arts education in secondary schools. If the Equity Plan does increase opportunities for enrollment in music courses, this framework would potentially prevent other schools from forcing students to choose between Advanced Place (AP)/honors and the arts, or take away arts opportunities because of mandated services. I believe that using the Equity Plan and having the support of the administration would likely increase equitable course enrollment in health, music, physical education, and visual arts throughout New York State and possibly the United States at large.

### **Equity & the Need for the Equity Plan Schedule Framework**

I was invited to collaborate with the building principal in Middle School 2 (MS2) to implement a schedule that meets the needs of all student groups for 2020–2021 school year. We met with the English as a new language (ENL) department and the department overseeing special education to better understand their needs. We also met with teachers, counselors, school administrators, district administrators and students. I learned through conversations that students in many cases were unable to participate in music and visual arts due to conflicting courses, particularly students with disabilities (SWDs), students in honors level courses and ENL students. This realization was deeply concerning for me because students had less opportunities to participate in music and

visual arts courses, which is a major equity issue. According to the National Equity Project (n.d.),

Educational equity means that each child receives what they need to develop to their full academic and social potential. Working towards equity in schools involves:

- Ensuring equally high outcomes for all participants in our education system removing the predictability of success or failures that currently correlates with any social or cultural factor;
- Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children; and
- Discovering and cultivating the unique gifts, talents and interests that every human possesses.

Creating the Equity Plan schedule framework and conducting this study was an opportunity to interrupt inequitable practices, create inclusive environments, and cultivate students' unique talents and interests. I immediately began drafting schedule frameworks for middle school. I quickly realized that a 4 x 4 block schedule has fewer instructional periods than a traditional alternating A/B day schedule, which would make this schedule unrealistic to increase access to courses. MS2 utilized a traditional alternating A/B schedule with 8 periods each day including lunch during the 2019-2020 year. Lunch was offered multiple periods due to the size of the middle school. I explored the idea of a triple alternating day (A/B/C) schedule, and I realized that a third day ameliorates conflicts, and adds opportunities for additional courses. This schedule's flexibility offers a school scheduler more opportunities to schedule students in an additional honors

course, music ensemble, or mandated services. The challenge was that the Three-Day rotation would not allow students to achieve the required units of study per the New York State Education Department because one course every three days in a 180 day school year is 60 days. For this reason, the bell schedule requires a shortened lunch period compared with the instructional period length to meet state mandated instructional time. The Equity Plan Schedule was developed, which includes a unique bell schedule, Three-Day rotation, and an intentional administrative strategy focusing on equitable course enrollment for student groups (Chapter 3, p. 95). To appropriately implement the Equity Plan, or any schedule, a scheduler must abide by all federal and state education requirements.

### **New York State Public School Requirements**

A middle school in New York State must utilize a schedule framework that meets state mandated “instruction in” requirements for grade 6, and mandated units of study for grades 7–8. Units of study are seat time requirements by the end of eighth grade, while units of credit require seat time and achievement for high school (New York State Education Department, 2019b). In grade 6 a middle school must offer instruction in: mathematics, English language arts (ELA), social studies, languages other than English (LOTE, may be offered by grade 8), the arts, career development and occupational studies, health education (may be offered by grade 8), physical education and family and consumer sciences (New York State Education Department, 2020a). The general education middle school program in New York State has several requirements to meet in a relatively short period of time between grades 7 and 8 (Table 3). Requirements are

**Table 3**

*New York State Unit of Study Requirements: Grades 7–8* (New York State Education Department, 2012; 2019b)

Subject	Required Units
English Language Arts	2
Social Studies	2
Science	2
Mathematics	2
Technology Education	1
Home & Career Skills	$\frac{3}{4}$
Physical Education	“Physical education as required by section 135.4(c)(ii) of Commissioner’s Regulations (basically, every other day)”
Health Education	0.5
Visual Arts	0.5
Music	0.5
Library	One Period Per Week
Languages other than English (LOTE)	2 (Started any time from K–8 and completed by grade 9)

*Note:* Adapted from New York State Education Department, 2012; 2019b. Copyright 2015–2019 by New York State Education Department.

based on “units of study.” A unit of study is 180 minutes of instruction per week throughout the school year, or the equivalent (New York State Education Department, 2018). Students must have at least two units of study in the following subjects between grades 7–8: English Language Arts, Social Studies, Science and Mathematics. At least one-half unit is required for physical education, health education, visual arts and music



between grades 7–8. Home & Career Skills require  $\frac{3}{4}$  unit of study and library requires one period per week between grades 7–8. Two units of study are required for languages other than English (LOTE). The LOTE requirement shall begin at any time from K–8 and be completed by grade 9 (New York State Education Department, 2012; 2019b). Students are also expected to receive one  $\frac{3}{4}$  units of study in Career and Technical Education. In addition to general program requirements, special considerations are required for ELLs, bilingual program students, SWDs, accelerated students and student interests. Students in Grade 8 are expected to have high school course opportunities. Grade 8 students are expected to have the option to take “high school courses in mathematics and in at least one of the following areas: English, social studies, languages other than English, art, music, career and technical education subjects, and science courses” (New York State Education Department, 2019b). There is an additional laboratory requirement of 1,200 minutes if a Grade 8 student desires to take a high school level science course ending in a Regents Examination (New York State Education Department, 2019i). Table 4 shows a traditional nine-period schedule for a

**Table 4**

*New York Middle School General Ed. Units of Study in a Nine-Period Day*

	Grade 7	Grade 8
1	English 1 Unit	English 1 Unit
2	Math 1 Unit	Math 1 Unit
3	Science 1 Unit	Science 1 Unit
4	Social Studies 1 Unit	Social Studies 1 Unit

5	Lunch	Lunch
6	Art 0.5 Unit/ Physical Education 0.5 Unit	Music 0.5 Unit / Physical Education 0.5 Unit
7	LOTE 1 Unit	LOTE 1 Unit
8	Health 0.5 Unit/ Library & Information Skills at Least Once a Week	Home & Career Skills $\frac{3}{4}$ Unit Library & Information Skills at Least Once a Week
9	Career & Technical Education 1 Unit	Career & Technical Education $\frac{3}{4}$ Unit/ $\frac{1}{4}$ Unit Available

general education student accounting for the required units of study. Table 4 expresses a challenge when the requirements are fit in two years of study. After including all mandated units, there is only  $\frac{1}{4}$  unit of flexibility for other courses remaining. What about diverse student needs? Scheduling all required courses and elective courses, or additional required services is not possible with this traditional nine-period schedule framework. Therefore, the traditional nine-period schedule framework schedule is problematic because students would be unable to take all courses if they had interests in taking science labs, music ensembles, or other courses. For this reason, the master scheduler must carefully consider the scheduling framework to be utilized in a school to best meet the needs of all students. Every framework has benefits and drawbacks. With scheduling there is rarely a perfect solution, there are only options and creativity. ENL students and bilingual program students may require additional services that further complicate a schedule (New York State Education Department 2013, 2015a; 2015b; New York State Department of Health, 2013).

***Requirements for English as a New Language Students***

English as a new language (ENL) students have unique scheduling requirements in New York State. Prior to creating a schedule, a determination must be made if a newly enrolled student is an ENL student. During initial school district registration, a Home Language Questionnaire screening is administered (New York State Education Department, 2015c). If the home language is not English an interview takes place to confirm that the home or language is not English by (1) A New York State certified bilingual or English to Speakers of Other Languages (ESOL) teacher fluent in the home language or uses a qualified interpreter/translator; or (2) A New York State certified trained teacher, who is proficient in the home language or utilizes a qualified interpreter/translator (New York State Education Department, 2019f). The New York State Identification Test for English Language Learners (NYSITELL) is administered upon confirmation that the home language is not English. If the child is determined to be an ENL students the test indicates one of the following four proficiency levels: entering (beginning), emerging (low intermediate), transitioning (intermediate) or expanding (advanced.) The student is not considered to be an ENL student if the test indicates that the student has a good command of spoken English, termed “commanding” (proficient) (New York State Education Department, 2015c). The student is then assessed yearly by taking the New York State English as a Second Language Achievement Test (NYSESLAT) (New York State Education Department, 2019h). ENL students may enter a bilingual education program (BE) with services in a native language and English including a transitional bilingual education program, dual-language program, one-way dual-language program or two-way dual-language program. Students may also be enrolled in an English as a New Language (ENL) program [formerly English as a Second

Language (ESL)]. ENL programs support English-language acquisition in English only (New York State Education Department, 2019g). Parents have the right to enroll children in a BE program if there are 20 or more students in a grade level that speak the same home/primary language. A school district must provide a BE program option if there are not enough students in a school to qualify and there are enough students in a school district (New York State Education Department, 2022, March 3). A student's proficiency level and program determine requirements for course instruction.

Students enrolled in an ENL program require 0.5 units of study to 2 units of study depending on their proficiency level in addition to general education requirements. One unit of study is equivalent to 180 minutes per week during a 180-day school year (Office of Bilingual Education and World Languages, 2015). There are five ENL proficiency levels, including Entering (beginning), Emerging (Low Intermediate), Transitioning (Intermediate) Expanding (Advanced) and Commanding (Proficient.) Entering and Emerging students require 2 units of study, Transitioning and Expanding students require 1 unit of study, and former ENL students who achieve the commanding (tested out) level must receive 0.5 units of study per year for an additional two years after testing out on the NYSESLAT (New York State Education Department, 2015a). The units of study are fulfilled by Stand-Alone ENL instruction and/or Integrated ENL instruction depending on the proficiency level (Table 5). Integrated ENL must be taught by either a dually certified teacher in ESOL and Common Branch (K–6) or Content Area (7–8). The requirements may also be satisfied with two co-teachers with each certification (New York State Education Department, 2015a). Entering and Emerging students must have both Stand-Alone and integrated ENL. Transitioning students may have solely integrated ENL, or a

combination of integrated ENL. Expanding and Commanding students may only have Integrated ENL (New York State Education Department, 2015a).

**Table 5**

*English as New Language Units of Study and Staffing Requirements* (New York State Education Department, 2015a)

English Proficiency Level	Entering (Beginning)	Emerging (Low Intermediate)	Transitioning (Intermediate)	Expanding (Advanced)	Commanding (Proficient)
ENL Instructional Time (Minimum)	2 Units of Study	2 Units of Study	1 Unit of Study	1 Unit of Study	0.5 Unit of Study
Stand-Alone ENL	1 Unit of Study in ENL (180 Min.)	0.5 Unit of Study in ENL (90 Min.)			
Integrated ENL	1 Unit of Study in ENL/ELA (180 Min.)	1.0 Unit of Study in ENL/ELA (180 Min.)	0.5 Unit of Study in ENL/ELA	1 Unit of Study in ENL/ELA or other Core Content Areas	
Flexibility		0.5 Unit of Study Can be Standalone or Integrated ENL/Core	0.5 Unit of Study Can be Standalone or Integrated ENL/Core		
Total Weekly Minutes	360 Minutes	360 Minutes	180 Minutes	180 Minutes	90 Minutes Former ENL continue services for two years

*Note.* Adapted from New York State Education Department, 2015a. Copyright 2015 by New York State Education Department.

### ***Requirements for Transitional Bilingual Program Students***

A school district may select the program model for bilingual education (transitional, dual language, one-way dual-language or two-way dual language) based on the needs and interests of a school community, and staffing. Parents may enroll children in a bilingual education (BE) program if there are 20 or more students in a grade level that speak the same home/primary language. A school district is required to offer a BE program option even if there are not enough students in a school to qualify when there are enough students in a school district (New York State Education Department, 2022, March 3). A transitional BE program includes scheduling mandates, and implementation of other BE models may vary according to district and school need (New York State Education Department, 2015b). Transitional bilingual students have the same ENL course requirements (see p. 15) for each of the proficiency levels (Entering, Emerging, Transitioning, Expanding, and Commanding), and also have additional requirements. Transitional BE students at the Entering through Expanding levels take a home language arts course (such as Spanish language arts if the native language is Spanish). Entering and Emerging students must be scheduled for a minimum of two bilingual content subject areas such as math, science and social studies, while transitioning and expanding students must be scheduled for a minimum of one bilingual content area subject. In bilingual courses students must be taught by a certified common branch grade K–6 teacher with a bilingual extension, or a grade 7–8 content certified teacher with a bilingual extension. The home language arts course is taught by a certified language other than English teacher (New York State Education Department, 2015b). Students with unique scheduling needs require special scheduling considerations.

### ***Requirements for Students with Disabilities***

The Individuals with Disabilities Education Act (IDEA) is a federal statute that includes four parts: General Provisions, Assistance for All Children, Infants and Toddlers with Disabilities and National Activities to Improve Education of Children with Disabilities (Individual with Disabilities Education Act. (n.d.). According to IDEA (2017), “The State must have in effect policies and procedures to demonstrate that the State has established a goal of providing full educational opportunity to all children with disabilities, aged birth through 21, and a detailed timetable for accomplishing that goal.” The New York State Department of Health (2013) defines special education as “specifically designed individualized or group instruction or special services or programs to meet the unique needs of SWDs. Special education services and programs are provided at no cost to the parent.” Schools are permitted to offer special education support and services to promote meaningful access, participation and progress in the general curriculum. The required services for each child are contained in the Individualized Education Program (IEP) document (New York State Education Department, 2013). Part 104 of Section 504 of the Rehabilitation Act of 1973 requires schools receiving federal funding to meet the individual needs of handicapped persons (United States Department of Education, n.d.). Examples of disabilities that may entitle an individual to have a 504 plan includes asthma or diabetes (Monroe 2-Orleans Board of Cooperative Educational Services, n.d.). IEP disability classifications include autism, deafness, deaf-blindness, emotional disturbance, hearing impairment, intellectual disability, learning disability, multiple disabilities, orthopedic impairment, other health-impairment, speech or language impairment, traumatic brain injury and visual impairment (New York State Education

Department, 2010). A school master scheduler must know and understand the legal implementation requirements for each service to be included in a schedule.

SWDs with a 504 plan are placed in the regular educational environment unless it is not appropriate to the needs of the student. “A recipient [school/academic setting] shall place a handicapped person in the regular educational environment operated by the recipient unless it is demonstrated by the recipient that the education of the person in the regular environment with use of supplementary aids and services cannot be achieved satisfactorily (United States Department of Education, n.d.). A special education student with an IEP may receive one or a combination of services to meet their needs. Consultant teaching (CT) services may be direct or indirect services for students participating in general education courses, and are not a pull-out service. A certified special education teacher provides the CT service, and must co-plan with the general education teachers to implement needed support (New York State Education Department, 2013). A resource room program is designed to supplement (not replace) the general education or special education class for a student with disabilities. Resource room meets daily in an individual or group setting (New York State Education Department, 2013). Related services include developmental, corrective and supportive services. These services include, but are not limited to:

Speech-language pathology, audiology services, interpreting services, psychological services, physical therapy, occupational therapy, counseling services, including rehabilitation counseling services, orientation and mobility services, evaluative and diagnostic medical services to determine if the student has a medically related disability, parent counseling and training, school health



services, school nurse services, school social work, assistive technology services, appropriate access to recreation, including therapeutic recreation, other appropriate developmental or corrective support services, and other appropriate support services and includes the early identification and assessment of disabling conditions in students (New York State Education Department, 2013).

Integrated co-teaching (ICT) services include both a general and special education teacher co-teaching together. ICT is offered to a group of SWDs and nondisabled students in the same class. The maximum number of SWDs permitted in an ICT class is 12 (New York State Education Department, 2013). A special class is a more restrictive environment than ICT, and includes SWDs who are grouped together because of similar needs in a smaller class size. Students in a special class do not receive primary instruction with their nondisabled peers. A 12:1+1 special class would include a maximum of 12 students, one special education teacher and one teaching assistant. An even more restrictive environment is a 12:1+3:1, which includes a teacher, and an additional staff to student ratio of three students per staff member. Additional staff may include teachers, teaching assistants, services providers or teaching aides. Class sizes are unique to the needs of the students. Higher management needs may result in a smaller class size. Examples of special class sizes are 12:1, 6:1+1, 8:1+1 (New York State Education Department, 2013). A teaching assistant (TA) may assist in providing special education instructional services and may not replace the teacher. A TA may work with groups of students, assists with planning and supports instruction. A teacher aide may perform non-instructional duties such as assisting in physical care and health related needs, assist with behavioral/management needs, supervise students, manage records, read to students, etc.

(New York State Education Department, 2013). A Committee on Special Education (CSE) meeting is held to determine eligibility for special education services.

Children thought to have a disability from ages 3-21 are referred to a multidisciplinary team (e.g., teachers, psychologists and therapists.) This team conducts student evaluations to determine if special education services are needed (New York State Department of Health, 2013). If the child has a disability and requires services the CSE will recommend services in the least restrictive environment. According to United States Code §1412 State eligibility:

To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (Office of the Law Revision Counsel United States Code, 1975).

An example of a more restrictive setting includes smaller class sizes with additional support from teachers, aides, service providers and teaching assistants (special class). A less restrictive environment could be a student being scheduled in general education courses with a daily resource room for support. The CSE will create an IEP document that includes all required services and information for service providers (New York State Education Department, 2013). A school master scheduler is legally required to program all students with special education services listed in the IEP document. The CSE will

meet once a year for an annual review to determine if changes are necessary to a child's program. Additionally, special education students are reevaluated every three years, unless there is a specific need for an earlier reevaluation (New York State Education Department, 2002). Special education students may require one or more services and a unique schedule to meet their needs. The special education programming is in addition to state required middle school units of study in the state of New York. A master scheduler is also responsible to meet the scheduling needs of bilingual and English as a New Language (ENL) students. Similar to services for special education students, ENL and bilingual services are in addition to the general education program requirements.

***Equitable Scheduling Considerations for Student Groups.***

Bilingual, English as a new language (ENL) and students with disabilities (SWDs) often have additional mandated courses that general program students (students without disabilities and are native English speakers) do not have. Common schedule frameworks include a traditional schedule, block schedule and modified block schedule. A traditional or traditional fixed schedule framework uses six to eight instructional periods (typically) of equal length throughout the school year or for a semester (Williamson, 2010.) The "Basic 4/4" or "4 x 4 Block Schedule" is a framework in which students enroll in four classes with approximately 90-minute instructional periods for alternating semesters or a half-year (Canady & Rettig, 1995; Great Schools Partnership, 2013.) A "modified block" refers to a block schedule that has an alteration to the standard 4 x 4 block schedule (Blocher, 1997.) All courses must fit within a school day regardless of the schedule framework used. For general education students, scheduling conflict ratios are higher in block schedules than traditional schedules. According to Miles &

Blocher (1996), “the more class choices a student has simultaneously (the eight period form) the greater the potential for the student to enroll with less conflict” (p. 19). This scheduling conflict issue is exacerbated when students require additional services. Conflict potential increases even more if a student requests an ensemble and requires mandated services. Potential schedule conflicts are reduced in a traditional schedule as opposed to a 4 x 4 block schedule. According to Miles & Blocher (1996),

The potential conflict with other classes that meet simultaneously for an eighth-period day is 12.5% or a ratio of a one-to-eight potential. The conflict with a four-period day is 25% or a ratio of one-to-four. When students must choose 25% of their total class time devoted to music in a single grading period, the potential for conflict has obviously increased. With a student who may participate in band and orchestra, band and chorus, chorus and orchestra, etc., the conflict has increased to a 50% potential. Therefore, the more class choices a student has simultaneously (the eight period form) the greater the potential for the student to enroll with less conflict (p. 19).

Miles & Blocher are referring to conflict ratios for a general education program student. SWDs and ENL students would have even higher conflict ratios because they would in many cases have to fit more courses in the same number of periods. If a general program student has a traditional schedule and seven classes, what would happen for ENL students or SWDs, who require an eighth class? Creating time is not possible, so a class would have to be removed. This conflict ratio of 14.3% for a general education student in a traditional schedule quickly becomes a conflict ratio of 17%, because one course has to be eliminated

automatically for a student requiring an ENL course or daily resource room. A 4 x 4 block schedule has a conflict ratio of 25% for a general education student, and a potential conflict ratio of 33% for SWDs and ENL students. This is before considering the addition of an elective ensemble! The issue intensifies if students have multiple classifications (e.g. ENL and SWD) requiring multiple additional courses. The conflict ratios will increase even more if a student has multiple educational needs. Although there are limited studies available reviewing student groups and music enrollment, there is evidence that ENL students and SWDs have lower high school music participation rates than general education students (Elpus, 2014; Elpus & Abril, 2011). Because conflict ratios are lower in traditional schedules, utilizing traditional schedule may be in the best interests of students to offer more opportunities for music and other elective courses. ENL students and SWDs have a higher chance of being excluded from music-courses due to mandated services that conflict with elective course offerings. New York State special education students and ELLs in middle school have unique scheduling needs based on federal and state regulations (Individual with Disabilities Education Act, n.d.; New York State Education Department, 2013, 2019).

Principals and schedulers have to make difficult decisions: “Do I prioritize state and federal mandates to comply with policy and law, or do I prioritize elective courses because I believe they are important?” I chose a third option: Create a schedule framework (the Equity Plan) that reduces conflict ratios for students requiring additional services, create equitable opportunities for elective course offerings, increase instructional time for math, science, English and social students and offer an integrated

academic intervention program using math and English blocks. During the 2020–2021 school year a building principal agreed to implement a schedule framework that I created called the Equity Plan in a diverse New York middle School. The Equity Plan is a traditional schedule with a Three-Day rotation (A/B/C) using an intentional administrative strategy focusing on equitable course opportunities. This schedule reduces conflict ratios, and with an administrative strategy focusing on equity, I hypothesized that the data would show an increase in equitable course enrollment for health, music, physical education, and visual arts course enrollment compared to other implemented schedules during previous years. I recommend research on the impact of implemented schedule frameworks and music enrollment by student groups. The current research will add to the body of available literature and uncover which frameworks are providing equitable opportunities, and which are excluding student groups from music.

### **Research Questions**

This study seeks to analyze student enrollment in music courses with an implementation of the Equity Plan schedule framework and variations of traditional alternating day schedules. The traditional schedule has a lower conflict ratio than a block schedule (Miles & Blocher, 1996, p. 19), making it the ideal schedule to compare with the Equity Plan, which can also be considered a traditional alternating day schedule. The current study included the following alternating day traditional schedules: 6 Day Rotation (A–F Day), 4 Day Rotation (A–D Day), 3 Day Rotation (Equity Plan, A–C Day), and 2 Day Rotation (A/B). This analysis revealed which of the implemented middle school schedules had an equitable distribution of student group enrollment in health, music, physical education, and visual arts courses. Student enrollment was analyzed for the

following groups in two middle schools with similar enrollment and demographics in public New York Middle Schools within the same district: English as a new language (ENL), students with disabilities (SWDs), gender, and ethnicity.

1. How equitable is each implemented schedule framework for health, music, physical education, and visual arts course enrollment for the following student groups: English as a New Language (ENL), students with disabilities (SWDs), gender, and ethnicity?
2. How equitable are implemented schedule frameworks on average for health, music, physical education, and visual arts course enrollment for ENL students, SWDs, gender, and ethnicity?

### **Definition of Terms**

Definitions may be specific to a state, and may differ from the definitions included in this section. Terms that are state-specific are based on New York State.

**4 x 4 Block (Basic 4 x 4 Block).** A schedule framework with four classes that have approximately 90-instructional minutes throughout the year or semester.

**75-75-30 Schedule.** A schedule framework with a modified block period structure and a trimester schedule (fall, winter, and spring) lasting 75 days, 75 days and 30 days.

**75-15-75-15 Schedule.** A schedule framework with a modified block period structure and four quarters lasting 75 days, 15 days, 75 days and 15 days.

**80(10)-80(10) Schedule.** A schedule framework with a modified block period structure and four quarters lasting 80 days, 10 days, 80 days and 10 days.

**504 Plan.** Part 104 of Section 504 of the Rehabilitation Act of 1973 requires schools receiving federal funding to meet the individual needs of people with handicaps

persons (United States Department of Education, n.d.). The required accommodations are included in the student’s 504 Plan.

**Academic Intervention Services (AIS).** Instructional support services provided in mathematics and English. Need is determined by grade 3–8 New York State assessments.

**Alternating-day.** A scheduling pattern in which some or all courses are offered on different days in a repeated pattern. Day patterns can be customized according to need. Examples of patterns include: A/B, A/B/C, ABCD, ABCDEF and Monday–Friday.

**Basic 4/4 Block (4 x 4 Block).** A schedule framework with four classes that have approximately 90-instructional minutes throughout the year or semester.

**Carnegie Unit.** “A total of 120 hours in one subject—meeting 4 or 5 times a week for 40 to 60 minutes, for 36 to 40 weeks each year—earns the student one ‘unit’ of high school credit. Fourteen units were deemed to constitute the minimum amount of preparation that could be interpreted as ‘four years of academic or high school preparation’” (Carnegiefoundation.org, 2022)

**Composite Block (Hybrid Schedule).** A schedule framework with a combination of a traditional- and block-schedule-period lengths within the same day. This framework can also be considered a modified block.

**Copernican Plan.** A schedule framework using four-hour “macroclasses” eliminating passing time with six terms of 30 days. Another variation offers two macroclasses per trimester for approximately two hours per course.

**Commanding (English as a New Language Tested out).** A former English as a new language (ENL) student who tested at the proficient level on the most recent New



York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Commanding students receive 0.5 units of study in English as a New Language services for two years after scoring at the proficient level.

**Credit.** A unit measuring course achievement based on 108 hours of instruction.

**English as a New Language (ENL).** ENL depending on context, refers to services for English language learners (ELLs), teacher certification or student language learner status. ENL students require specific ENL courses based on student proficiency levels

**English as a New Language Integrated ENL Course.** ENL services offered in the English language arts course. Services can be provided by a dually certified teacher (certified in English to speakers of other languages and common branch (K–6) or content area) or two individually certified teachers.

**English as a New Language Proficiency Levels.** There are five levels of proficiency determined by the New York State Identification Test for English Language Learners (NYSITELL) and the New York State English as a Second Language Achievement Test (NYSESLAT). Entering (beginning), Emerging (low intermediate), Transitioning (Intermediate), Expanding (Advanced) and Commanding (Proficient). Each level requires ENL instructional time between 90 and 360 minutes per week (0.5–2.0 units of study). Commanding receives services for two years after achieving this proficiency level.

**English as a New Language Stand-alone Course.** A service provided to Entering and Emerging ENL students (180 minutes per week). ENL stand-alone may also satisfy half the requirements (90 minutes per week) for students at the Transitional level.

**English as a New Language Tested out (Commanding).** A former English as a new language (ENL) student, who tested at the proficient level on the most recent New York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Commanding students receive 0.5 units of study in English as a New Language services for two years after scoring at the proficient level.

**English Language Learner.** Students who are learning English and are non-native speakers. English as a new language (ENL) student status is determined by a Home Language Questionnaire and the New York State Identification Test for English Language Learners (NYSITELL).

**Emerging.** An English as a new language (ENL) student, who tested at the low intermediate level on the most recent New York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Emerging students receive 2.0 units of study per week (360 minutes) of English as a New Language (ENL) services.

**Entering.** An English as a new language (ENL) student, who tested at the beginning level on the most recent New York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Entering students receive 2.0 units of study per week (360 minutes) of English as a new language (ENL) services.

**Equitable Course Enrollment Standard.** No more than a 5% difference in course enrollment between student groups. If there are two variables (such as students with and without disabilities) equitable course enrollment is defined as no more than a difference of 5% in enrollment between the groups. If there are multiple variables (such as ethnicity) a student group is considered to have equitable enrollment in a particular course if the difference in enrollment representation is no less than 5% for the group than the total population during a particular year. If the difference is less than 5% and one group has 0% representation, this is not considered equitable.

**Equity.** Offering what an individual requires to meet their needs based on unique circumstances.

**Equity Plan.** A schedule framework using a seven-period instructional day, 54-minute instructional-periods, Triple Alternating-Day rotation (A/B/C), shortened lunch, and an intentional administrative strategy focusing on equitable course enrollment for students.

**Expanding.** An English as a new language (ENL) student, who tested at the advanced level on the most recent New York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Expanding students receive 1.0 unit of study per week (180 minutes) of English as a New Language (ENL) services.

**Five Block.** A modified block schedule using five 70-minute periods. Period length may be adjusted according to need.

**Fixed Schedule (Traditional Schedule).** A schedule using instructional periods that are usually equal in length. Courses may be offered for a full year or a semester. Course periods generally range from 40 to 60 minutes.

**Highly Represented Enrollment.** A group that is more than a 5% greater in course enrollment between student groups.

**Hybrid Schedule (Composite block).** A combination of a traditional- and block-schedule period lengths within the same day. This framework can also be considered a modified block.

**Individual Education Program (IEP).** Documented, required services for students with disabilities (SWDs).

**Integrated Co-Teaching (ICT).** ICT is an instructional model which includes disabled and non-disabled peers in the same classroom. This model requires two certificated teachers (one content area teacher and one special education teacher).

**Middle School 1 (MS1).** This middle school in New York with diverse grade 6–8 students implemented traditional 6 alternating day (A–F) schedules from the 2009–2010 academic year through the 2021–2022 academic year. MS1 did not implement the Equity Plan schedule framework.

**Middle School 2 (MS2).** This middle school in New York with diverse grade 6–8 students implemented schedule framework including: traditional A/B, traditional alternating 4 day (A–D), traditional alternating 6 day (A–F) and the Equity plan from the 2009–2010 academic year through the 2021–2022 academic year.

**Modified Block.** Any block schedule framework that is altered from the 4 x 4 block schedule.

**New York State English as a Second Language Achievement Test**

(**NYSESLAT**). An examination offered once a year to determine English as a new language (ENL) student proficiency levels.

**New York State Identification Test for English Language Learners**

(**NYSITELL**). The examination which determines an English language learner's (ELL's) initial English as a New Language (ENL) proficiency level.

**Parallel Block.** A block scheduling strategy to align content area teacher schedules (such as English teachers). This strategy permits flexibility with student instructional groups between teacher classes.

**Quarter.** A division of an academic year into four periods. A summer session term is typically considered separately.

**Related Services.** Related services include developmental, corrective and supportive services. These services include, but are not limited to:

Speech-language pathology, audiology services, interpreting services, psychological services, physical therapy, occupational therapy, counseling services, including rehabilitation counseling services, orientation and mobility services, evaluative and diagnostic medical services to determine if the student has a medically related disability, parent counseling and training, school health services, school nurse services, school social work, assistive technology services, appropriate access to recreation, including therapeutic recreation, other appropriate developmental or corrective support services, and other appropriate support services and includes the early identification and assessment of disabling conditions in students (New York State Education Department, 2013).

**Semester.** A division of an academic year into two periods. A summer session term is typically considered separately.

**Section.** A course section indicates a unique group of students within the same course. The course “Digital Music” for example, may have multiple course sections, or groups of students.

**Schedule Framework.** A combination of elements that make up a school schedule. Elements include, but are not limited to: semester, period length, period count, day rotation, administrative strategy and terms. The combination of elements determines the type of schedule framework such as traditional, block, Equity Plan, etc.

**Special Class.** Special class includes a group of students with disabilities (SWDs) with similar needs.

**Special Education.** “Specifically designed individualized or group instruction or special services or programs to meet the unique needs of SWDs. Special education services and programs are provided at no cost to the parent” (New York State Department of Health, 2013).

**Student Groups.** In this study student groups refer to: all students, English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity.

**Students with disabilities.** An individual education program disabilities classification includes autism, blindness, deafness, deaf-blindness, emotional disturbance, hearing impairment, intellectual disability, learning disability, multiple disabilities, orthopedic impairment, other health-impairment, speech or language impairment, traumatic brain injury and visual impairment (New York State Education Department,

2010). Additional disabilities included in Part 104 of Section 504 of the Rehabilitation Act of 1973 includes other disabilities including, but not limited to asthma and diabetes.

**Teaching English to Speakers of Other Languages. (TESOL)** Specially designed instruction, courses and teacher certification to support English language learners (ELLs).

**Terms.** A division of an academic year. Typical terms include quarters, trimesters, semesters and summer terms.

**Transitional Bilingual.** An English language learner (ELL) bilingual program with services in a native language. This program includes English as a New Language (ENL) courses in addition to native language arts and a limited amount of bilingual content area subjects.

**Transitioning.** An English language learner (ELL), who tested at the intermediate level on the most recent New York State Identification Test for English Language Learners (NYSITELL) or New York State English as a Second Language Achievement Test (NYSESLAT). Transitioning students receive 1.0 unit of study per week (180 minutes) of English as a New Language (ENL) services.

**Traditional Schedule (Fixed Schedule).** A schedule using instructional periods that are usually equal in length. Courses may be offered for a full year or a semester. Course periods generally range from 40 to 60 minutes.

**True Equitable [Course] Distribution.** The same percentage of enrollment for all groups in a particular course.

**Trimester.** A division of an academic year into three periods. A summer session term is typically considered separately.

**Triple Alternating-Day (A/B/C Alternating Day).** A Three-Day alternating-day rotation pattern. This pattern repeats until the end of the school year. Each day in the rotation has 60 instructional days over the course of a 180-day school year.

**Underrepresented Enrollment.** A group with more than a 5% difference in course enrollment between student groups.

**Unit of Study (Seat Time).** The equivalent of 180 minutes a week of instruction during a 180-day school year.

### **Limitations**

This study is limited to available data and school willingness to implement the Equity Plan schedule framework. The Institutional Review Board process and data use agreement negotiations made this study challenging to pursue. An agreement of terms between the Arizona State University Office of Research & Sponsored Projects Administration, Proposals and Negotiations; and the New York based school district took approximately one year. The school district understandably wants to ensure that the data for this study is appropriately protected. There is one school that implemented the Equity Plan during two academic years (2020–2021 and 2021–2022) in the school district, and there is another school within the district with comparable demographics that did not implement the Equity Plan. This study should be replicated; however, a researcher would have many barriers. A school principal would have to agree to use the Equity Plan schedule framework, which would likely result in a complete overhaul of the schedule. The school district would have to agree to allow a researcher access to the aggregated, de-identified enrollment and scheduling data. The work of the researcher, principal, school-building staff, contract officers, attorneys and data team are tremendous. The



school district had 45 days to read this dissertation to ensure that the data are appropriately protected (APPENDIX B). I am grateful that the school district afforded me the ability to pursue this study. I am fortunate to have this opportunity.

Elpus and Abril (2011) analyzed 14,900 high school transcripts from the National Center for Education Statistics (NCES), and found that native English speakers were overrepresented in music course enrollment and native Spanish speakers were underrepresented by a ratio of approximately 2:1. Elpus (2014) reviewed NCES and National Assessment of Education Progress (NAEP) data and found that music-course enrollment declined for English language learners (ELLs) and SWDs since the enactment of the No Child Left Behind Act. This type of large-scale study is not possible with the Equity Plan schedule framework at this time the current study is the first time the Equity Plan schedule was implemented and researched. After a thorough review of literature, this Equity Plan study is the first to review student middle school health, music, physical education, and visual arts course enrollment by student groups, and compare two comparable schools to determine how equitable a particular framework is with student data. Several studies rely on surveys of what people think the enrollment trends are, and the current study goes beyond perception with 11 years of school based schedule data. This study is designed to go beyond naming the problem and aims to provide a solution to the opportunity gap with course enrollment. I am hopeful that a large-scale study will be possible in the future so there is larger awareness of the possibilities that the Equity Plan offers, and schools elect to implement this framework.

## **Procedures**

This study required the development and implementation of the Equity Plan schedule. Detailed information regarding my development and implementation of the Equity Plan in collaboration with the MS2 staff is included in Chapter 3. The data set in this study is from two New York State public middle schools, Middle School 1 (MS1) and Middle School 2 (MS2). The data set contains 19,822 student schedules on a Google Sheet (spreadsheet similar to Excel), and includes 11 academic years in two schools for a total of 22 middle school populations. There are multiple comparison variables including: all students, English as a new language (ENL) status, disability status, no status (i.e. students without a disability, or not a language learner), gender, ethnicity, grade level, coded student identification numbers, course identification numbers, course numbers, course names, course departments, course terms, school end years, and coded school names. Descriptive statistics are used in this study. Data are analyzed utilizing the mean and difference of student group enrollment percentages for each of the 22 implemented schedules at MS1 and MS2 over 11 years.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of this study is to determine how implemented schedule frameworks impacted health, music, physical education, and visual arts course enrollment for all students, and four equity variables of students: English as a new language (ENL), students with disabilities (SWDs), gender, and ethnicity. This chapter includes information regarding how the Committee of Ten and the Carnegie Unit influenced secondary school schedules throughout the United States. This research review includes the impact schedules may have on music course enrollment for diverse groups, and the impact a schedule may have on academic achievement, dropouts, attendance, discipline and perceptions of students, teachers and administrators on implemented schedules. Schedule frameworks such as the traditional schedule, 4 x 4 block and a modified block are generally represented in research literature and reviewed in this chapter. The less common frameworks to be included, so a scheduler can become aware of and consider less common and unique ideas to meet the interests and needs of all students.

#### **The Committee of Ten's Influence on Course Offerings**

High school course requirements in the United States were not standardized in 1892 (Gorman, 1971, p. 112). According to Kober and Rentner (2020):

In the early years of the nation, schooling was haphazard. Many children were excluded on the basis of income, race or ethnicity, gender, geographic location, and other reasons. The children who did receive instruction, primarily white children, were educated through a hodgepodge of arrangements:

- Church-supported schools

- Local schools organized by towns or groups of parents
- Tuition schools set up by traveling schoolmasters
- Charity schools for poor children run by churches or benevolent societies
- Boarding schools for children of the well-to-do
- “Dame schools” run by women in their homes
- Private tutoring or home schooling
- Work apprenticeships with some rudimentary instruction in reading, writing and arithmetic. (p. 1)

In 1830, approximately 55% of school-aged children were enrolled in public schools. By 1870, approximately 78% of children were enrolled in public schools (Neem, 2017, p. 177). Non-white groups were often not able to access public schooling or were segregated until after the Civil War. Schools did not always have full access to education, and when granted access, may not have had the same curriculum as boys. Students with disabilities were also excluded from educational opportunities (Kober & Rentner, 2020, pp. 1–4).

The United States Commissioner of Education, William T. Harris, describes the situation similarly:

It has been agreed on all hands that the most defective part of the education in this country is that of secondary schools. There is a wide divergence in the course of study, and the difference of opinion regarding what constitutes a secondary education works injury not only to the elementary schools by setting up an uncertain standard of admission, but also through a want of proper requirements

for graduation prevents in thousands of cases the continuance of the course of education of youth in colleges and universities.” (Eliot et al., 1893, pp. I–II)

This lack of consistency in course requirements for secondary students permitted school principals and school schedulers to have relatively unlimited flexibility in course offerings and seat time. The erratic nature of schedules from one school to the next made the comparison of students challenging for colleges because of the inconsistencies in education programs (Gorman, pp. 112–113). One school might offer a course for five days a week, while the same course would meet for two days elsewhere. The inconsistent scheduling practices made curriculum planning challenging at the elementary school level because each secondary institution could potentially have a completely different instructional focus.

This led to the founding of the Committee of Ten on Secondary Studies. *The Report of the National Education Association Committee of Ten* greatly contributed to high school standardization in the United States. The all-male Committee of Ten included:

Charles W. Eliot, President of Harvard University, Cambridge Mass., *Chairman*.

William T. Harris, United States Commissioner of Education, Washington, D.C.

James B. Angell, President of the University of Michigan, Ann Arbor, Mich.

John Tetlow, Head Master of the Girls’ High School and the Girls’ Latin School,  
Boston, Mass.

James M. Taylor, President of Vassar College, Poughkeepsie, N.Y.

Oscar D. Robinson, Principal of the High School, Albany N.Y.

James H. Baker, President of the University of Missouri, Columbia, Mo.

Richard H. Jesse, President of the University of Missouri, Columbia, Mo.

James C. Mackenzie, Head Master of the Lawrenceville School, Lawrenceville,  
N.J.

Henry C. King, Professor in Oberlin College, Oberlin, Ohio. (Eliot et al., 1893,  
p.4)

President Eliot and the Committee's report was distributed by Commissioner of Education Harris (Gorman 1971, pp. 113–114). Report recommendations included eliminating excessive elective courses in a variety of areas and to focus on five or six academic areas in high school. According to Gorman (1971):

The source of President Eliot's highly motivated interest in the secondary school was a strong feeling that young men could profitably start and finish their college careers earlier. He complained that Harvard's typical freshman was nineteen years old, that there was too much dallying in the twelve, in some places thirteen, years of public school education. The chaff, he said, should be winnowed out, and the young man should enter college a full year earlier. While he complained "Uniformity is the curse of American schools," it was his work, ideas, and influence, perhaps more than of any other single man, that led to the introduction of much greater uniformity in the machinery of operation in the nation's high schools. (p. 113)

Eliminated "chaff" or unnecessary coursework would promote standardization and timely completion of a course of study. According to Gorman (1971) the report was controversial by both the political right and left and was debated for more than a decade (p. 115). The political right felt the report gave "reckless latitude to the elective system,

while those on the political left saw it as a blueprint for the ruthless domination of the secondary school by the colleges and universities” (p. 115).

On November 9, 1892 The Committee of 10 organized nine conferences in “1. Latin; 2. Greek; 3. English; 4. Other Modern Languages; 5. Mathematics; 6. Physics, Astronomy, and Chemistry; 7. Natural History (Biology, including Botany, Zoölogy, and Physiology); 8. History, Civil Government, and Political Economy; 9. Geography (Physical Geography, Geology, and Meteorology)” (Eliot et al., 1893, p. 5). Each conference had ten members selected, for a total of 90 individuals (p. 5), and 88 individuals ultimately participated in the conferences (p. 7). The following questions were used to guide the discussions scheduled to take place on December 28, 1892:

1. In the school course of study extending approximately from the age of six years to eighteen years—a course including the periods of both elementary and secondary instruction—at what age should the study which is the subject of the Conference be first introduced?
2. After it is introduced, how many hours a week for how many years should be devoted to it?
3. How many hours a week for how many years should be devoted to it during the last four years of the complete course; that is, during the ordinary high school period?
4. What topics, or parts, of the subject may reasonably be covered during the whole course?
5. What topics, or parts, of the subject may best be reserved for the last four years?

6. In what form and to what extent should the subject enter into college requirements for admission? Such questions as the sufficiency of translation at sight as a test of knowledge of a language, or the superiority of a laboratory examination in a scientific subject to a written examination on a text-book, are intended to be suggested under this head by the phrase “in what form.”
7. Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?
8. At what stage should this differentiation begin, if any be recommended?
9. Can any description be given of the best method of teaching this subject throughout the school course?
10. Can any description be given of the best mode of testing attainments in this subject at college admission examinations? (Eliot et al., 1893, p. 6).

The Committee of Ten planned to discuss age appropriateness, instructional time, specific topics, college requirements, course design for students who are college-bound versus not college bound, pedagogy and college entrance exams. The Committee of Ten excluded music and arts from their guiding questions and from the nine conferences as represented subject areas. “Anyone who reads these nine reports consecutively will be stuck with the fact that all these bodies of experts desire to have the elements of their several subjects taught earlier than they now are” (Eliot et al., 1983, p. 14). The Committee of Ten made no mention of inclusion of music and arts in the section of the report titled “Time Demands of the Conference” (see Table 6, Table 7, and Table 8) (Eliot et al., 1983, pp. 34–35, 37). The Committee of Ten made specific



recommendations for subjects to be taught during Grades 1–12, instructional time, and offered a detailed recommendation for the high school course sequence.

The effects of this report could have impacted scheduling requirements even as late as 2022. In New York State for example, students in middle school (grades 7–8) require a half unit of study in music, while English requires two units of study (New York State Education Department, 2019b). In New York high schools (Grades 9–12) the English requirements include four credits for English (2019a) and one English Language Arts Regents Exam (2021). Visual arts, music, dance, and/or theater requires one credit (2021), so a student may or may not take a majority of Arts courses in high school at all. I believe music and arts in general would have more representation in schools in 2022 had the Committee of Ten believed that music and arts were important 130 years ago, or if the Committee of Ten, was instead, the Committee of Eleven, which included arts. The “Time Demands of the Conference” would be a strong reference point for principals and master schedulers to consider when a master schedule is being created. Although there is some flexibility in the proposed times and course offerings, the recommendations if adopted would limit the scope of scheduling options. Music would likely be offered if the master scheduler believed it should be included, or if a community advocated for the inclusion of music in the public schools. I learned of the Committee of Ten recently because of research for this dissertation. This is my tenth year as a school administrator involved in school master scheduling and scheduling coaching, and the Committee of Ten’s influence has never been a topic of conversation among administrators.



Subject.	Elementary Grades– Primary and Grammar School.							
	1st Yr Age 6–7	2d Yr 7–8	3d Yr 8–9	4th Yr 9–10	5 <sup>th</sup> Yr 10–11	6 <sup>th</sup> Yr 11–12	7 <sup>th</sup> Yr 12–13	8 <sup>th</sup> Yr. 13–14
1. Latin					Reasons given for beginning Latin earlier than is now the custom.			
2. Greek.						Latin to be begun a year before Greek.		
3. English.	Pupils to reproduce orally stories told them, to invent stories and describe objects.		Supplementary reading begun– and continued through all the grades. Composition begun – writing narratives and description – oral and written exercises on forms and the sentence.			From this grade no reader to be used.		Grammar, 3 p. a wk.
4. Modern Languages.					Elective German or French			
					5 p. a wk.	4 p. a wk.	3 p. a wk. at least.	
5. Mathematics.	Arithmetic during first eight years, with algebraic expressions and symbols and simple equations – no specific number of hours being recommended.			Concrete Geometry, 1 p. a wk.				
6. Physics, Chemistry, and Astronomy.	Study of natural phenomena 5 p. a wk. Through first eight years by experiments, including physical measurements and the recommendations of Conferences 7 and 9.							
7. Nat. History	Through first eight years 2p. a wk., of not less than 30 minutes each, devoted to plants and animals; the instruction to be correlated with the language, drawing, literature, and geography.							
8. History					Biography & Mythology 3 p. wk.		American History and elements of civil government, 3 p. a wk.	Greek and Roman History, 3 p. a wk.
9. Geography	Time allotted in first eight years to equal that given to number work. The subject – the earth, its environment and inhabitants, including the elements of astronomy, meteorology, zoölogy, botany, history, commerce, races, religious, and governments.							
								Physical Geography

*Note.* “Abbreviations: p. = a recitation period of 40–45 minutes; wk. = week; yr. =year.” Adapted from “Eliot, C. et al., (1893). *Report of the committee [of ten] on secondary school studies appointed at the meeting of the national educational association July 9, 1892, with the reports of the conferences arranged by this committee and held December 28-30, 1892* (pp. 34–35). Government Printing Office. Retrieved March 7, 2022, from <https://archive.org/details/cu31924030593580>. In the public domain.

**Table 8**

*Time Demands of the Conference Secondary* (Eliot et al., 1893, pp. 34–35).

Subject.	Secondary School–High School or Academy			
	9 <sup>th</sup> Yr 14–15	10 <sup>th</sup> Yr 15–16	11 <sup>th</sup> Yr 16–17	12 <sup>th</sup> Yr 17–18
1. Latin	5 p. a wk.			
2. Greek.	Latin to be begun a year before Greek.	5 p. a wk.		
3. English.	Literature, 3 p. a wk. Composition, 2 p. a wk.		Literature, 3 p. a wk. Composition, 1 p. a wk. Rhetoric, 1 p. a wk.	
4. Modern Languages.	The language begun below, 4 p. a wk.	The same language, 4 p. a wk. Second language 4 p. a wk.		
5. Mathematics.	Algebra, 5 p. a wk.	Algebra or Bookkeeping and Commercial Arithmetic, 2½ p. a wk. Geometry 2½ p. a wk.		Trigonometry and higher Algebra for candidates for scientific schools.
6. Physics, Chemistry, and Astronomy.	Elective Astronomy, 5 p. a wk. 12 wks.		Chemistry, 5 p. a wk.	Physics, 5 p. a wk.
7. Nat. History	One yr. (which yr. not specified) 5 p. a wk. For botany or zoölogy. Half-yr. (late in course) anatomy, physiology, and hygiene, 5 p. a wk.			
8. History	French History 3 p. wk.	English History 3 p. wk.	American History 3 p. wk.	A special period intensively, and civil government 3 p. a wk.
9. Geography	(Physiography, geology, or meteorology at some part of the high school course. Possibly more than one of these where election is allowed.)		Elective Meteorology, ½ this year or next.	Elective geology or physiography, ½ yr.

*Note.* “Abbreviations: p. = a recitation period of 40–45 minutes; wk. = week; yr. =year.” Adapted from “Eliot, C. et al., (1893). *Report of the committee [of ten] on secondary school studies appointed at the meeting of the national educational association July 9, 1892, with the reports of the conferences arranged by this committee and held December 28-30, 1892* (pp. 34–35). Government Printing Office. Retrieved March 7, 2022, from <https://archive.org/details/cu31924030593580>. In the public domain.

## **The Carnegie Unit**

The Carnegie Unit was developed in 1906 according to the Carnegie foundation, however there is evidence of advocacy for the Unit prior to this time. The purpose of the Carnegie Unit was to utilize a standard time for a secondary course. “A total of 120 hours in one subject—meeting 4 or 5 times a week for 40 to 60 minutes, for 36 to 40 weeks each year—earns the student one ‘unit’ of high school credit. Fourteen units were deemed to constitute the minimum amount of preparation that could be interpreted as ‘four years of academic or high school preparation’” (Carnegiefoundation.org, 2022). The purpose of the Unit is to “afford a standard of measurement for the work done in secondary schools and thereby to facilitate transfer of credits between schools and colleges” (Tompkins & Gaumnitz, 1954, p. 5).

Andrew Carnegie was successful in convincing college and universities to adopt this credit system because of a financial incentive. According to Tompkins and Gaumnitz (1954):

Andrew Carnegie in 1905 gave \$10,000,000 to the trustees of the Carnegie Foundation for the Advancement of Teaching, the income from which was to provide retiring allowances for college professors in the United States, Canada, and Newfoundland. The trustees decided that these retiring allowances, or pensions, should be paid to the institution rather than to the person. In order to tell whether an institution could qualify to receive funds for their professors, the trustees had to define a “high school.” Thus, from its beginning, the Carnegie Foundation for the Advancement of Teaching, whose function was the dispensing of pensions to college professors, acquired an equally important function of

determining, and in a sense, compelling acceptance of “educational standards.” It announced that if a college could not qualify as a “college” according to the definition provided by the Carnegie Foundation, it could not receive retiring allowances for its professors. Since few colleges by 1905 had their own pensions or annuity funds, it was financially imperative for many of them to qualify to receive the income of the Carnegie fund for their retired and retiring professors. . . . It proposed that 14 units constitute the minimum amount of preparation to be interpreted as “4 years of academic or high-school preparation.” . . . Also, the Carnegie Foundation defined a high school as a 4-year preparatory institution not connected with, or part of, a college or university. . . . It proposed that an institution be ranked as a college if it (1) had at least 6 professors giving their entire time to college and university work, (2) had a course of 4 full years in liberal arts and sciences, and (3) required for admission not less than the usual 4 years of academic or high-school preparation, in addition to the pre-academic or grammar school studies. . . . Within a short time after 1909, practically all high schools measured their work in terms of the Unit defined by the Carnegie Foundation and approved by the College Entrance Examination Board. The action of regional accrediting associations in approving the Unit encouraged its wide adoption. (pp. 7–8)

The Carnegie Foundation for the Advancement of Teaching received approval by the College Entrance Examination Board in November 1909; however, the Board used the language “standard unit” as opposed to “Carnegie Unit” (p. 5). Four-year secondary schools increased from 2,526 in 1890, to 6,005 in 1900 and 10,213 in 1910 (p. 9). The

combination of the Committee of Ten’s time demands and instructional recommendations in combination with the Carnegie Foundation’s financial influence likely impacted this rapid shift in education. This shift is similar to the Common Core State Standards “near-universal adoption,” which included a federal government financial incentive of \$4.35 billion dollars in Race to the Top Funds (LaVenía et al., 2015, p. 145). LaVenía et al. were unable to determine whether states that adopted Common Core State Standards would have done so in the absence of the Race to the Top funding (p. 168). “Forty-one states, the District of Columbia, four territories, and the Department of Defense Education Activity (DoDEA) have adopted the Common Core State Standards” (corestandards.org, n.d.). There appears to be a pattern of large participation in educational changes when there is a financial incentive to do so. It is possible the changes would have occurred without the financial incentive; however, money may have influenced the decisions, and/or contributed to a prompt adoption of the changes.

Adoption of a Standard Unit throughout the United States would strongly impact scheduling practices. The Unit is a measurement of time for a satisfactorily completed course. With clearly defined times and course requirements, schedulers must determine which framework is the most appropriate to achieve the required Standard Units. The selected framework must accommodate the diverse needs of students. Schedulers must decide on required and elective courses to create a cohesive schedule that meets graduation requirements.

### **Schedule Frameworks**

There are several scheduling frameworks that a school leader should consider prior to developing a master schedule. Careful consideration must be taken when a

decision to select a schedule framework is to be made. According to Merenbloom and Kalina (2013):

A well-considered schedule incorporates eight aspects:

- A schedule is a means to an end and not an end unto itself.
- Based upon a fixed curriculum, the schedule includes offerings that are required or elective.
- Actual student requests, including needs-based placements, contribute to the student-centered approach of the schedule.
- Subject to opportunities for flexibility, the schedule defines the school.
- All students' needs warrant consideration.
- Teachers' needs for professional collaboration should be included.
- Discussions about schedules begin with the mission/vision statement of the school and, ultimately, match with it. (p. 3)

Sample schedules listed in this section include several options for schedule frameworks. Bell schedules, course offerings and frameworks in general can be modified according to the unique needs of a particular school. My goal is to share various frameworks that may be utilized, and not to list every possible schedule variation. A scheduler has the ability to adjust period times, course offerings, period structure, semester/trimester structure, daily schedule rotation, etc. according to federal, state, local and building specific needs.

Schedule frameworks to be discussed include: traditional, 4 x 4 block, The Equity Plan, 5 block, modified block, alternating day, hybrid, Hillcrest, parallel, Copernican, 75-75-30, 75-15-75-15, 80(10) 80(10), semester and trimester.



***Traditional or Fixed Schedule Framework.***

A traditional or traditional fixed schedule framework (Table 9) includes instructional periods (typically) of equal length throughout the school year or for a semester (Williamson, 2010, p. 4).

**Table 9**

*Traditional or Traditional Fixed Schedule Framework*

Traditional Seven-Instructional-Period Sample Student Schedule	
Period 1 (51 Minutes)	English
Period 2 (51 Minutes)	Social Studies
Period 3 (51 Minutes)	Art
Period 4 (51 Minutes)	Physical Education
Lunch	
Period 5 (51 Minutes)	Math
Period 6 (51 Minutes)	Science
Period 7 (51 Minutes)	Foreign Language

***The Basic 4/4 or 4 x 4 Block Schedule and Alternating Day.***

The “Basic 4/4” or “4 x 4 Block Schedule” (meets every day, and generally meets on alternating semesters) is a framework in which students enroll in four classes with approximately 90-minute instructional periods for alternating semesters, or a half-year (Great Schools Partnership, 2013). An alternating schedule has courses that do not meet every day, and generally meet on alternate days or semesters (Williamson, 2010, p. 4).

An alternating day rotation can be customized according to need, and can include every other day (A/B), every three days (A/B/C), once a week (M/Tu/W/Th/Fr), etc. A common alternating-day rotation schedule is the “A/B” or “alternating-day” block schedule (Table 11). The A/B schedule offers four classes per day, every other day, for a total of eight classes (Rettig & Canady, 2000, p. 47; Great Schools Partnership, 2013).

**Table 10**

*4 x 4 (Alternating Semester) Block Sample Student Schedule*

	Semester 1 (90 Days)	Semester 2 (90 Days)
Period 1 (90 Minutes)	English	Math
Period 2 (90 Minutes)	Social Studies	Science
Period 3 (90 Minutes)	Art	Music
Lunch		
Period 4 (90 Minutes)	Physical Education	Foreign Language

**Table 11**

*A/B or Alternating Day Block Sample Student Schedule*

	Monday A	Tuesday B	Wednesday A	Thursday B	Friday A
Period 1 (90 Minutes)	English	Math	English	Math	English
Period 2 (90 Minutes)	Social Studies	Science	Social Studies	Science	Social Studies
Period 3 (90 Minutes)	Art	Music	Art	Music	Art
Lunch					
Period 4 (90 Minutes)	Phys. Ed.	Tech.	Phys. Ed.	Tech.	Phys. Ed.

***The Equity Plan Schedule Framework***

The Equity Plan schedule framework (Table 12) concept was developed in the summer of 2020 by Vincent Brancato and proposed to the principal and administrative team at Middle School 2 (MS2). This is a traditional eight period schedule (including lunch), has a three-day alternating-day rotation (A/B/C), shortened lunch periods (35 minute lunch periods, compared with 54-minute instructional periods) and an intentional administrative strategy focusing on equitable course enrollment for all students. The schedule was developed because teachers and administrators indicated that English as a new language (ENL) students, students with disabilities (SWDs), and students in honors level courses had difficulty accessing health, mandated services, music, science labs, and visual arts courses. The shortened lunch periods maximize instructional time, while the three-day rotation permits additional scheduling flexibility a single unit lunch (common, school wide lunch for all students and most staff) or multiple lunch periods can be

utilized with the Equity Plan. Other schedules may independently have these features; however, the combination of these features is what allows a scheduler to meet state-mandated instructional minutes in New York for diverse learners including ENL students, SWDs, and students in honors level courses. The flexibility with the three-day rotation permits a scheduler to provide mandated services, accelerated course opportunities, extended math/English blocks for academic support and increased elective opportunities such as music. For a schedule to be considered an “Equity Plan” schedule, there must be evidence of an intentional administrative strategy focusing on equity in **all courses**, not solely mandated courses or elective courses.

**Table 12**

*The Equity Plan by Vincent Brancato*

	A Day	B Day	C Day
Period 1 (54 Minutes)	English		
Period 2 (54 Minutes)	English Block	Math Block	Tech
Period 3 (54 Minutes)	Math		
Period 4 (54 Minutes)	Social Studies		
Period 5 (35 Minutes)	Lunch		
Period 6 (54 Minutes)	Language Other than English (LOTE)		
Period 7 (54 Minutes)	Science		
Period 8 (54 Minutes)	Physical Education	Music	Health

*Modified Block and the Hillcrest Model*

A “modified block” refers to a block schedule that has an alteration to the standard 4 x 4 block schedule (Blocher, 1997, p. 38). One example of a modified block is the “Hillcrest Model” used at Hillcrest High School in Springfield, Missouri (Barnes, Straton & Ukena, 1996). The Hillcrest Model is a modified block that has an A/B Block schedule from Monday through Thursday, and a traditional eight-period schedule on Friday (Table 13).

**Table 13**

*The Hillcrest Model: Alternating A/B Block & Eight-Period Traditional*

	Monday/ Wednesday	Tuesday/ Thursday	Friday	
Period 1 (80–85 Minutes)	English	Math	Period 1 (45 Minutes)	English
			Period 2 (45 Minutes)	Math
Period 2 (80–85 Minutes)	Social Studies	Science	Period 3 (45 Minutes)	Social Studies
			Period 4 (45 Minutes)	Science
Period 3 (80–85 Minutes)	Art	Music	Period 5 (45 Minutes)	Art
			Period 6 (45 Minutes)	Music
Lunch				
Period 4 (80–85 Minutes)	Physical Education	Foreign Language	Period 7 (45 Minutes)	Physical Education
			Period 8 (45 Minutes)	Foreign Language

A possibility for a modified block could be three instructional periods of 90 minutes with two periods of 45 minutes each for a total of five instructional periods (Table 14).

**Table 14**

*Modified 4 x 4 Block (Alternating Semester) 45-Minute Flexible Periods*

	Semester 1 (90 Days)	Semester 2 (90 Days)
Period 1 (90 Minutes)	English	English
Period 2 (90 Minutes)	Social Studies	Science
Period 3 (90 Minutes)	Math	Math
Lunch		
Period 4A (45 Minutes)	Music	Art
Period 4B (45 Minutes)	Physical Education	Foreign Language

***Hybrid Schedule or the Composite Block***

The next modified block schedule discussed is called a hybrid schedule. A hybrid schedule is a combination of traditional and block schedule within the same day (Table 15) (Veal & Schreiber, 1999, p. 3). The hybrid schedule is also called the Composite Block Schedule (Childers & Ireland, 2005, p. 44). This particular expression of the Composite Block includes three traditional periods and two block periods. The times may be adjusted according to student needs.

**Table 15***Hybrid/Composite Block Sample Student Schedule*

Period 1 (60 Minutes)	English	
Period 2 (60 Minutes)	Science	
Period 3 (60 Minutes)	Elective	
Lunch		
Period 5 (90 Minutes)	Math	Math
Period 6 (90 Minutes)	Social Studies	Technology

Canady and Rettig (1993) demonstrate how a modified block alternating day schedule can offer blocks or double periods on specific days, and convert to a traditional schedule on other days in the “One Double Block Weekly” schedule (Table 16).

**Table 16***Modified Block: One Double Period Weekly (Canady and Rettig, 1993)*

	Day 1	Day 2	Day 3	Day 4	Day 5
Block I (104 Minutes)	Per. 1 Per. 2	Per. 1	Per. 2	Per. 1 Per. 2	Per. 1 Per. 2
Block II (104 Minutes)	Per. 3 Per. 4	Per. 3	Per. 4	Per. 3 Per. 4	Per. 3 Per. 4
Block III & Lunch (82 Minutes)	Per. 5 Lunch	Per. 5 Lunch	Per. 5 Lunch	Per. 5 Lunch	Per. 5 Lunch
Block IV (104) Minutes	Per. 6 Per. 7	Per. 7	Per. 6	Per. 6 Per. 7	Per. 6 Per. 7

*Note.* Adapted from Canady & Rettig, 1993, p. 313. Copyright 1993 by Phi Delta Kappan.

***The Five Block***

A variation to the 4 x 4 Block schedule is the Modified “Five Block” (Rettig & Canady, 2000), which can be implemented with different configurations. One variation of the Five-Block is a modified block that has four periods of 70 minutes each (Blocks I, II, IV and V), while one block (Block III) is 53 minutes (Table 17). Five Block can also be expressed with an alternating-day pattern. This variation is the “5 x 5 block” (Table 18). This block schedule framework is similar to the Modified 4 x 4 Block with 45 Minute Flexible Periods, except a 5 x 5 Block uses an alternating-day pattern (A/B) for specific periods, and has five instructional periods per day (Merenbloom & Kalina, 2013, pp. 51–52).

**Table 17**

*Five-Block Bell Schedule:* (Rettig & Canady, 2000, p. 123).

Homeroom 8:00–8:10			
Block I 8:15–9:25			
Block II 9:30–10:40			
Lunch And Blocks III and IV	Lunch A 10:45–11:15	Block III 10:45–11:55	Block III 10:45–11:55
	Block III 11:20–12:30	Lunch B 12:00–12:30	Block IV 12:00–1:10
	Block IV 12:35–1:45	Block IV 12:35–1:45	Lunch C 1:15–1:45
Block V 1:50–3:00			



*Note.* Adapted from Canady & Rettig, 2000, p. 123. Copyright 2000 by Eye on Education, Inc.

**Table 18**

*5 x 5 Block Sample Student Schedule (Merenbloom & Kalina, 2013)*

	Semester 1 (90 Days)		Semester 2 (90 Days)	
	A Day	B Day	A Day	B Day
Period 1 (72 Minutes)	English		English	
Period 2 (72 Minutes)	Social Studies		Science	
Period 3 (72 Minutes)	Math		Math	
Lunch				
Period 4 (72 Minutes)	Music	Art	Music	Art
Period 5 (72 Minutes)	Phys. Ed.	Foreign Language	Phys. Ed.	Foreign Language

***Trimester Schedule***

A trimester schedule offers courses that meet daily, over three 60-day trimesters. Three to five courses are typically offered per trimester (Bair & Bair, 2011, p. 23; Great Schools Partnership, 2013), although a scheduler may decide to use a traditional schedule with more periods within the trimester model. A greater number of shortened periods allow for more course offerings and remediation (Table 19). Fewer and longer periods allow for a longer block schedule feel, with fewer opportunities and flexibility for course offerings (Table 20).

**Table 19**

*Trimester 5-period Sample Student Schedule*

	Trimester 1	Trimester 2	Trimester 3
Period 1 (72 Minutes)	English	English	Art
Period 2 (72 Minutes)	Social Studies	Music	Social Studies
Period 3 (72 Minutes)	Math	Math	Music
Lunch			
Period 4 (72 Minutes)	Phys. Ed.	Science	Science
Period 5 (72 Minutes)	Music	Foreign Language	Foreign Language

**Table 20**

*Trimester 3-period Sample Student Schedule*

	Trimester 1	Trimester 2	Trimester 3
Period 1 (120 Minutes)	English	Music	Foreign Language
Period 2 (120 Minutes)	Math	Technology	Science
Lunch			
Period 3 (120 Minutes)	Art	Social Studies	Phys. Ed.

***The Parallel Block***

Parallel block scheduling is a technique in which the master scheduler aligns content area teacher schedules to permit flexibility with instructional groups. According to Rettig and Canady (2000), the parallel block schedule features include: “Equal teacher

contact time allocations for all students regardless of ability; Smaller reading and/or mathematics instructional groups; Increased time for direct instruction in reading and mathematics; Less reliance on independent class work; and Uninterrupted time for instruction” (p. 168). The smaller groups can be achieved in language arts and social studies courses because teachers teach classes during the same consecutive periods. The teachers can group students at any time according to instructional needs for specific content standards, or provide large/small-group support.

Table 21 displays a nine-period master block schedule.

**Table 21**

*Master Parallel Block Teacher Schedules (Canady & Rettig, 2000, p. 169)*

Time	8:00–8:15	8:15–8:57	9:00–9:42	9:45–10:27	10:30–11:12	11:15–11:57	12:00–12:42	12:45–1:27	1:30–2:12	2:15–3:00
Team 6-I	HR	LA/SS 1	LA/SS 2	LA/S S3	L/R	M/SC1	M/SC2	M/SC 3	Plan	Plan
Team 6-II	HR	LA/SS 1	LA/SS 2	LA/S S3	L/R	M/SC1	M/SC2	M/SC 3	Plan	Plan
Team 7-I	HR	LA/SS 1	LA/SS 2	LA/S S3	M/SC1	L/R	Plan	Plan	M/SC 2	M/SC 3
Team 7-II	HR	LA/SS 1	LA/SS 2	LA/S S3	M/SC1	L/R	Plan	Plan	M/SC 2	M/SC 3
Team 8-I	HR	LA/SS 1	LA/SS 2	Plan	Plan	LA/SS 3	L/R	LA/SS 1	LA/SS 2	LA/SS 3
Team 8-II	HR	LA/SS 1	LA/SS 2	Plan	Plan	LA/SS 3	L/R	LA/SS 1	LA/SS 2	LA/SS 3
PE/Exploratory/Elective	Duty	Plan	Plan	Grade 8	Grade 8	Lunch/Duty	Grade 7	Grade 7	Grade 6	Grade 6

*Note.* Abbreviation: HR = Homeroom, LA/SS = Language Arts & Social Studies, M/SC = Math & Science, L/R = Lunch & Recess. Adapted from Canady & Rettig, 2000, p. 169.

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### ***The 75-75-30, 75-15-75-25 and 80(10)-80(10) Plans***

There are other unique structures that do not conform to a typical semester or trimester model. There is the “75-75-30” plan, “75-15-75-15” plan and the 80(10)-80(10) plan (Canady & Rettig, 1993; Great Schools Partnership, 2013). The 75-75-30 Plan (Table 22) offers two terms of 75 days (fall and winter) and one term of 30 days (spring.) The 75 day-terms use 112-minute block classes that change during the second term and one 48-minute course that is offered for the entire year. The 48-minute course is adjacent to the 24-minute lunch period. The 75-day terms allow for core instruction, while the 30-day term allows for remedial coursework, electives and community service. The 75-15-75-15 Plan (Canady & Rettig, 1993) and the 80(10)-80(10) plan (Canady & Rettig, 2000) offer four terms with two shorter terms for electives and remediation (Table 23).

According to Canady and Rettig (1993) the 75-75-30 Plan offers many benefits. Students see fewer teachers each term, instructional time is increased, teachers and students focus on fewer subjects, “summer school” remediation is effectively built into the schedule, there are opportunities for accelerated learning, students can repeat failed courses during the school year, and discipline problems may be reduced because there are fewer transitions between classes.

### **Table 22**

*75-75-30 Plan* (Canady & Rettig, 1993, p. 311)

	Fall Term (75 Days)	Winter Term (75 Days)	Spring Term (30 Days)
Block I Periods 1 & 2 (112 Minutes)	English	Elective(s)	Remediation, Elective or Community Service
Block II Periods 3 & 4 (112 Minutes)	Physical Education	Science	
Period 5/L (48 Minutes) + (24 Minutes – Lunch)	Band & Lunch	Band & Lunch	Band & Lunch
Block III Periods 6 & 7 (112 Minutes)	Math	Social Science	Remediation, Elective or Study

*Note.* Adapted from Canady & Rettig, 1993, p. 311. Copyright 1993 by Phi Delta Kappan.

**Table 23**

*75-15-75-15 & 80(10)-80(10) Plan*(Canady & Rettig, 1993, p. 312; 2000)

	Term 1 75 (or 80) Days	Term 2 15 (or 10) Days	Term 3 75 (or 80) Days	Term 4 15 or (10) Days
Block I Periods 1 & 2 (112 Minutes)	English	Remediation, Elective or Community Service	Elective(s)	Remediation, Elective or Community Service
Block II Periods 3 & 4 (112 Minutes)	Physical Education		Science	
Period 5/L (48 Minutes) + (24 Minutes – Lunch)	Band & Lunch	Band & Lunch	Band & Lunch	Band & Lunch
Block III Periods 6 & 7 (112 Minutes)	Math	Remediation, Elective or Study	Social Science	Remediation, Elective or Study

***The Copernican Plan***

A framework that completely departs from traditional and block scheduling is the Copernican Plan, which uses “macroclasses” and eliminates much passing time between classes (Carroll, 1989, p. 16; Great Schools Partnership, 2013). According to Carroll (1989):

The Copernican Plan proposes that each student enroll in only one, four-hour [macro]class each day for a period of 30 days. Each student enrolls in six of these classes each year, which fulfills the required 180 school days. As an alternative, students could enroll in two, two-hours classes at a time for a trimester of 60 days. A school could schedule both six-week and trimester courses simultaneously, and there could be flexibility in the length of these macroclasses. (p. 25–26)

The Copernican plan also includes time for music, physical education, seminar, study hall, activities and sports (Table 24).

**Table 24**

*Copernican Plan Sample Student Schedule* (Carrol, 1989, p. 27)

7:40	Arrival (6 Minutes)	
7:46	<b>Schedule A</b> Macroclass (226 Minutes) for 30 Days	<b>Schedule B</b> Macroclass I (110 Minutes) for 60 Days
9:36		Passing (6 Minutes)
9:42		Macroclass II (110 Minutes) for 60 Days
11:32	Passing (6 Minutes) Note: Schedules are identical after 11:32	
11:38	First Lunch (35 Minutes)	Seminar I/Music/Phys Ed (70 Minutes)
12:13	Seminar II/Music/Phys Ed (70)	

12:48	Minutes)	Second Lunch (35 Minutes)
1:23	Passing (6 Minutes)	
1:29	Preparation-Help-Study (PHS/Phys Ed/Music (70 Minutes)	
2:39		
2:45	Departure (6 Minutes)	
5:00	Activities/Sports (135 Minutes)	

*Note.* Adapted from Carroll, 1989, p. 27. Copyright 1989 by the Regional Laboratory for Educational Improvement of the Northeast and Islands, Andover, MA.

### **The Impact of a Schedule Framework on Music Enrollment**

The research tends to indicate that music enrollment decreases with the implementation of a block schedule from a traditional schedule (Blocher, 1997; Carpenter, 2001; Connors, 1997; Lowther, 1998; Meidl, 1997; Miles & Blocher, 1996; Rohner, 2002). Meidl (1997) surveyed high school music teachers and found that 69% of schools participating in the survey experienced a decreased student enrollment in music courses after adopting a block schedule. Carpenter (2001) found based on survey data that groups with traditional schedules in Louisiana high schools during the 1999–2000 academic year had a higher mean enrollment in band and chorus than groups in a full-block or modified-block schedule (p. 97). “Schools using the traditional schedule format of six or seven period days, delivered a higher mean in band and chorus enrollment than schools having moved to a block schedule format” (Carpenter, 2001, p. 99). A music enrollment barrier in block schedules is limited opportunities to register for other elective courses (p. 98). Rohner (2002) learned from surveys of music directors that standard 4 x 4 block schedules negatively affected student registration in 73% of schools in band and

orchestra (p. 19). The decrease in music enrollment was 31% on average. A/B block scheduling had a mixed impact, as 33% of schools reported an increase in enrollment by 19%, while 25% of schools reported a decrease of 28% (p. 19).

Lowther (1998) examined the enrollment in music programs related to block scheduling (p. 85). The study targeted all Virginia high schools reported by the Virginia Department of Education using a form of the block scheduling during the 1995–1996 school year. The 4 x 4 block schedule was used in 57 schools, an alternating-day block schedule (“A/B design”) was found in 71 schools, and other block schedules (including trimesters, hybrid block/traditional and other variations) represented five schools (p. 88). Concerns via open ended responses from 71 music teachers included: (1) Block scheduling was detrimental to music programs. (12.6% of respondents); (2) There were negative feelings towards the 4 x 4 block schedule (30.9%) and the A/B design (16.9%); (3) There were general scheduling conflicts (5.6%) and conflicts with Advanced Placement courses (11.2%) (Lowther, 1998, p. 97). The surveys indicated that “Music teachers teaching under the A/B block scheduling design were more satisfied with ensemble balance than those teaching under a 4 x 4 block scheduling design” (Lowther, 1998, p. 131). This preference is likely due to the increased flexibility that an A/B schedule rotation provides. The alternating day pattern allows one to schedule two courses during the same period on alternating days, whereas the 4 x 4 block schedule will have one course for an entire semester and switch to a different course during the second semester. This is not optimum for distributed practice in ensemble courses.

Connors (1997) collected questionnaire responses from 91 high school band directors representing 15 counties in Florida (p. 16). A goal of the study was to analyze



the effect that block scheduling had on band programs according to band directors. Respondents teaching in a block schedule represented 54.5%, while 45.1% of respondents represented schools using a traditional schedule (p. 22). The majority of the respondents (58.3%) teaching in a full-block schedule reported a reduction in enrollment after implementation of the blocks schedule. According to 65.3% of the band directors, most students who dropped out of band after implementation of the block schedule did so as a result of schedule conflicts. “Full block teachers agreed, almost four to one, that block scheduling was making retention of band students more difficult” (Connors, 1997, p. 40). A small minority (16.3%) did not perceive the block schedule to pose a scheduling issue, and the remaining teachers (18.4%) were unsure if the schedule impacted enrollment (pp. 38–39).

Blocher (1997) surveyed secondary music teachers in Indiana, Michigan and Kentucky to collect data on enrollment in performance classes in a 4 x 4 block schedule and a modified block schedule. In Kentucky, 53% of secondary schools experienced a decrease in enrollment with a 4 x 4 block schedule and only 1% experienced an increase. Kentucky music educators in 41% of schools saw decreased music enrollment in a modified block schedule, while only 14% saw an increase. Indiana music educators in 30% of schools had decreased enrollment in a 4 x 4 block and 20% experienced increased enrollment. Michigan music educators did not experience increased enrollment in any schools with a 4 x 4 block schedule, and 43% of schools had decreased enrollment. A modified block schedule had more of an increase in Indiana schools (52%) and Michigan schools (27%), while only 6% and 17% experienced a decrease in enrollment respectively (Blocher, 1997).

In another study by Blocher with Miles, Wisconsin music educators in schools with a block schedule experienced a decrease in enrollment in 38% of schools, and an increase in 12% of schools. A modified block schedule resulted in 25% of schools having decreased enrollment and 20% of schools having increased enrollment (Miles & Blocher, 1996). The increase in enrollment by a larger percentage in Indiana and Michigan schools utilizing the modified block may be explained by administrative support. A Kentucky music educator said “I am leaving this position due partly to block scheduling and the lack of high school administrative support for the music program.” (Blocher, 1997). According to Blocher (1997), “Block scheduling seems to work best when music teachers and administrators work together to individualize a schedule for their school.

Brian Anderson was successful in advocating for ensembles by joining scheduling committees and discussing appropriate programming (Thomson, 2006). Without his voice administration most likely would have stayed with a 4 x 4 block schedule, instead of the modified block that allowed for participation in band, chorus and orchestra.

Baker (2009) surveyed 443 freshman university music majors, and found that 164 (34%) had music scheduling obstacles in secondary schools. Music scheduling challenges included course conflicts, pressure by counselors to take more Advanced Placement (AP) classes over arts courses, and having a full schedule. In this group of 164, 84 individuals experienced block schedules and 80 experienced traditional period-based schedules. In both of these scheduling models, students were forced to choose between AP classes and a music ensemble, or between choir and band (Baker, 2009).

The research tends to suggest that the 4 x 4 block schedule negatively affects music enrollment overall. No two schools or programs are the same; however, studies

tend to indicate a reduction in music course enrollment with an implementation of a block schedule. An alternating day block schedule appears to be a better option for music enrollment if administration is insistent on moving forward with a block schedule. Still, the traditional schedule offers more flexibility, especially when adding an alternating day pattern such as an A/B rotation. Principals and building schedulers must be clear that whatever benefits they hope to achieve with a block schedule implementation, there is a high likelihood that music and arts opportunities will be reduced.

### **Diverse Student Groups and Course Enrollment**

A well-considered schedule incorporates consideration of all students' needs (Merenbloom & Kalina, 2013). When designing a schedule, the scheduler must consider the state general education requirements for the grade levels of enrolled students. A school serving diverse learners should consider specific course offerings and curriculum that meet the interests and needs of students. For examples, researchers deGregory and Sommer (2021) determined that increased access to courses for historically underrepresented student groups can be achieved by administration implementing an intentional scheduling strategy focusing on equity.

The New York City Department of Education (2021) states that “Diversity comes in many forms, including: racial background, cultural identity, socioeconomic status, home language, country of origin, immigration status, ability, special needs, religion, gender identity, gender expression, sexual orientation, housing status and life experience. Specific scheduling considerations for diverse groups, particularly English as a new language (ENL) students and students with disabilities (SWDs) are both ethical and required by law and regulations. ENL and SWDs may have additional mandated courses

and services that may conflict with elective music course enrollment. To understand this challenge, researchers have examined music participation information in secondary schools. Additionally, New York State general education, special education and ENL requirements will be reviewed to determine the potential impact a schedule can have on ENL and special education student music enrollment in New York State.

Elpus and Abril (2011) analyzed data collected for a longitudinal study by the National Center for Education Statistics (NCES). The study included data from a nationally representative sample of 16,400 American high school students enrolled in public and private schools, who were sophomores in 2002 and seniors in 2004. From this group about 14,900 high school transcripts were collected and analyzed. It was discovered that 21% of American high school seniors participated in band, choir, and/or orchestra in 2004. Native English speakers were overrepresented in the music student group and native Spanish speakers were underrepresented by approximately 2:1. The unique educational requirements for ENL students may be one explanation for reduced participation in music. Elpus (2014) examined nationally representative NCES and National Assessment of Educational Progress (NAEP) data from student cohorts from 1982–2009. The data suggest that student participation in high school music courses declined for ENL students and students SWDs since the enactment of No Child Left Behind (NCLB) from 2002 through 2009. According to Elpus (2014), “Future research examining within-school variation in course-taking patterns would help to elucidate the mechanism through which NCLB negatively affected the music enrollment of Hispanic students, ELLs [English language learners], and students with IEPs [individual education programs for SWDs].”

Unfortunately, there is limited research reviewing enrollment trends of ENL students and SWDs in music. Although data is lacking in regards to enrollment trends in music, one can review federal law and state regulations to determine course requirements for student groups. After reviewing general middle school program requirements, and the needs of unique groups, it is possible to determine conflict ratios for students with unique course requirements. The more mandated course requirements a student has, the higher the likelihood the student will have a schedule conflict and be unable to select a desired elective course such as music.

Beyond scheduling, other factors have been discovered to be predictors of music-course participation, including socioeconomic status, reading achievement, scholastic ability and math achievement. Socioeconomic status was the best indicator of student retention in music classes favoring students coming from households with higher socioeconomic status, and a common reason for dropping out of music was conflicts with other activities during the school day (Coreblum & Marshall, 1998; Klinedinst, 1991). Klinedinst (1991) found higher socioeconomic status, higher reading achievement, higher scholastic ability, and math achievement to be valid predictors of student retention in music. Higher socioeconomic status was the best indicator of student retention.

Elpus (2017) found that larger school size impacted the comprehensiveness of arts programming. Elpus used data from the National Center for Education Statistics *High School Longitudinal Study of 2009* and analyzed high school courses for 940 high schools that participated. The data indicated that as school enrollment increased, there was a higher chance that the particular school offered a more robust arts program (p. 5). Elpus also found that in public schools, a higher population of students with free/reduced lunch

tends to reduce arts education offerings (pp. 6–7). This reduction in school arts offerings serving financially vulnerable may be related to larger representation of SWDs and ELLs and their unique needs. According to the American Psychological Association (2010), “people with disabilities remain overrepresented among America’s poor and undereducated.” According to the National Council on Disability,

In 2014, 9.3 percent of all public school students were English learners and approximately 20 percent of children were from families living in poverty...

**Disproportionality:** ELLs [English language learners] with disabilities are both over- and underrepresented in special education, and students with disabilities from low-income families are disproportionately identified for special education. Additionally, both populations of students are disproportionately placed in substantially separate classrooms. . . . **Service coordination:** Schools, districts, and states face challenges in effectively coordinating services and supports for ELs and students from low-income families who are also eligible for special education services. (2018, pp. 1, 37)

Service coordination is identified as a challenge, and music is not even being considered! This may account for what Elpus (2017) uncovered with the decrease of arts programming as poverty increases. A review of disability status and race make disparities in arts offerings more concerning. According to the National Center for Learning Disabilities:

The most often discussed pattern of significant disproportionality is the overrepresentation of students of color in special education. Students of color, with the exception of Asian students, are identified for special education at a

higher rate than their White peers. American Indian and Alaska Native children receive special education at twice the rate of the general student population, and Black students are 40 percent more likely to be identified with a disability versus all other students. Hispanic, Black, and Native students all have higher risk ratios for being identified with disabilities than White students. The overrepresentation of children in special education programs causes short-term and long-term harm, specifically for students of color. (2020, p. 2)

Why would these disparities have the potential to unintentionally prevent non-white students from participating in music? Special education students and ELLs have additional course requirements, and if non-whites are overrepresented, there is the potential for unintentional exclusion of student groups.

ENL students, SWDs, accelerated learners, and academically disadvantaged students may desire unique courses, and have federal and state mandated services that impact a student's schedule. ENL students in New York State for example, require 90–360 minutes a week (0.5–2.0 units of study) of English as a New Language (ENL) services (New York State Education Department, 2015b). Students with learning disabilities may require daily resource room support to supplement their education (New York State Education Department, 2017a). Services for ENL and SWDs are in addition to mandated instructional minutes in social studies, science, math technology, visual arts, music, etc. (New York State Education Department, 2019). Due to staffing and time limitations these additional services may preclude children from participation in arts classes, such as general music, ensembles or rock band history depending on the school scheduling framework. According to Miles and Blocher (1996),

The potential conflict with other classes that meet simultaneously for an eight-period day is 12.5% or a ratio of a one-to-eight potential. The conflict with a four-period day is 25% or a ratio of one-to-four. When students must choose 25% of their total class time devoted to music in a single grading period, the potential for conflict has obviously increased. With a student who may participate in band and orchestra, band and chorus, chorus and orchestra, etc., the conflict has increased to a 50% potential. Therefore, the more class choices a student has simultaneously (the eight-period form) the greater the potential for the student to enroll with less conflict. (p. 19)

The conflict percentages indicated by Miles and Blocher do not consider services for students who are ELLs, SWDs or students requiring academic intervention services (AIS) AIS are provided to support students, who are struggling academically based on State assessments in English and mathematics in grades 3–8 (New York State Education Department, 2019i). According to Merenbloom and Kalina (2013),

Besides RTI [response to intervention] considerations, accommodations to other special programs challenge the construction of a school's schedule: special education, gifted and talented, credit recovery, and small learning communities. To ensure effective implementation, these programs need to occur within a contractually determined time. (p. 9)

Additional courses required for ELLs and SWDs would increase specific student conflict percentages. A student requiring daily resource room as a mandated special education service for example, would only have three available courses in a 4 x 4 block schedule, increasing potential conflicts to 33.3%. The conflict percentage would reach 50% in a 4 x



4 block schedule if a student has a daily resource room course and band. The conflict ratio would reach 75% if the same student would like to participate in band and chorus. The issue becomes more complicated if there is a SWD who is also an ELL. ELL students at the Entering and Emerging proficiency levels require an additional ENL stand-alone course taught by a certified ENL teacher (New York State Education Department, 2015b). A student requiring an ENL standalone course and resource room would have a conflict percentage of 50%, making it difficult to even consider adding music or an elective because the conflict percentage would increase to 75%. Using the 4 x 4 block schedule might force administrators to remove students from music to ensure the students are enrolled in math, science, English, social studies and physical education. The potential schedule conflicts may also impact students who are struggling academically, as well as honors students.

According to the New York State Education Department (2019a) “Students who have been determined to need academic intervention services (AIS) may have the unit of study requirements for one or more of their subjects reduced (but not eliminated)” in middle grades five through eight. AIS is additional instructional time in math, science, English or social studies to support students in overcoming academic challenges. AIS support can also include interventions for attendance, behavior, counseling, health concerns and family-related issues (NYS PTA & NYSUT, 2011). A majority of grade 3–8 students in New York should be considered for AIS based on state test scores in 2018 and 2019. According to the Grades 3–8 Math Assessment Results, of the 931,449 students tested in New York State in 2018 and 948,606 tested in 2019, 55.5% and 53.3% of students were not proficient in math during 2018 and 2019 respectively (New York

State Education Department, n.d.-a). Of the 996,661 students tested in ELA (English language arts) during 2018 and 987,398 students tested in 2019, 54.6% and 54.8% were not proficient in English during 2018 and 2019 respectively (New York State Education Department, n.d.-b). School districts must consider AIS for students who scored below a median scale score of level 3 (proficient) on state ELA and math exams in addition to a district-developed procedures to measure student performance. Districts must also provide AIS for social studies and science based on district developed procedures to identify students with academic need (New York State Education Department, 2020b). More than half of New York students in grades 3–8 have the potential to have instruction reduced in music and other elective courses due to the need for AIS in English and math, in addition to any district identified supports required for social studies and science.

The available research regarding course enrollment by student groups including ENL students, SWDs, general education students, gender, and ethnicity is limited. Collins (2011) identified that Black students were overrepresented in intensive reading courses by more than double than the state population, while Hispanic/Latino students were overrepresented by almost double than the state population according to Florida Department of Education. This overrepresentation reduced opportunities for students to enroll in elective courses, including the arts (p. 134). Band directors and visual arts teachers indicated that 48% experienced enrollment decline due to reading mandates. According to surveyed teachers, 61% of participants stated that intensive reading courses had negative effect on arts programs (Collins, 2011, p. 138). Based on available information it appears that ENL students, SWDs, and specific ethnic groups have the potential to have lower participation rates in elective courses. Studies on student

enrollment with an analysis of health, music, physical education, and visual arts participation from multiple student groups will help to determine the impact of course enrollment within a schedule framework and mandates. According to the research a block schedule tends to be less flexible than a traditional schedule and may be a barrier to scheduling music courses. Based on previous research block schedules appear to be more likely to exclude ENL students, SWDs, and non-white students from music and other arts opportunities due to conflicting requirements.

### **Recruitment and Music Enrollment**

Students in high school bands, choirs, and orchestras want to continue in college (Walker, 1995, p. 37). Straw (1996) surveyed 117 musically talented students who were recent graduates from Missouri high schools regarding recruitment techniques. All respondents indicated that “shared a meal with a music department representative” and “visit by music department representative in your home” are effective strategies, and less than 10% of students experience these strategies (p. 92). Music department reputation and music department visitation were considered to be effective by 90% of individuals is important by (p. 93). “Six items within control of the music department were effective to more than 70% of the students who experienced them. These include attending music classes on campus, receiving music department publications, receiving a telephone call from a music department alumni recruiter, having a music department representative visit your school, receiving a telephone call from music department student recruiter, and “being invited to have an individual off campus interview or audition” (Straw, 1996, p. 94). Over three fourths of the items that were not within the control of the music department were perceived by 65% or more of the students as being effective. Six of the

items were considered to be effective by 90% or more of the subjects. These items were “particular academic program”, “academic quality”, “financial aid”, “college reputation”, “campus facilities”, and “college cost”. These were experienced by over two-thirds of the subjects surveyed. Therefore they can be considered very effective and widely-used techniques (Straw, 1996, p. 96).

### **Schedule Impact on Academic Achievement**

The available literature tends to include comparisons of implemented school schedule frameworks and school student data. Studies often seek to compare correlations of academic achievement data from schools using different schedule frameworks. There is conflicting evidence from studies supporting and refuting the benefits of schedule frameworks. The comparisons are usually between a traditional schedule and a block schedule format. There does not appear to be consensus on which schedule format is best because study results are inconsistent. According to Poveromo-Spindler,

Block scheduling alone does not serve as a mean of enhancing instruction, however, combined with the additional strategies it demands, it can have an impact on academic engagement ... For all of the positives that can accompany a new schedule, the results quickly become less cohesive and less impactful without continual in-service learning opportunities for teachers. (2017, pp. 161–62)

A majority of studies do not address major factors that impact achievement, attendance and behavioral referral data such as the school/district instructional program, social emotional learning (SEL) programs and teacher professional development (PD.) This lack of school program information may account for the discrepancy between results in research.

Gipson-Bruce (2008) conducted a study comparing schedule formats, student perceptions and language arts literacy (LAL) in two New Jersey urban middle schools. One school has a traditional schedule for the language arts program, while the other has a block schedule for the LAL instruction. Data were compared for 62 students in 6th grade based on the Perception of Ability Scale for Students (PASS) and New Jersey Assessment of Skills and Knowledge Test (NJASK). The research indicated that no significant differences were found between traditional and block scheduling when student characteristic, academic self-concept and LAL achievement were compared. The only strategy examined was the implementation of the block schedule. Remedial and learning activities were not analyzed. Gipson-Bruce (2008) recommends research that addresses teacher instruction quality during block scheduling.

Williams (2011) conducted a six-year study comparing Florida Comprehensive Assessment Test (FCAT) scores for 10th grade students in two Florida high schools in the same district from 2005 to 2010. One high school used an A/B block schedule and the other used a traditional seven period schedule. Williams found that reading and math achievement scores in addition to attendance rates did not differ significantly at the .05 level in a two-way ANOVA for both schools. There were significantly higher discipline referrals in the school with the traditional schedule. The researcher indicated that the difference in discipline referrals may be impacted by the larger student enrollment in the traditional-schedule school at 6,245 students than the A/B block-schedule school at 4,546 students (Williams, 2011).

Veal and Schreiber (1999) examined the effects of a “tri-schedule” on the academic achievement of students in a midwestern high school. A tri-schedule is the

simultaneous implementation of three schedules at the same school. The implemented schedules were a traditional six-period schedule, 4 x 4 block and a hybrid schedule. There was no statistically significant difference for reading and language. The traditional-schedule students scored significantly higher on mathematics compared to the block and hybrid students. The 4 x 4 block increased the amount of yearly high school credits to 16, compared with 12 credits in the traditional and 14 in the hybrid schedule. There was a substantial difference in instructional minutes per year for each course at 9900 minutes (55-minute courses) for the traditional schedule, 7830 (for 87-minute courses) for the hybrid schedule and 7830 minutes (87-minute periods) for the 4 x 4 blocks schedule (Veal & Schreiber, 1999).

Floyd (2009) compared achievement data in American Literature and US history for groups of students from a Georgia high school. According to Floyd, one group experienced a seven-period traditional schedule, while the other experienced a 4 x 4 block schedule. Eighth grade data were used as a pre-test from the End of Course Test (EOCT) in Spring 2004 and 2005. The high school criterion-referenced competency tests (CRCT) data were used as a post-test in tenth grade in Spring 2007 and Spring 2008. The student population included predominantly a Caucasian middle- and upper-class group of students. When comparing US history outcomes, scores were better in the 4 x 4 block schedule and the results were statistically significant. When reviewing the American Literature scores it was found that there was no statistical significance between students in the block schedule and the traditional schedule (Floyd, 2009). On the surface it appears that the 4 x 4 block schedule improved US History outcomes; however, there was no information regarding the school instructional program and teacher professional

development during the years in which data was collected from the middle school and the high school. According to Merenbloom and Kalina (2013):

The schedule itself, however, is not the proverbial silver bullet. In order to bring about increased student achievement, effective instruction that works within the schedule needs to occur. Whether the schedule includes short- or extended-time class periods, research-based best practices can be implemented.” (p. 5)

Additionally, information regarding the middle school schedule was not included. The author also does not mention that the Spring 2008 data is from a group that experienced a block schedule in the 2006–2007 year and a traditional schedule during the 2007–2008 year. These factors may have impacted the data and were not addressed by the author.

Arnold (2002) compared outcomes on the Test of Achievement and Proficiency (TAP) for students in 104 Virginia schools on a seven-period traditional schedule with 51 Virginia schools on a seven period A/B block schedule (one of the block courses meets every day.) “The TAP battery produces scores for reading comprehension, mathematics, written expression, using sources of information, social studies, and science, as well as a complete composite score representing overall achievement in the six text areas” (Arnold, 2002). Schools experienced an increase in mean scores during the implementation year of the block schedule, and the majority of the increases were not evident during the second year of the blocks schedule. Arnold (2002) determined the results were not practical or particularly meaningful because the differences in mean scale scores were not greater than five points. According to Arnold (2002), Assistant Superintendent of Galax City (VA) Public Schools, “For school administrators who are considering the move to block

scheduling, factors other than standardized test score achievement should be examined more closely.”

Bonner (2012) analyzed data for 200 public high schools in North Carolina during the 2009–2010 academic year to determine if students are more likely to be proficient in a biology course in a block or a traditional schedule. Data for groups of students were analyzed including race and disabilities. The all-student group and black student group in the block schedule tended to be proficient in science. SWDs had higher science proficiency overall if they experienced a traditional schedule. The correlations between block schedules and science, and traditional schedules and science outcomes were weak for each student group (Bonner, 2012).

If music enrollment tends to be a barrier with a block schedule, why do principals elect to implement a block schedule? A block schedule may align with a school’s strategic plan that does not include music and the arts. Some believe that there are academic benefits to using a block schedule; however, the research is inconsistent in support of the block schedule’s impact on improved academic achievement. Poveromo-Spindler (2017) found that a schedule change [to a block schedule] alone did not increase student achievement. A school-wide focus on academic engagement and teacher professional development, accompanied with the block schedule was what lead to desired outcomes (p. 159–60). An increase in student achievement occurs when instruction synergizes with the schedule, and the teacher implements research based best practices (Merenbloom & Kalina, 2012, p. 5). A student can have the “best schedule” and not do well academically if the teacher is not effectively facilitating instruction. The research does not generally include information about the academic programs, teacher



professional development and teacher effectiveness. These missing details may explain inconsistent academic outcomes with implemented schedule frameworks.

### **Schedule Impact on Dropouts, Attendance and Discipline**

Brown (2006) analyzed data from one high school in Virginia and discovered that dropout percentages for SWDs increased after implementing a block schedule. Overall suspensions increased dramatically from the traditional schedule to the block schedule. In the 1996–1997 school year using a traditional schedule there were 269 suspensions. Suspensions increased to 424 after implementing the block schedule during the 1997–1998 school year. Suspensions increased each year with the block schedule and reached 1,253 suspensions during the 1999–2000 school year (Brown, 2006).

Investigators deGregory and Sommer (2021) compared school report card data and enrollment data for two urban high schools in a southeastern urban school district. Urban High School 1 administration scheduled students with “a near equitable distribution of access to accelerated coursework” for Asian, Black, Hispanic, Indian/Native American, Multiracial and white students in 2019 and 2020. Urban High School 2 did not have an equitable distribution of access to accelerated coursework for each student group. Urban High School 1 students performed better in total performance on the Florida Standards Assessment by race (deGregory & Sommer, 2021). deGregory and Sommer (2021) also examined data from eight high schools in the urban district for advanced course enrollment, race and other factors. The data indicated that access to advanced coursework has a statistically significant impact on student outcomes for all student demographic groups, and access has not been equitable across student demographic groups in every school. When reviewing the impact of equitable master

scheduling practices, it was determined that advanced coursework access increased for all student demographic groups; and the greatest percentage of increase in access to advanced coursework occurred for Black, Hispanic and Mixed race students (deGregory & Sommer, 2021). The intentional administrative strategy to schedule underrepresented student groups increased participation in the target courses.

### **Schedule Impact on Perceptions of Administrators, Teachers and Students**

Spence (2020) surveyed high school teachers and students who experienced a block and traditional schedule. The results indicated that they viewed a block schedule more favorably than a traditional schedule. Spence found that 32.61% of teachers strongly agreed that students are productive with traditional high school scheduling, while 56.52% strongly agreed that students are productive in block scheduling. A majority of teachers (85%) and students (68%) indicated that the school climate was positive in a block schedule, while fewer teachers and students (46%) thought the traditional schedule created a positive school climate. There is no information regarding building initiatives to improve instruction, climate or culture. Jenkins (2000) partnered with the North Carolina Department of Public Instruction for a study that analyzed issues of instructional strategies. High school teachers ( $N = 2,167$ ) were surveyed from 58 schools (31 with block schedules and 27 with traditional schedules.) The results suggested that “teacher use and belief in the appropriateness of a wide variety of instructional strategies is basically no different [in block schedules] from those of high school teachers teaching in traditional schedules.” Overall, there was no significant difference in instructional strategies for most subject areas (Jenkins, 2000).

Teachers in a high school in a Midwestern city were interviewed for feedback on benefits and challenges of block scheduling and inclusion of SWDs in a high school (Weller & McLeskey, 2000). During the 1995–1996 school year a six-period traditional schedule was used, and the school transitioned to a “Block 8” schedule during the 1996–1997 year. A Block 8 Schedule is a modified A/B block schedule that offers up to four classes on Mondays, Wednesdays and every other Friday, and up to four additional classes on Tuesday, Thursday and every other Friday. The interviewed teachers included seven general education teachers and seven teachers of SWDs. The following benefits and challenges were noted:

**Benefits of block scheduling:**

- Team teaching facilitates block scheduling
- Longer block classes allow for more student centered learning activities
- Changes made in teaching strategies in general education classrooms because of block scheduling benefit all students, especially less traditional learners.
- Block scheduling allows students to take up to two additional classes [compared to the 6-period traditional schedule]
- Longer block classes enhance resource classes for students with disabilities
- Block schedule and inclusion fit together well.

**Challenges of block scheduling:**

- Block scheduling has increased the need for teachers and students to develop effective organizational techniques.

- Blocks scheduling increases the need for teachers to communicate frequently and effectively.
- Block scheduling increases the significance of student absences.
- Adjusting to the block schedule is difficult for some students, and may increase the need for support from resource classes.
- Block scheduling would be more effective if all students had access to resource class supports. (Weller & McLeskey, 2000, p. 213)

Regarding attendance, one general education science teacher noted “It is very easy for students to forget between now [Wednesday] and next Monday that they have to bring something in Monday morning for our class that does not meet until one o’clock in the afternoon” (Weller & McLeskey, 2000). If a student is absent this compounds the challenge.

Bair and Bair (2011) learned that a Michigan high school implemented a trimester schedule due to state-mandated universal college preparatory curricula. Administrators were concerned that students would not be able to graduate on time due to course failures. According to the assistant principal:

Under the semester schedule, say a student failed algebra 1a first term and retook the course the second term, they would have to wait until the next school year to get to algebra 1b. These kids will not be able to graduate in 4 years.

The trimester schedule allowed for credit recovery needed for course failures, and opportunities for elective courses in student schedules. The semester schedule allowed 12 courses per year, while the trimester schedule permitted 15 courses per year. The assistant principal indicated that teachers and administrators believed that courses such as

visual arts and music are important, and she believes that is the only reason students come to school. Teachers raised concerns about the challenges to complete all state mandated standards in shorter trimesters. The administration decided to reduce the number of standards by excluding recommended standards and focusing on essential standards or “power standards” to align with what is assessed on state exams. Time is a major concern for teachers teaching in this trimester schedule, which resulted in the exclusion of course curricula (Bair & Bair, 2011).

Gipson-Bruce (2008) found no significant differences in characteristics and academic self-concept when comparing students in a block and a traditional schedule. Data were compared for 62 students in 6th grade based on the Perception of Ability Scale for Students (PASS) in New Jersey Schools.

### **Health, Music, Physical , and Visual Arts Education**

Health, music, physical, and visual arts education are all required courses in middle school according the New York State Education Department (2012; 2019b). Health and physical education courses have three standards: Personal Health and Fitness, A Safe and Healthy Environment, and Resource Management. Physical education and health courses provide opportunities for students to learn about body systems, physical activities, develop fitness plans, strategies to reduce health issues, recognizing potentially dangerous situations and avoid/reduce risk, appropriate spectator behavior, injury prevention/treatment, how to access help for injuries/illnesses/emergencies, and how to apply decision making processes to physical activities (New York State Education Department, n.d.-d). Physical education and health courses provide opportunities to gain knowledge and skills to live a healthy lifestyle.

The goal is “Artistic Literacy for All Students in New York State” (New York State Education Department, 2017b, p. 4). “Arts” is an umbrella term in New York State which includes dance, media arts, music, theater, and visual arts. This section will focus on visual arts and music because they are middle school requirements (New York State Education Department, 2012; 2019b), and are included in student schedules in this study. According to the New York State Learning Standards for the Arts Conceptual Framework there are four Artistic Processes and eleven Anchor Standards. The Artistic Processes are: Creating, Performing/Presenting/Producing, Responding, and Connecting. The Anchor Standards are 1) Generate and conceptualize artistic ideas and work; 2) Organize and develop artistic ideas and work; 3) Refine and complete artistic work; 4) Select, analyze, and interpret artistic work for presentation; 5) Develop and refine artistic techniques and work for presentation; 6) Convey meaning through the presentation of artistic work; 7) Perceive and analyze artistic work; 8) Interpret meaning in artistic work; 9) Apply criteria to evaluate artistic work; 10) Relate and synthesize knowledge and personal experiences to inspire and inform artistic work; and 11) Investigate ways that artistic work is influenced by societal, cultural, and historical context and, in turn, how artistic ideas shape cultures past, present, and future. All arts disciplines have performance indicators for each grade level, and music includes the following unique strands: Harmonizing Instruments, Traditional and Emerging Ensembles; and Composition & Theory, Technology. (New York State Education Department, 2017b, p. 9). Research indicates that music learning has benefits beyond standards achievement.

There is a debate on the impact music has on memory. According to a literature review by Ferreri and Verga:

Music has been shown to boost verbal memory not only in patients with memory deficits, such as those with Alzheimer's disease (AD; Simmons-Stern, Budson, & Ally, 2010; Thompson, Moulin, Hayre, & Jones, 2005), but also in conditions where memory is not primarily impaired, such as stroke (Sarkamo et al., 2008) and multiple sclerosis (Thaut et al., 2009). In addition, music has been increasingly adopted as a therapeutic tool for language training in aphasic patients (Altenmüller & Schlaug, 2013; de l'Etoile, 2010; Hillecke, Nickel, & Bolay, 2005; Hurkmans et al., 2011; Thaut, 2010). The use of music is justified not only because it is well-known to have a positive effect on mood and arousal (Koelsch, 2009; Sarkamo et al., 2008), but also because it may recruit spared language homologue areas in the right hemisphere following a left-hemispheric lesion (Altenmüller & Schlaug, 2013; Stahl, Henseler, Turner, Geyer, & Kotz, 2013; Zumbansen, Peretz, & Hébert, 2014).

Despite this evidence of the positive effect of music, several other authors have shown that music can negatively affect memory performance in both AD [Alzheimer's Disease] (Moussard, Bigand, Belleville, & Peretz, 2012) and aphasia (Racette & Peretz, 2007). A possible explanation for these conflicting results is that music might negatively affect memory by attracting patients' attention away from the relevant information (such as words to learn or remember), thereby generating a dual-task situation. The presence of both positive and negative effects of music on verbal memory is also found in healthy participants (for an overview, see Jäncke, 2008; Schulkind, 2009). (Ferreri & Verga, 2016, p. 167).

If music is serving as a distracter as suggested by Ferreri and Verga it is reasonable that music would not assist with recall if there is not a systematic curriculum and approach to use music as a tool for learning. There is evidence that long term systematic exposure to music learning has an impact on brain development. Shenker et al. (2021) found that musical experiences promote neuroplasticity (p. 416), which is “the ability of the nervous system to change its activity in response to intrinsic or extrinsic stimuli by reorganizing its structure, functions, or connections” (Mateos-Aparicio & Rodríguez-Moreno, 2019). Early childhood motor skills and melodic/rhythmic discrimination improved for students after 15 months of instrumental music training compared with students who did not have musical training (Hyde et al., 2009, p. 3021). Piro and Ortiz compared two cohorts of students. One cohort studied piano formally for three consecutive years and the other cohort of students did not have any music instruction in school or privately. The group with music instruction had significantly better vocabulary and verbal sequencing scores than the control group (Piro & Ortiz, 2009, p. 325). Dosman (2020) identified patterns of reduced dropout rates in New York City Arts Schools compared with the average of all public schools in New York City. The New York City Department of Education (NYCDOE) is the largest school district in the United States. During the 2021–2022 school year there were 1,058,888 students. The NYCDOE serves a diverse population including 13.9% English language learners, 20.6% students with disabilities (SWDs), 71.9 % economically disadvantaged, 41.1% Hispanic, 24.4% Black, 16.6% Asian, 14.7% White, and 139,752 students attend charter schools (New York City Department of Education, 2022). Celia Cruz High School, a musically focused high school in New York City, had higher graduation rates than the Bronx, New York average and New York City



Public school average during 2007, 2008, 2009, 2010, and 2011 (Dosman, 2020, p. 328).

One disclaimer should be noted that Celia Cruz high school requires an audition, which may preclude many students who are less likely to graduate. There may be a level of privilege for some students who experienced parental support with private music lessons.

According to Dosman (2020), “In general, the arts schools within the New York City public school system had higher graduation rates [in 2009, 2010, and 2011] when compared with the average of all public schools in New York City” (p. 329).

## CHAPTER 3

### RESEARCH METHODOLOGY

The purpose of this study was to determine how equitably student groups were scheduled in health, music, physical education, and visual arts courses across four variables in five implemented schedule frameworks during 11 academic years in two public middle schools in New York State from the same school district. The four student-group variables analyzed were English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity.

#### **Development of the Equity Plan Concept**

I was invited to collaborate with the building principal in Middle School 2 (MS2) to implement a schedule that meets the needs of all students for 2020-2021 school year. We met with the English as a new language (ENL) department and the department overseeing special education to better understand their needs. We also met with teachers, counselors, school administrators, district administrators and students. Many issues were brought forward with the current schedule. Feedback included the following concerns: Special education teachers shared that they were being excluded from department common planning meetings and they wished to be included. Grade level departments lamented that they were unable to meet. There was a request not to schedule study hall at all and to create academic enrichment opportunities. Honors courses were recommended for students with disabilities (SWDs). Students in integrated co-teaching (ICT) courses who excel in a particular subject should have opportunities to be scheduled for honors courses. There was a request to include English as a new language (ENL) teachers in special education classrooms for students requiring both ENL and SWD services. There

was a request to eliminate homeroom. Students were being excluded from music ensembles due to conflicting courses. As a music educator, hearing that students are unable to participate in music due to conflicting courses was concerning to me.

After receiving all of the feedback, I immediately began drafting schedule frameworks for the middle school. I quickly realized that a 4 x 4 block schedule has fewer instructional periods than does a traditional alternating A/B day schedule. MS2 during the 2019–2020 year was using a traditional alternating-day schedule with eight periods including lunch. Lunch was offered during multiple periods because the lunch spaces were unable to accommodate all students simultaneously. I explored the idea of a Triple Alternating-Day, and I realized that a third day ameliorates conflicts and adds opportunities for additional instructional time in English and math (Table 25). Math and English Blocks are listed in bold font to emphasize that two more courses are added to the Triple Alternating-Day schedule. The additional courses add flexibility because they permit a scheduler more opportunities to schedule students in an additional

**Table 25**

*Traditional Alternating-Day Versus the Triple Alternating-Day Schedule*

A	B		A	B	C
English			English		
Phys. Ed.	Health		<b><u>English Block</u></b>	<b><u>Math Block</u></b>	<u>Phys. Ed.</u>
Math			Math		
Lunch			Lunch		
Science			Science		

Social Studies			Social studies		
Language			Language		
Music	Art		Music	Art	Health

honors course, ensemble or mandated service instead of the Math and English blocks. The challenge was that the Three-Day rotation would not allow students to achieve the required units of study. A unit of study is 180 minutes of instruction per week throughout the school year (180 days), or the equivalent (New York State Education Department, 2018). A unit of study equals 36 minutes per day and 6,480 minutes per school year in a 180-day school calendar. The A/B schedule with 48-minute periods offering 90 instructional days for an “A Day” equates to 0.67 units of study, or 4,320 minutes. This satisfies courses requiring at least a half unit, such as music, visual arts and health (New York State Education Department, 2012; 2019b). The A/B/C schedule offering 60 instructional days with 48-minute periods equates to 0.44 units of study (Table 26). The A/B/C schedule does not allow a student to achieve the required unit of study. For this reason, the bell schedule requires a shortened lunch period to meet state mandated instructional time (35 minutes for lunch and 54-minute instructional periods). The Equity Plan Bell Schedule and units of study are discussed below.

**Table 26**

*Units of Study Reference: 48-minute Periods*

Day Rotation Type	Days Utilized	Minutes Per Period	Days	Minutes	Hours	Units
A/B	2/2	48	180	8,640	144	1.33
A/B	1/2	48	90	4,320	75	0.67

A/B/C	3/3	48	180	8,640	240	1.33
A/B/C	2/3	48	120	5,760	160	0.89
A/B/C	1/3	48	60	2880	80	0.44

**The Equity Plan Bell Schedule and Units of Study**

A unique feature of the Equity Plan is the requirement to have shortened lunch periods to meet New York State unit of study requirements. Without shortened lunch periods the Equity Plan does not achieve a half unit of study for a course meeting one out of every three school days. The needed units of study require the period length to be 54 instructional minutes for each of the seven instructional periods, and a 30–35 minute lunch period (Table 27). This formula will provide exactly 0.5 units. A 54 minute “A-Day” course meeting for 60 days throughout a 180-day school year.

**Table 27**

*Units of Study Reference: 54-minute Periods*

Day Rotation Type	Days Utilized	Minutes Per Period	Days	Minutes	Hours	Units
A/B	2/2	54	180	9,720	162	1.5
A/B	1/2	54	90	4,860	81	0.75
A/B/C	3/3	54	180	9,720	162	1.5
A/B/C	2/3	54	120	6,480	108	1.0
A/B/C	1/3	54	60	3,240	54	0.5

equals 3,240 minutes or 0.5 units of study. The Equity Plan Bell Schedule will permit more flexibility for a scheduler by meeting the unit of study requirements. A course

meeting every day with the Equity Plan Bell Schedule or the traditional schedule will achieve 1.5 units of study if the period lengths are 54 minutes. The benefit of the Equity Plan is achieving a half unit of study in 60 days as opposed to 90 in the alternating A/B traditional schedule. The bell schedule itself requires unique times for each grade level. All students are unable to each lunch at the same time due to space and supervision limitations. A shorter lunch period results in a misalignment of times when lunch begins until lunch concludes for the entire building. For this reason, a unique bell schedule is used.

The Equity Plan Bell Schedule has seven instructional periods and one lunch period. To align all grade level times, 15 individual sub-periods are used. Each instructional period is composed of two sub-periods, while lunch is one sub-period. The sub-periods have a repeating pattern of 35 minutes and 19 minutes. Combined, two sub-periods equal 54 minutes for instruction. The first course of the day will fall under “Period 1–2”; the second course will be “Period 3–4”; the third course will be “Period 5–6”; etc. All instructional periods are two sub-periods, while lunch is a single sub-period. Lunch must take place during an odd number period because odd periods are always 35 minutes in length (Table 28).

**Table 28**

*The Equity Plan Bell Schedule*

Period	Start	End	Minutes
1	8:00	8:35	35
2	8:35	8:54	19
3	8:57	9:32	35
4	9:32	9:51	19
5	9:54	10:29	35

6	10:29	10:48	19
7 (Lunch)	10:51	11:26	35
8	11:26	11:45	19
9 (Lunch)	11:45	12:20	35
10	12:23	12:42	19
11 (Lunch)	12:42	1:17	35
12	1:20	1:39	19
13	1:39	2:14	35
14	2:17	2:36	19
15	2:36	3:11	35

***Units of Study, English as a New Language and Bilingual Students***

English as a new language (ENL) students have additional requirements that general education program students do not. In grade 6, students should receive instruction in mathematics, English language arts (ELA), social studies, the arts, physical education, family and consumer sciences and career development and occupational studies.

Languages other than English (LOTE) and health education may be offered by grade 8 (New York State Education Department, 2020a). Students must have at least two units of study in the following subjects: English Language Arts, Social Studies, Science and Mathematics. Health, music, physical education, and visual arts require 0.5 units of study. Home and Career Skills require  $\frac{3}{4}$  unit of study and library requires one period per week. Students must have two units of study for LOTE by grade 9 (New York State Education Department, 2012, 2019b). Students are also expected to receive  $1\frac{3}{4}$  units of study in Career and Technical Education. ENL students require an additional 90 to 360 minutes a week of ENL services. Entering- and Emerging-level ENL and bilingual students specifically require a stand-alone ENL course for 180 minute a week, which is the equivalent of one unit of study (New York State Education Department, 2015a, 2015b &

2018). An entering or emerging ENL/bilingual student has a higher chance of having a schedule conflict due to the additional course requirement.

To achieve one unit of study a student must have an ENL standalone course daily because receiving instruction on an “A Day” only will result in 0.75 units of study with 48 minutes periods. Even if the period length was one hour the units of study would be 0.83. The Equity Plan with 54-minute periods achieves 1.0 unit of study if the ENL course is offered for two out of three days, with the ability to offer an option for an additional course on the third day. Table 29 demonstrates a possible conflict scenario that a scheduler may encounter. This scenario reveals how using a traditional alternating 8-period schedule including lunch compares with the Equity Plan A/B/C 8-period schedule including lunch. The traditional schedule forces the scheduler to remove the student from two courses. In this realistic scenario the scheduler chose to remove the student from music and visual arts. Unfortunately, this student may not receive the required 0.5 units of music or visual arts at all because the proficiency exam NYSESLAT is offered at the end of the school year (New York State Education Department, 2019d). What if the scheduler believes music and visual arts are more important than physical education and health? What if the scheduler decides not to place the student in the ENL standalone course at all? Regardless of the decision, this is not equitable. The child would not be receiving what the child needs. The Equity Plan offers math and English blocks that are beyond what is required, and serves as an academic intervention service linked with targeted instruction for students. A decision to remove a student from an additional math and English block is much more palatable than telling a child and the child’s family that the student cannot have required music a visual arts because the courses do not fit in the



instructional day. Table 28 displays Math and English Blocks in bold because they are additional courses that may be dropped for required or elective courses to meet student interests and instructional needs.

**Table 29**

*ENL Stand-alone Services: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
English			English		
Music ENL Stand- alone	Art ENL Stand- alone		<b>Eng. Block</b> ENL Stand- alone	<b>Math Block</b> ENL Stand- Alone	Health
Math			Math		
Lunch			Lunch		
Science			Science		
Social Studies			Social studies		
Language other than English			Language other than English		
Phys. Ed.	Health		Music	Art	Phys. Ed.

***Units of Study and Students with Disabilities***

Students with disabilities (SWDs) have additional services beyond the New York State middle school units of study requirements (New York State Education Department 2013, 2020a). Services that may impact a schedule include consultant teaching (CT), resource room, integrated co-teaching (ICT), special class and related services. ICT requires a general education teacher and a special education teacher, while also including disabled and non-disabled peers. Special class includes a group of SWDs with similar needs. Resource room is a support offered daily, which would result in the student being scheduled for resource instead of a course that would be scheduled for a general education student. If a school utilizes an A/B rotation the student would conflict with up to two courses. Direct CT services may also be scheduled to provide specific support as

needed (2013). Resource room and CT services automatically create a challenge when a decision is made to remove the student from a course, or multiple courses. Which course is “not important”? This decision would be determined based on one’s personal philosophy or time availability. Depending on the size of the school a principal, master scheduler, assistant principal, or school counselor may make this decision. If resource room is only available during visual arts and music periods because of teacher availability, the student may be removed from visual arts and music. If a master scheduler believes music is not important, or if there is no other practical solution, music may conflict out of a student’s schedule. ICT or special class services in combination with any related service creates a unique schedule conflict scenario.

If a SWD is programmed for ICT or special class math, science, English and social studies, in addition to a related service such as speech, the child cannot receive the services during the ICT/special class courses. Any programs or services listed in a student’s IEP must be offered in a student’s schedule. Although it is possible for a Committee on Special Education (CSE) to indicate ICT music, the New York State Education Department (2013) focuses on English, math, science and social studies when discussing special education. The New York State Education Department mentions math and English 11 times each on the Continuum of Special Education Services for School-Age Students with Disabilities-Questions and Answers (New York State Education Department, 2013), and only mentions the word music two times. Music is stated once in regards to teaching assistants providing support and once as an example of programming for CT. In practice, if music is not specifically listed in an IEP, a service provider may pull a student out for related services from music or another course according to the IEP

requirements. If, for example, an IEP states that a student will receive speech services one period a week, the student has the potential of being pulled out of music or other special areas 36 times in a 180-day school year. The student's schedule would show music during a particular period; however, in an A/B rotation where music is offered for 90 school days, the child may be pulled out of music for up to 39/90 days. The scheduler should work with related service providers to ensure that students are not pulled out of the same course each week to receive the related services. The schedule framework selected may allow students to have a larger or smaller chance of conflicting out of music.

The Equity Plan Schedule framework's Triple Alternating-Day pattern provides more flexibility than a traditional alternating day schedule. The Equity Plan reduces the likelihood of a conflict, although there does not appear to be a perfect solution to make it impossible for students to conflict out of a course. Table 30 demonstrates how a student with Resource Room could potentially conflict out of two mandated courses (visual arts and music), while in the Equity Plan the student is conflicting out of two courses that are optional (English Block and Math Block) and one required course (health). The English and Math Blocks in Table 29 are bold to emphasize that fewer mandated courses are conflicting out of the schedule. The Equity Plan student conflicts out of health (one mandated course), while the student in the traditional A/B schedule conflicts out of music and art (two mandated courses). It is possible for a CSE chair to recommend a math and English block instead of a daily resource room if the student requires additional support in math and English. This would not be applicable to every student, however this is another opportunity to reduce possible conflicts. Table 31 indicates increased flexibility

in the Equity Plan. Speech is included and highlighted to emphasize a course that the student may be pulled out from for this service. The Equity Plan has six possible courses that a student can be pulled out from, while the traditional A/B has four. If the service provider rotates the pull out periods, student would lose six days of instruction for each course in the Equity Plan, and nine days of instruction for each course in the traditional A/B schedule.

**Table 30**

*Resource Room Services: Traditional A/B Schedule Versus the Equity Plan*

A		B		A			B		C
English				English					
Music Resource Room.		Art Resource Room		<u>Eng. Block</u> Resource Room		<u>Math Block</u> Resource Room		<u>Health</u> Resource Room	
Math				Math					
Lunch				Lunch					
Science				Science					
Social Studies				Social studies					
LOTE				LOTE					
Phys. Ed		Health		Music		Art		Phys. Ed.	

**Table 31**

*Related Services: Traditional A/B Schedule Versus the Equity Plan*

A		B		A			B		C
English				English					
Phys. Ed. Speech		Health Speech		Eng. Block Speech		Math Block Speech		Health Speech	
Math				Math					
Lunch				Lunch					
Science				Science					
Social Studies				Social studies					
LOTE				LOTE					
Music Speech		Art Speech		Music Speech		Art Speech		Phys. Ed. Speech	

### ***Units of Study and Accelerated Learners***

Students in Grade 8 must have the option to take a high school course in mathematics and at least one of the following areas: “English, social studies, languages other than English, art, music, career and technical education subjects, and science courses” per the New York State Education Department (2019b). Students are expected to complete 1,200 minutes of laboratory hours in addition to a regularly scheduled science course such as living environment or earth science if the course ends in a Regents Examination (New York State Education Department, 2019e). This additional course requirement creates an opportunity for schedule conflict. Students and families may need to make a decision to register for a high school level science course or music. Baker (2009) and Lowther (1998) indicated that music-course conflicts occur due to advanced programming. This issue can occur with any elective course such as health, music, physical education, visual arts, photography, dance, etc. Table 32 compares how including an Earth Science lab may impact a traditional A/B schedule and the Equity Plan. The strikethrough in Table 31 indicates a course being dropped for science lab. A student is removed from music with the traditional A/B schedule, while the student is removed from a Math or an English Block in the Equity Plan. The decision to remove the student from a Math Block should be carefully considered. The Math Block is appropriate to remove if a student is strong in mathematics, and requires more support in English. There must be careful consideration when any course is removed for another in a student’s schedule.

### **Table 32**

*HS Level Science Lab: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
English			English		
Phys. Ed.	Health		Eng. Block	<del>Math Block</del> Science Lab	Health
Math			Math		
Lunch			Lunch		
Earth Science			Earth Science		
Social Studies			Social studies		
LOTE			LOTE		
<del>Music</del> Earth Science Lab	Art		Music	Art	Phys. Ed.

**Administrative Strategy Focusing on Equity**

The Equity Plan Schedule Framework must include an intentional administrative strategy focusing on Equity. If not, the schedule is simply a Triple Alternating-Day rotation. The A/B/C rotation has the potential to reduce course conflicts; however, intentional equitable decisions must be considered when the schedule is planned to have the greatest impact. The strategy should focus on providing students what they need based on interests, academics and what is important to the school community. As an administrator and music educator I have a responsibility to advocate for music, but not at the expense of other academic needs. In consultation with the principal and administration at Middle School 2 (MS2), I learned that math and English instruction are a major priority for the majority of students. I also learned that course conflicts are an issue for elective music ensembles, students with disabilities (SWDs), English as a new language (ENL) students, accelerated learners, and especially students who are both SWD and ENL status. I carefully considered these conflicts when I developed the Equity Plan.

***Schedule Planning: ENL, SWDs, Bilingual, and Accelerated***

An equitable schedule-planning process is one of the most important administrative strategies focusing on equity. To achieve this, I worked with administration to redesign the entire middle school schedule. A schedule is a vascular system and all of the courses are vital organs. If there is no pathway for an organ to receive appropriate blood flow, the organ does not thrive. If a schedule does not provide appropriate flow of students to courses, they will be cut-off from accessing education. The responsibility of a scheduler is to create a system by which all students have the maximum opportunity to access courses based on interest and need.

The first step was to align all student groups with elective course offerings. For example, if band, chorus and orchestra are offered during Period 3, then accelerated learners, integrated co-teaching, special class, English as a new language (ENL), bilingual, and general education classes should have period 3 available for elective courses. If a scheduler skips this step in the beginning of the schedule planning process it may be too late to fix later after months of effort to develop a schedule. If a scheduler sets most of the students to have Period 3 electives, however the bilingual students have their electives set to Period 2 because their bilingual math course is Period 3, it would be impossible for them to access ensembles. If this is discovered late in the scheduling process it may be too late to correct due to time limitations, and this has the potential to result in an entire group of students being excluded from this opportunity. Additionally, the music ensembles themselves should not conflict and be offered at the same time. The Equity Plan enjoys a Triple Alternating-Day, so the ensembles could be offered on different days in the rotation. This will allow students to have one, or more ensembles if desired. This strategy has the potential to avoid a majority of elective course conflicts for

all student groups. If all electives are offered during specific universal elective periods, there is a higher likelihood of equitable opportunities. Avoiding scheduling conflicts may not always be possible to make every course available for every student group if there are singletons (courses taught during one period only) and unique schedule scenarios. A good faith effort is expected to reduce the possibility of schedule conflicts. Another focus is to reduce conflicts for SWDs who are also ELLs.

During a scheduling meeting schedule conflicts were brought to light that SWDs who were also ENL students were conflicting out of ENL services. This is due to limited staffing and space in a traditional alternating day schedule. For this reason, scheduling ENL services for SWDs was considered when aligning elective periods with student group schedules. ENL students in all proficiency levels may receive at least part of their services with a certified Teaching English to Speakers of Other Languages (TESOL) teacher pushing into courses (New York State Education Department, 2015a). An English course for example can include a certificated English teacher and a “push-in” certificated TESOL teacher to fulfill mandated requirements. Push-in means the TESOL teacher may be present on B and C days only, while the English teacher is present during all days. The TESOL teacher schedules were designed to permit the teachers to push-in to at least one of each SWD class for each grade level. The teacher pushed into ICT, and special classes. There are cases that appeared to be an inefficient use of teachers because some classes only had one SWD requiring ENL services. This is not as it appears, and is a major win because students are able to be serviced when in previous schedules they were not. The Equity Plan resulted in more students receiving ENL services with the same staff. The



unique bell schedule structure combined with a triple day rotation permitted more classes of students to receive ENL services.

### ***Alternating Day Full Year or Semester Every Day***

As I developed the Equity Plan Framework, teachers recommended offering courses requiring 0.5 units of study such as visual arts, music, physical education, and health at Middle School 2 (MS2) to be scheduled every day for a semester instead of having an alternating day pattern for a full year. Implementing this recommendation would reduce the amount of students a teacher teaches at one time by half. If a teacher teaches 300 students in an alternating day pattern for a full year, the teacher would service 150 students per semester. The reason that the semester pattern was not selected was due to the negative impact this would have had on the music program. According to Connors (1997), “performing arts classes are generally classified as elective and are dependent on students’ continuous participation throughout their school years.” (p. 67). When band or other elective program is offered in semester 1, and visual arts are offered semester 2, the band students will not be able to take band for half of the year. This fluctuation of enrollment could be problematic for any program. Consider taking intermediate math for one semester, taking a break from math during the second semester, and enrolling in advanced math the following semester. How much intermediate math would be forgotten by the time advanced math begins? Ensembles must be offered throughout the school year to support appropriate academic growth and cohesiveness of the program

One teacher proposed offering select courses during semesters while offering others during alternating days to allow students to take ensembles. This theoretically can

work, however this decision increases conflict possibilities between courses. A schedule is a complex puzzle. Imagine if all of the smaller pieces could be mixed and matched to fit together in any combination. This is akin to having all courses that are 0.5 units being offered in an alternating day pattern or all courses being offered during semesters. I can mix and match music with physical education, or music with visual arts without any issues. If a scheduler chooses to have half of the courses offered as alternating day, while the other half are semesters, suddenly the conflicts increase. Band and physical education may be half year, while health and visual arts may be semesters. The scheduler will not be able to schedule band and visual arts opposite of each other because one is alternating day and one is alternating semester. Middle School 1 (MS1) uses this scheduling method (mixing and matching alternating day and semester), which results in schedule conflicts and the need to create courses as time fillers to complete student schedules.

***Teacher Schedules in the Equity Plan***

The triple day rotation and the bell schedule in the Equity plan creates unique teacher schedule opportunities. Courses that are offered daily will remain the same within an alternating day and triple day rotation. If a scheduler decided that a course is scheduled during “All Days” in an alternating day, the same teacher may have the same schedule in a triple-day rotation (Table 33). The middle school teacher would typically

**Table 33**

*Teacher All Days: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
Course 1			Course 1		
Course 2			Course 2		
Preparation			Preparation		
Lunch			Lunch		

Course 3		Course 3
Course 4		Course 4
Duty		Duty
Course 5		Course 5

have five course sections, one lunch, one preparation period and one duty period (lunch supervision, hall duty, etc.), which may be substituted for a department common planning meeting. The ability to achieve one unit of study within two of every three days in the Equity Plan opens up new opportunities to allow more units of study to be offered with the same teaching staff. The implementation of the Equity Plan within MS2 significantly adjusted schedules for teachers including music, math and English, high school science, ENL and special areas. Though not the focus of this study it should be noted that teachers have access to common planning time with their departments in lieu of a duty assignment.

**Equity Plan Music Teacher Schedules.** Music teachers at Middle School 2 (MS2) shared two major concerns prior to development of the Equity Plan Schedule. They indicated that students often conflict out of elective music courses (ensembles) and that more “Lesson” (small group/pull-out instruction) should be offered. The framework itself with the administrative strategy addresses the first request. The second request to increase lessons is addressed within the music teacher schedules. With a team of three music teachers and approximately 600 students to service between two grade levels, there were major differences between their traditional and alternating day schedule and the Equity Plan schedule. Ensembles were all considered electives and general music (GM) was offered in Grade 6 and 7. One teacher requested to teach only GM, the second requested chorus and the third requested band and orchestra. The GM teacher shifted from teaching 10 general music classes in the 2019–2020 school year to 15 GM classes during the 2021–2022 school year (Table 34). Preparation and duty periods were always 54 minutes, while lunch was always 35 minutes for the teachers. The general music teacher was able to service more course sections and students in general music, which permitted the

**Table 34**

*General Music: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
Duty	GM		GM	GM	Preparation
GM	GM		GM	GM	GM
Preparation			Duty	Duty	GM
GM	Duty		Lunch	Lunch	GM
Lunch			GM	GM	Lunch
GM	GM		GM	Preparation	Duty
GM	GM		Preparation	GM	GM
GM	GM		GM	GM	GM

ensemble teachers to have more lessons. The chorus teacher increased from 3/10 (30%) instructional periods being comprised of lessons in the traditional A/B schedule to 8/15 (53.3%) lesson periods in the Equity Plan (Table 35). Additionally, the chorus teacher increased from four chorus course sections in the traditional A/B schedule to five chorus course sections in the Equity Plan. The instrumental ensemble teacher had a similar schedule adjustment. The instrumental music teacher had lessons represent only 2/10 (20%) courses in the instructional load within the Traditional A/B and 7/15 (46.67%) lesson periods in the Equity Plan (Table 36). The total lessons would have increased to 9/15 (60%) for this particular teacher had the teacher contract not been a barrier. Due to confidentiality requirements I am unable to share more details regarding this barrier. Band course sections increased from 3 to 4 and orchestra course sections remained the same at 2. Enrollment in ensembles increased in the Equity Plan, and is discussed in detail in Chapter 4.

**Table 35**

*Choral Music: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
Chorus	Lesson		Lesson	GM	Chorus
Chorus	Chorus		Lesson	Lesson	Lesson
GM	Preparation		Duty	Preparation	Preparation
Preparation	GM		Lesson	GM	Chorus
Lunch			Lunch	Lunch	Lunch
Duty	Duty		Preparation	Duty	Duty
Lesson	Lesson		Lesson	Lesson	Lesson
Chorus	GM		Chorus	Chorus	Chorus

**Table 36**

*Instrumental Music: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C

GM	Band		Band	Orchestra	Lesson
Orchestra	Band		Preparation	Lesson	Lesson
Preparation	Lesson		Duty	Preparation	Preparation
GM	Preparation		Duty	Band	Duty
Lunch			Lunch		
Duty			Band	Lesson	Lesson
GM	GM		Duty	Lesson	Lesson
Orchestra	Band		Orchestra	Duty	Band

**Equity Plan Teacher Schedules Requiring 0.5 Unit of Study.** Courses

requiring 0.5 unit of study offered between Grades 7 and 8 include health, music, visual arts and physical education (New York State Education Department, 2012, 2019b). There are approximately 280–300 students per grade level at MS2 and one health teacher. To provide all of the students a health course once between Grades 7 and 8, a single health teacher must service an entire grade level in one year. This can be accomplished with the traditional A/B schedule with large class sizes. Within this schedule a health teacher has ten health course sections. Class size average would be 28–30 students per section to offer health to an entire grade level. The Equity Plan offers 15 health-course sections, reducing the average class size to 19–20 students. This scenario is the same for music, visual arts and physical education (Table 37). The Equity Plan Bell Schedule allows courses meeting once every three days to achieve the required 0.5 unit of study in one year.

**Table 37**

*Teacher Schedule for Courses Requiring 0.5 Unit of Study*

A	B		A	B	C
Course	Course		Course	Course	Course
Course	Course		Course	Course	Course
Course	Course		Course	Course	Course
Preparation			Preparation		
Lunch			Lunch		

Duty			Duty		
Course	Course		Course	Course	Course
Course	Course		Course	Course	Course

**Equity Plan English as a New Language Teacher Schedules.** A major upgrade in the Equity Plan is the ability to offer more ENL teacher services with the same staff. The traditional alternating day schedule offers 5 unique course sections per teacher for a total of 15 ENL course sections. The Equity plan provides 7.5 unique course sections per teacher for a total of 22.5 ENL course sections (Table 38). This is the reason the ENL teachers in the Equity Plan are able to provide services to more students, specifically, ENL SWDs in ICT and special classes that previously did not receive ENL push-in services. Utilizing the Equity Plan Bell Schedule allows students to receive a unit of study when meeting and an “A Day” and a “B Day”, which allows an additional 2.5 courses to be offered on the “C Day.” Two ENL teachers can push into a particular course on different day to account for a full unit. The final 0.5 units can be used to serve Commanding level students in a course section because they only require 90 minutes of services per week for two years after achieving a Commanding level of proficiency (New York State Education Department, 2015a).

**Table 38**

*ENL Teacher: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
ENL Course			ENL Course		ENL Course Double Period
ENL Course			ENL Course		
ENL Course			ENL Course		ENL Course 0.5 Unit
Preparation			Preparation		
Lunch			Lunch		
Duty			Duty		
ENL Course			ENL Course		ENL Course Double Period
ENL Course			ENL Course		

**AIS Teacher Reassignment: Math and English Blocks.** The Equity Plan schedule permitted the addition of courses for the majority of students. Due to a focus on math and English, MS2 decided that math and English blocks would be an appropriate school-wide instructional support. MS2 has nine English and nine math teachers per grade level. Additionally, MS2 has one math and one English Academic Intervention Services (AIS) teacher per grade level for a total of six teachers. Traditionally, the Math and English AIS teachers would provide pull-out intervention services to small groups of students; however, the teachers were not servicing a sufficient amount of students in need of services according to the administrative team. I proposed using the AIS teachers as math and English classroom teachers. This adjustment provides more instructional period availability and permitted the creation of the Math and English Blocks without increasing staffing. More classroom teachers also permits smaller class sizes. This adjustment results in the majority of students having access to receive additional targeted math and/or English support. The Blocks also provide flexibility for students requiring other services. Students requiring ENL stand-alone, resource room, science lab, a music ensemble or other elective course were able to be removed from blocks instead of completely conflicting out of other courses in a majority of cases. The Math and English courses are offered every day in the rotation, while Blocks are offered on one day of the rotation (Table 39).

The teacher contract was a barrier when including Math and English Blocks in teacher schedules. Secondary teachers are limited to teaching five courses per day. For this reason, one teacher would take one block from other teachers for a total of three blocks (Table 39). A math teacher for example, can teach four Math course sections and



only three Math Blocks. This results in most students having the same teacher for the Math course and Math Blocks; however, there are sections of students with a different math teacher for the Math Block than the daily Math Course. Course 4 does not have a Block 4 listed in Table 36 for the first teacher, rather Block 4 is listed on the second teacher's schedule. Teachers indicated concerns regarding their students having Math Blocks assigned to different teachers.

**Table 39**

*English Block Teacher Schedule Sample*

A	B	C	A	B	C
English Course 1			English Course 5		
Eng Block 1	Eng Block 2	Prep	Eng Block 5	Eng Block 6	Prep
English Course 2			English Course 6		
Duty			Duty		
Lunch			Lunch		
Preparation	Preparation	Block 3	Block **	Preparation	Block**
English Course 3			Preparation	Block 7	<b>Block 4</b>
<b>English Course 4</b>			Course 7		

\*\*Denotes a Block that contains a group of students from a different teacher's course.

**Equity Plan High School Science Course Teacher Schedules.** Students in Grade 8 must have an opportunity to take a high school math course and one other subject (New York State Education Department, 2019b). MS2 offers high school Earth Science, which ends in a Regents Examination, and requires 1,200 minutes of lab (New York State Education Department, 2019i). With a traditional alternating day schedule a science teacher can teach three Earth Science Courses and three Labs and has availability to teach one additional 0.5 unit course. The Equity Plan Earth Science teacher can teach three Earth Science Courses, three Labs and has availability to teach one additional 1.0 units course (Table 40). The triple day rotation is able to increase courses opportunities offered with the same teaching staff.

**Table 40**

*Science Teacher: Traditional A/B Schedule Versus the Equity Plan*

A	B		A	B	C
Earth Science 1			Earth Science 1		
Lab 1	Lab 2		Lab 1	Lab 2	Preparation
Earth Science 2			Earth Science 2		
Preparation			1.0 Science Available		
Lunch			Lunch		
Preparation			Duty		
Lab 3	0.5 Available		Preparation	Preparation	Lab 3
Earth Science 3			Earth Science 3		

***Explicit Schedule Decision Rules for School Counselors***

To promote equitable scheduling practices, I worked with the administrative team to explicitly indicate scheduling decision rules to be used for diverse learners. This practice clearly communicated scheduling expectations with school counselors and avoided arbitrary, or preferential, scheduling decisions. A preferential scheduling decision would be offering specific programming based on interpersonal relationships

and favoritism. Scheduling rules and guidelines seek to reduce and eliminate this practice. The scheduling guidelines included: honors criteria, courses offered per grade level, room capacity/course enrollment balancing, students with disabilities (SWDs) programming, individual education program (IEP) audits, English as a new language (ENL)/bilingual programming and units of study, language other than English, electives, parent requests and student constraints (separating specific students from each other).

Students with mandated services and accelerated programming take priority to ensure compliance with all regulations, which included section balancing for integrated co-teaching (ICT) courses. ICT courses should have no more than 12 students with any disability (New York State Education Department, 2013). Counselors were also asked to ensure that disabled students and students requiring accommodations made up no more than 50% of the ICT rosters when possible. ENL students were not scheduled in ICT classes when possible because ENL students also have unique needs and accommodations. If, for example, a class of 24 students is made up of five ENL students, ten students with IEPs, two students with 504 Plans, and seven general education nondisabled students, this creates a class section with 70% of students requiring accommodations. In contrast to this, balancing ICT courses ensures that the spirit of providing instruction to a group of students with and without disabilities is implemented equitably and with fidelity. To ensure all mandated student programs are met, school counselors are expected to audit their caseloads. Counselors analyze IEPs, 504's and ENL proficiency levels to ensure all mandated programming is accounted for in each student's schedule. The next scheduling priority includes honors, elective course requests and parent/staff schedule change requests.

Parents and staff members making schedule-change requests require administrative approval. This practice is implemented to avoid preferential treatment to have specific teachers, or have courses during specific periods based on preference. Administration generally will approve requests with strong justification. Honors criteria are clearly indicated based on academic and pre-requisite requirements. If a child is not selected for honors a parent may seek administrative approval to reconsider. Course conflicts are resolved based on student needs and parent input. If a student requests an elective course or high school science course with a science lab, and the student has a full schedule, the counselor will review academic history and consider removing a Math Block or English Block as appropriate. Administration provided counselors with parameters to determine what courses can be substituted to meet personal interests and requirements to account for scenarios in which students may conflict out of multiple periods due mandated programming and elective course requests. Fulfilling all requests may not always be possible; however, a good-faith effort is made to support student interests.

### **Methodology**

The purpose of the study was to determine if a developed and implemented scheduling framework (the Equity Plan) with an intentional administrative strategy focusing on equity increases equitable course enrollment in health, music, physical education, and visual arts for four diverse-group variables in two New York State public middle schools. The Equity Plan framework uses a traditional seven-period instructional day, Triple Alternating-Day Rotation (A/B/C days), shortened lunch periods and an administrative-scheduling strategy focusing on equity. The equitable scheduling strategy

includes an addition of math and English blocks, scheduling flexibility to substitute courses with the blocks as appropriate to student needs, and aligning ensemble periods with student populations, including: English as a new language (ENL), students with disabilities (SWDs), general education program students, and accelerated learners to ensure access is available to all groups. The study compares courses in health, music, physical education, and visual arts enrollment data in two middle schools within the same school district located in New York State during 11 academic years from 2011–2012 through 2021–2022. The four student group variables examined for equitable course enrollment included: English as a new language (ENL) students (ENL students and non-ENL students), students with disabilities (SWDs and non-SWDs), students grouped by gender (female and male), and students grouped by ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White) (Table 41).

**Table 41**

*Student Group Variables and Levels*

<b><u>Student Group Variables</u></b>	<b><u>Language Learner Status</u></b>	<b><u>Disability Status</u></b>	<b><u>Gender</u></b>	<b><u>Ethnicity</u></b>
<b><u>Variable Levels</u></b>	English as a New Language Student	Student with Disabilities	Male	American Indian/Alaska Native
				Asian
				Black/African American
	Non-English as a New Language Student (Native English Speaker)	Student without Disabilities	Female	Hispanic/Latino
				Multiracial
				Native Hawaiian/Other Pacific Islander
				White

## ***Instrumentation***

The “instruments” for this study are the schedule frameworks used during each academic school year at MS1 and MS2. The schedule frameworks utilized from the 2009–2010 academic year through the 2021–2022 academic years included a traditional alternating A/B rotation (2 days), traditional alternating A–D rotation (4 days), traditional alternating A–F rotation, and the Equity Plan. All of the schedules have a lunch period and either 7 or 8 instructional periods. Schedules included variations of terms including full year, semester (half year), quarter and alternating quarters. A course in an alternating quarter would be offered during quarters 1 and 3, or 2 and 4. The researcher developed The Equity Plan, which is a specific variation of a traditional alternating day schedule (Table 42 & Table 43). The Equity Plan includes an alternating A/B/C rotation (3 days), a shortened lunch period, and an intentional strategy focusing on equitable course enrollment.

**Table 42**

### *MS1 Schedule Frameworks*

Year	Schedule Framework	Average Instructional Period Minutes	Day Rotation	Instructional Periods
2021–2022	Traditional Alternating-Day	43	6 (A–F)	8
2020–2021	Traditional Alternating-Day	43	6 (A–F)	8
2019–2020	Traditional Alternating-Day	43	6 (A–F)	8
2018–2019	Traditional Alternating-Day	45.63	6 (A–F)	8
2017–2018	Traditional Alternating-Day	45.63	6 (A–F)	8
2016–2017	Traditional Alternating-Day	45.63	6 (A–F)	8
2015–2016	Traditional Alternating-Day	42	6 (A–F)	8
2014–2015	Traditional Alternating-Day	42.63	6 (A–F)	8
2013–2014	Traditional Alternating-Day	42.63	6 (A–F)	8

2012–2013	Traditional Alternating-Day	42.63	6 (A–F)	8
2011–2012	Traditional Alternating-Day	41.63	6 (A–F)	8

**Table 43**

*MS2 Schedule Frameworks*

Year	Schedule Framework	Average Instructional Period Minutes	Day Rotation	Instructional Periods
2021–2022	Traditional Alternating Day (The Equity Plan)	50	3 (A/B/C)	7
2020–2021	Traditional Alternating Day (The Equity Plan)	54	3 (A/B/C)	7
2019–2020	Traditional Alternating-Day	48	2 (A/B)	7
2018–2019	Traditional Alternating-Day	47	2 (A/B)	7
2017–2018	Traditional Alternating-Day	47	2 (A/B)	7
2016–2017	Traditional Alternating-Day	42.375	2 (A/B)	8
2015–2016	Traditional Alternating-Day	51	4 (A–D)	7
2014–2015	Traditional Alternating-Day	42	6 (A–F)	8
2013–2014	Traditional Alternating-Day	48	4 (A–D)	7
2012–2013	Traditional Alternating-Day	48	4 (A–D)	7
2011–2012	Traditional Alternating-Day	41.25	2 (A/B)	8

***Participants and Collection of Data***

A school district within New York State agreed to provide 11 years of aggregated scheduling data for two diverse middle schools. The total data set includes 22 populations of schedules, and all student schedules will be included in this analysis. The Arizona State University Institutional Review Board (IRB) “determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations. IRB review and approval by Arizona State University is not required” (Appendix A). The school district and Arizona State University negotiated a legal fully executed data-use agreement for permission to utilize the school-district’s student data. Prior to submission

for publication of this research the district stipulated that they must have 45 days to review the manuscript to ensure that the data was appropriately protected (See Appendix B).

The school district is providing historical scheduling data for two grades 6–8 middle schools from the following academic years: 2009–2010 through 2021–2022. The de-identified data includes course enrollment information for 19,822 student schedules and approximately 2,000 teacher schedules (this is estimated based on teacher attrition because the data set does not include teacher information). Comparison variables in this study included: all students, English as a new language (ENL) status, disability status, no status (i.e. students without a disability, or not a language learner), gender (female/male), ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino; Multiracial, Native Hawaiian/Other Pacific Islander, and White), grade level (6–8), coded student identification numbers, course identification numbers, course numbers, course names, course departments, course terms, school end years, and coded school names. The compiled data shared by the school district on a Google Sheet spreadsheet includes 255,365 rows and 13 columns for a total of 3,319,745 cells of data. Per the Negotiated Redacted Data Use Agreement:

Total student population, bell schedules, instructional period count, period length, student schedules, teacher schedules, participation rates in music courses and participation rates in courses overall will be analyzed and compared for student groups. The student groups to be analyzed include grade level, English language learners, bilingual, ,[sic, additional comma] race, gender, and students with disabilities (Appendix B).



The data will be generated from the school district's Infinite Campus student management system, which has "virtually unlimited custom report abilities" (Custom Development, n.d.). The school district is providing the data using the "ad hoc filter designer report function," which permits selection of custom-data fields to generate reports. The data will be stored by the researcher for up to 5 years on a secure server.

***Descriptive Statistics: Procedures and Measures***

The data set in this study from two middle schools, Middle School 1 (MS1) and Middle School 2 (MS2), included 11 years with a total of 22 middle school populations with 19,822 student schedules and includes multiple comparison variables: all students, English as a new language (ENL) status, disability status, no status (i.e. students without a disability, or not a language learner), gender (female/male), ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White), grade level, coded student identification numbers, course identification numbers, course numbers, course names, course departments, course terms, school end years, and coded school names. The compiled data includes 255,365 rows and 13 columns for a total of 3,319,745 cells of data on a Google Sheet spreadsheet. According to Miksza and Elpus (2018), "Descriptive statistics allow researchers to use numbers to begin to tell the stories that exist in their data. Statistics help researchers derive meaning from what would otherwise be a confusing and overwhelming amount of information" (p. 31).

Descriptive statistics include measures of central tendency and variability. Measures of central tendency represent the average score of a group. The three measures of central tendency include mean, median and mode. A mean is calculated by adding all

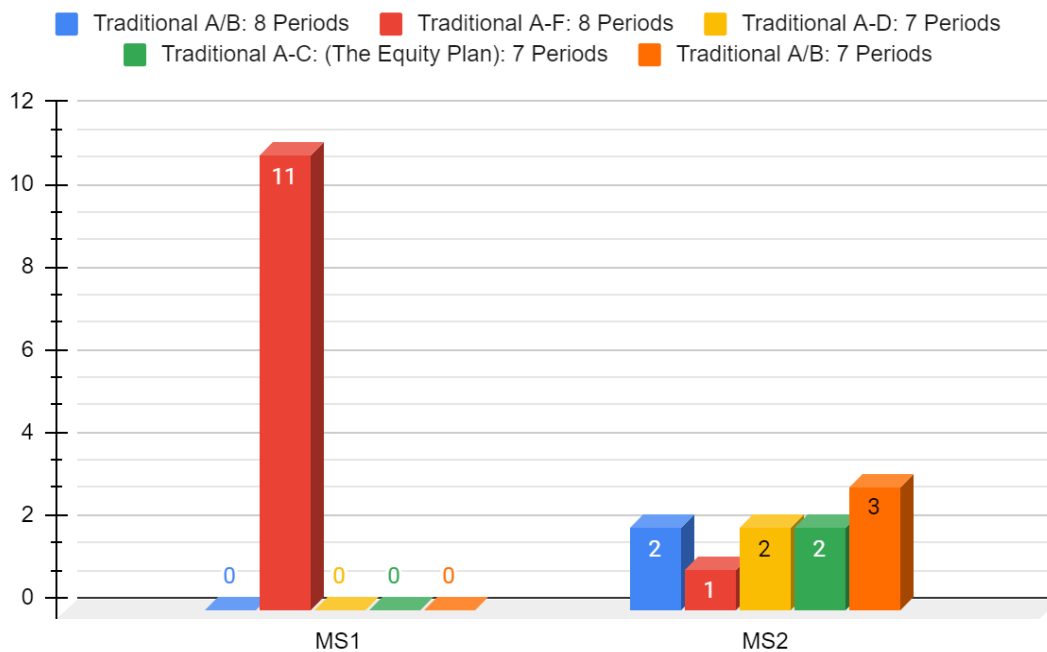
scores and dividing by the number of scores. Median is the middle score when the scores are sorted from least to greatest. Mode represents the interval with the most representation in a distribution. Measures of variability include range and standard deviation (Phillips, 2008, p. 173).

This study utilized the mean and difference of student group health, music, physical education, and visual arts course enrollment percentages for each of the 22 implemented schedules at MS1 and MS2. The mean provides information regarding the percentage of student groups represented in courses over a period of 11 years in two schools. The student group means reveal if there are differences in enrollment trends between student groups. Are particular student groups consistently represented in health, music, physical education, and visual arts courses? Does the schedule framework or the school itself appear to influence group enrollment trends? Range will indicate the difference between the highest and lowest group enrollment percentage. This metric can be a powerful number if it is large or small in a particular school year. A small range could indicate relatively equitable course enrollment by student group, while a large range will likely indicate a challenge with equitable music course enrollment. Means will be calculated for enrollment in the following courses: health, general music, band, chorus, orchestra, physical education, and visual arts for the following student variables: All students, English as a new language (ENL), students with disabilities (SWDs), gender (female/male), and ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White).

MS1 implemented traditional alternating day schedules and did not use the Equity Plan during any of the 11 academic years. MS2 used traditional alternating day schedules during 9 academic years and the Equity Plan during 2 academic years. Therefore, the data set has enrollment data for each of the 22 implementations of traditional alternating day schedules including 11 A–F at MS1 and MS2 utilized 1 A–F, 2 A–D, 2 A/B 8P, and 3 A/B 7P at MS2 (v 1). Music enrollment data during all years in both middle schools are analyzed using descriptive statistical methods. Each of the 22 school schedules will be

**Figure 1**

*MS1 & MS2 Schedule Frameworks*



compared individually, and they will be grouped and averaged by each schedule framework. The data will reveal if the Equity Plan has a higher health, music, physical education and visual arts enrollment compared with traditional alternating day schedule frameworks for the following four student groups/variables: ENL, SWDs, gender, and

ethnicity. The four student groups for health, music, physical education, and visual arts course enrollment percentages were calculated based on group enrollment and total group population in each school for each academic year. Music was the only elective subject area in this study with several courses in which to enroll: band, chorus, orchestra and general music. Students fulfilled their music requirements with general music, unless the student elected to participate in a music ensemble. The researcher determined total school enrollment by utilizing the following variables: student identification numbers, school year, and school name. The health, music, physical education, and visual arts enrollment percentages by student group-variables will reveal whether or not there is an equitable distribution of students in courses for each of the 22 school schedules. This data will assist in answering the following research questions:

1. How equitable is each implemented schedule framework for health, music, physical education, and visual arts course enrollment for the following four student groups/variables: English as a New Language (ENL), students with disabilities (SWDs), gender (female/male), and ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White)?
2. How equitable are the implemented schedule frameworks for health, music, physical education, and visual arts course enrollment for English as a New Language (ENL) students, students with disabilities (SWDs), gender, and ethnicity?

***Potential Bias***

I express with transparency that the Equity Plan is designed with the intention to increase equitable student enrollment. This framework has an intentional administrative strategy focusing on equity. This strategy may be possible to impact equitable enrollment with a triple day rotation by chance without an administrative strategy focusing on equity; however, this study will not attempt to determine whether or not this is the case by chance. When analyzing the enrollment data for 22 implemented schedules, I will also determine whether or not there is an (apparent) administrative strategy focusing on equity within the other frameworks. The possibility for any of the implemented schedules within the schedule framework to achieve equitable course enrollment with or without an administrative strategy focusing on equity is a potential reality by chance. The data itself was provided by the school district to the doctoral committee chair and me. There is no financial incentive related to this study or the data at the time of implementation of the Equity Plan framework and this study.

## CHAPTER 4

### DATA ANALYSIS AND FINDINGS

This study compares 11 years of five scheduling frameworks for two middle schools for equitable enrollment. Courses examined were health, music, physical education, and visual arts. The four equity variables compared for enrollment inclusion are English as a new language (ENL) students, students with disabilities (SWDs), gender (female/male), and ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino; Multiracial, Native Hawaiian/Other Pacific Islander, and White).

Two implementations of Equity Plan schedules was compared with variations of traditional schedules to reveal which scheduling frameworks were most equitable for student inclusion in these courses across the four variables. All math, science, English, social studies, home and career skills, technology, and other elective courses were excluded from the analyses. Schedule data were shared from a New York State public school district via Google Drive on 22 separate Google Sheets (similar to Excel spreadsheets). The spreadsheets included 11 years of complete schedule data for two schools with a total of 22 implemented schedules. The compiled data includes 255,365 rows and 13 columns for a total of 3,319,745 cells of data, representing 19,822 student schedules. The data column headings included:

- Coded student identification (ID) numbers
- School names
- Course identification numbers

- Course numbers
- Course names
- Course departments
- Course terms
- School end year
- Grade level
- Gender
- Ethnicity
- English as a new language (ENL) status
- Student with disability (SWD) status
- No status.

No status would be non-ENL students (students that are not language learners) and/or students without disabilities. To ensure that students' data were anonymous and protected, the school district shared coded (not original) student ID numbers and did not share the code with me to ensure that no student can be identified in the scheduling data sets. Additionally, the research results presented only include aggregated schedule and demographic data.

The data were analyzed with two strategies using descriptive statistics. Strategy 1 analyzed and determined if student enrollment in health, music, physical education, and visual arts are equitable for specific student variables/groups during each implemented schedule framework to answer Research Question 1: How equitable is each implemented schedule framework for health, music, physical education, and visual arts course

enrollment for the following four student groups/variables: English as a New Language (ENL), students with disabilities (SWDs), gender (female/male), and ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White)? Equitable enrollment is defined as no more than a 5% difference in an enrollment percentage if there are two variables (such as female/male) or no more than a 5% difference than the average of all variables if there are more than two variables (such as ethnicity, which includes seven variables). Strategy 2 organizes and aggregates the equitable enrollment data from Strategy 1 by schedule framework and student group/variable (ENL, SWD, gender, and ethnicity) to answer Research Question 2: How equitable are the implemented schedule frameworks for health, music, physical education, and visual arts course enrollment for English as a New Language (ENL) students, students with disabilities (SWDs), gender, and ethnicity? Strategy 2 permits one to determine if there are patterns in equitable enrollment between the implemented Equity Plan schedule frameworks and variations of traditional alternating day schedule frameworks. There are five implemented schedules across 11 years: (1) Traditional 6 Day Rotation A–F 8 Periods (A–F 8P); (2) Traditional 4 Day Rotation A–D 7 Periods (A–D 7P); (3) The Equity Plan (Traditional 3 Day Rotation A–C [see Chapter 3 for more information, p. 95]); (4) Traditional 2 Day Rotation A/B 8 Periods (A/B 8P); (5) and Traditional 2 Day Rotation A/B 7 Periods (A/B 7P).

### **Data Cleanup: Equity Enrollment Percentage**

The large data set required data cleanup to determine student enrollment. The ID numbers were randomized by the school district for students in Middle School 1 (MS1) and Middle School 2 (MS2). To ensure that no ID number was duplicated by chance



between the middle schools, the researcher utilized a concatenate formula in Google Sheets to concatenate the digit “1” in the one’s place for all MS1 ID numbers and the digit “2” to the one’s place for all MS2 ID numbers. For example, a student enrolled in MS1 would have an ID number modified from 123456 to 1234561 using the following formula: “=CONCATENATE(123456,1)”. Prior to compiling the data a copy of each Google Sheet was created. Each student ID number appears multiple times for each course and school year to match the student with specific courses. If a student is enrolled in eight courses in a particular school year for example the student’s ID number would appear on eight rows, once for each course. To determine school enrollment information, duplicate ID numbers were removed from each school and school year to determine enrollment in each schedule to avoid counting a student twice. Enrollment in this study is defined as any student that is scheduled for courses for at least one day during the school year. The data set does not include enrollment start or end dates for scheduled courses, making it appropriate to include all students based on available data regardless of days in attendance.

Each student ID was counted once for each subject area enrollment as long as a student was enrolled in health, music, physical education, or visual arts. Duplicate enrollment in the same course department (health, music, physical education, or visual arts) was eliminated to avoid counting a student twice. Students with duplicate courses in their schedules in the majority of cases were dropped from the course and transferred to the same course during a different time in the schedule. The study analyses if student groups are enrolled in a particular course or not, and does not consider if a student is enrolled in the same course multiple times. Only duplicates from the same course

department were eliminated. If for example, student ID number 1234561 is scheduled in two music courses, the student will only be counted once for music in the particular school and school year. If student ID number 1234561 is enrolled in one visual arts and one health course the student is counted once for visual arts and once for health. After the duplicates were eliminated, the data were compiled in one Google Sheet. It should be noted that music specifically also had ensemble electives while health, physical education, and visual arts did not have elective course offerings. Music course enrollment refers to being enrolled in at least one general music or ensemble course. The music enrollment data sections in this chapter are aggregated by music courses overall and by individual courses. A pivot table within Google Sheets was used to calculate course enrollment for all students, English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity for each schedule.

“Pivot tables help you summarize data, find patterns, and reorganize information” (Google, 2022a). According to the University of Michigan Library Research Guide, “A pivot table is a way to summarize and view large amounts of raw data in an easy-to-read format. The pivot table doesn’t change your raw data, but rather creates a new view of it” (2021, June 17). The pivot tables counted each unique student ID number and calculated how many students are enrolled in each course subject and demographic group per school schedule. After the data were counted, group percentages were calculated and compared using the 5% equitable enrollment standard. If a group with two variables (such as female/male) in a particular course had no less than a 5% difference, they would be considered equitable. If there was higher than a 5% difference that course for the particular group would not be considered equitable. An example of equitable

representation would be 95% of females being represented in visual arts and 90% of males are represented in visual arts because the enrollment difference is up to 5%. It would not be considered equitable if 95% of females are represented in visual arts, while 89.99% of males because the enrollment difference is greater than 5%. When there are more than two variables (such as ethnicity), equitable enrollment is determined by the difference between the total enrollment group average percentage and the student group percentage. If a group is within 5% or is highly represented (represented more than 5%) the group receives one point. If the group is under represented (less than 5%) the group receives a score of 0. A 1 indicates if the group has equitable representation or is highly represented, while a 0 indicates that a group is underrepresented. Some categories are excluded for particular schedules when a demographic group is not enrolled in a particular schedule or if a course is not offered for a specific grade level. For example, if visual arts were not offered in grade 8 during a particular school year, this course will be excluded from the equity score average percentage. If a particular ethnicity was not enrolled in a particular school or grade level during a particular year the data would be excluded as well. The exclusions, due to lack of enrolled student groups, are noted by “N/A,” or not applicable in the data tables presented in this chapter. The data are presented on a plethora of data tables throughout this chapter. The data tables are included in the body of Chapter 4 and are color coded to assist the reader in conveniently referring to the tables and quickly interpreting the information. The tables were created using formulas for average and difference. Conditional formatting was used to change colors of figures according to the range. “Cells, rows, or columns can be formatted to [automatically] change text or background color if they meet certain conditions” (Google,

2022a). “Conditional formatting is a quick tool that provides visual cues to draw attention to essential details in a spreadsheet. Finding trends and patterns will become much more straightforward as you begin to use this tool” (University of Nebraska-Lincoln, 2018, April 11). Green, shades of red, and blue cells permit the reader to quickly identify patterns and trends at a glance. Each table has a key to explain the assignment of colors.

### **Research Question 1**

How equitable is each implemented schedule framework for health, music, physical education, and visual arts course enrollment for the following four student groups/variables: English as a New Language (ENL), students with disabilities (SWDs), gender (female/male), and ethnicity (American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White)?

### **Strategy 1 Equitable Enrollment Percentage by School/Year**

Strategy 1 analyzes and determines if student enrollment in health, music, physical education, and visual arts are equitable for specific student variables during each implemented schedule framework to answer Research Question 1: How equitable is each implemented schedule framework for health, music, physical education, and visual arts course enrollment for the following student variables: English as a New Language (ENL), students with disabilities (SWDs), gender, and ethnicity? Student groups analyzed included: all students, English as a New Language (ENL), students with disabilities (SWDs), gender, and ethnicity for each school year and schedule. deGregory and Sommer (2019) indicated that a “near equitable distribution of access to accelerated coursework for each student group” (p. 48) ranged from 48%–68% in 2019 and 56%–

73% in 2020 for ethnicity. This range is a difference of 20% in 2019 and 17% in 2020 (deGregory & Sommer, 2019, p. 48). The literature does not define equitable course enrollment. With consideration of deGregory and Sommer’s “near equitable distribution” range of 17%–20%, and accounting for random secondary schedule variation, equitable course enrollment for the current study is defined as no more than a 5% difference in course enrollment between student groups, a more stringent cutoff than deGregory and Sommer study. The 5% number was selected to account for expected schedule variation that occurs according to interest and need in a student’s schedule. A high standard of 5% was selected because this is a high standard for equitable course inclusion. If there are two variables (such as students with and without disabilities) equitable course enrollment is defined as no more than a difference of 5% in enrollment between the groups. If there are multiple variables (such as ethnicity) a student group is considered to have equitable enrollment in a particular course if the difference in enrollment representation is no less than 5% for the ethnic group than the enrollment of the total population during a particular year. For example, the following hypothetical music course enrollment representation is equitable for all ethnic groups except for Multiracial: 60% Multiracial, 80% Black/African American, 80% Hispanic, and 80% White. In this example, the average representation for all groups is 75%, and the Multiracial group is the only group that is 5% below the average enrollment of all groups. If the difference is less than 5% and one group has 0% representation, this will not be considered equitable.

Student groups and health, music, physical education, and visual arts course enrollment were analyzed to determine if each schedule has equitable course enrollment for each of the 22 school schedules (two schools and 11 years of schedules). Each course

enrollment percentage is compared for English as a new language status (ENL), students with disabilities status (SWDs), gender, and ethnicity. Grade level is considered when courses are only offered in specific grade levels in particular schedules. Each time a group has equitable course enrollment, the school schedule for the particular year is assigned a score of 1. Each time a group does not have equitable course enrollment the school schedule for a particular year is assigned a score of 0. The scores are averaged to determine an equity percentage for each school schedule and group during each year. Schedules receive an equity score percentage based on the average of 1's and 0's representation equitable course enrollment information for each group. This analysis reveals how equitable (or not) each schedule is based on the 5% difference of the equitable enrollment standard for each group and course subject. The higher the score, the more equitable a schedule is during a particular year. The figures are also averaged for each student group and each course for all schedules. This analysis reveals if there are patterns in which student groups are included or excluded from particular courses within the 22 schedules.

Equity score descriptors were used to classify ranges of overall equitable course enrollment. The following descriptors were used: equitably included (85% or greater), approaching equitable (80%–84.99%), underrepresented (70%–79.99%), and greatly underrepresented (less than 70%). The equity score descriptors indicate percentage of courses that meet the 5% equity standard. The descriptors are intentionally underlined to indicate to the reader that the words are referring to equity score range descriptors.

Table 44 includes a summary of the complete equity analysis percentages for all students' groups and all implemented schedules for health, music, physical education and

visual arts course enrollment. Please note that Table 44 refers to all music courses at large, and does not differentiate which music courses/ensembles students are enrolled in (music ensemble information is included later in this chapter). There are 4/22 schedules with an overall equitably included rating (85% or more courses meeting the 5% equity standard when averaging health, music, physical education and visual arts) for all courses and groups. Those schedules are MS1 2017 and MS1 2020 (Traditional A-F: 8 Periods); as well as MS2 2021 and MS2 2022 (Traditional A-C [Equity Plan]: 7 Periods). The high equity rating schedules have the following ranks: Rank 1 MS2 2021 at 97.92%; Rank 2 MS1 2020 at 90.83%; Rank 3 MS2 2022 at 90.1%; and Rank 4 MS1 2017 at 87.5%. The Equity Plan schedules are the only schedules that had equitable course enrollment for ENL students in all courses--health, music, physical education, and visual arts.

Additionally, the Equity Plan implemented during 2021 is the only schedule that has an equitably included rating for all four groups. MS1 2017 A–F 8P is the only schedule with a 100% equitably included rating for all ethnic groups. The average equity percentage for English as a new language (ENL) students in all schedules is 59.09%, which is the lowest representation out of all four variables. In other words, the ENL student group has the least access to courses examined in this study. Students with disabilities (SWDs) had equitably included representation in 5/22 schedules, with a 65.91% equity average for all schedules. SWDs have the second lowest equitable representation out of the four variables examined. Gender has an average equitable representation in 75% of schedules, with six schedules having an equitably included rating. Gender had the second highest equitable representation. Ethnicity overall had the highest equitable enrollment for all groups at 87.56%. Ethnicity had a high equitable representation in 19/22 schedules.

**Table 44***Equitable Rating by Schedule: Health, Music, PE, & Visual Arts All Groups*

School	Year	Framework	All Student Groups	ENL	SWD	Gender	Ethnicity
All Course Average:			71.89%	59.09%	65.91%	75.00%	87.56%
MS1	2012	A–F 8P	78.04%	75.00%	50.00%	100.00%	87.14%
MS1	2013	A–F 8P	71.56%	50.00%	50.00%	100.00%	86.25%
MS1	2014	A–F 8P	58.33%	50.00%	25.00%	75.00%	83.33%
MS1	2015	A–F 8P	65.63%	50.00%	50.00%	75.00%	87.50%
MS1	2016	A–F 8P	65.77%	75.00%	50.00%	75.00%	63.10%
MS1	2017	A–F 8P	87.50%	75.00%	75.00%	100.00%	100.00%
MS1	2018	A–F 8P	73.86%	75.00%	50.00%	75.00%	95.45%
MS1	2019	A–F 8P	84.28%	50.00%	100.00%	100.00%	87.12%
MS1	2020	A–F 8P	90.83%	75.00%	100.00%	100.00%	88.33%
MS1	2021	A–F 8P	66.67%	50.00%	75.00%	50.00%	91.67%
MS1	2022	A–F 8P	67.05%	50.00%	50.00%	75.00%	93.18%
MS2	2012	A/B 8P	59.28%	50.00%	50.00%	50.00%	87.12%
MS2	2013	A–D 7P	54.04%	50.00%	25.00%	50.00%	91.15%
MS2	2014	A–D 7P	72.49%	50.00%	75.00%	75.00%	89.95%
MS2	2015	A–F 8P	70.14%	75.00%	75.00%	50.00%	80.56%
MS2	2016	A–D 7P	52.92%	25.00%	50.00%	50.00%	86.67%
MS2	2017	A/B 8P	65.52%	50.00%	50.00%	75.00%	87.09%
MS2	2018	A/B 7P	65.65%	50.00%	75.00%	50.00%	87.61%
MS2	2019	A/B 7P	65.03%	25.00%	75.00%	75.00%	85.10%
MS2	2020	A/B 7P	78.98%	50.00%	100.00%	75.00%	90.93%
MS2	2021	Equity Plan	97.92%	100.00%	100.00%	100.00%	91.67%
MS2	2022	Equity Plan	90.10%	100.00%	100.00%	75.00%	85.42%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)							
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)							
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)							
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)							

*Equitable Course Enrollment Percentage for ENL Students*

Table 45 provides enrollment data and percentages for English as a new language (ENL) and non-ENL students. Non-ENL students are students who are not classified as having English as a second language (see p. 15 for more information). Enrollment is



defined as being scheduled for at least one day because the data set provided by the district does not include start and end dates of courses. From 2012–2022 ENL students in Middle School 1 (MS1) represent 9.47% of the population, while ENL students represent 15.72% of the population in Middle School 2 (MS2). The average total student enrollment in MS1 is 922 students and 880 students in MS2.

**Table 45**

*ENL Student Enrollment All Schedules*

School	Year	Non-ENL Total Enrollment Percent	ENL Total Enrollment Percent	Non-ENL Total Enrollment Count	ENL Total Enrollment Count
MS1	2012	92.93%	7.07%	907	69
MS1	2013	92.30%	7.70%	839	70
MS1	2014	93.51%	6.49%	821	57
MS1	2015	93.19%	6.81%	849	62
MS1	2016	93.20%	6.80%	863	63
MS1	2017	91.81%	8.19%	852	76
MS1	2018	89.49%	10.51%	817	96
MS1	2019	89.96%	10.04%	833	93
MS1	2020	87.67%	12.33%	846	119
MS1	2021	86.28%	13.72%	786	125
MS1	2022	85.52%	14.48%	768	130
MS2	2012	91.78%	8.22%	849	76
MS2	2013	91.22%	8.78%	852	82
MS2	2014	93.07%	6.93%	833	62
MS2	2015	89.53%	10.47%	701	82
MS2	2016	87.72%	12.28%	600	84
MS2	2017	82.85%	17.15%	681	141
MS2	2018	78.35%	21.65%	666	184
MS2	2019	77.60%	22.40%	731	211
MS2	2020	77.95%	22.05%	753	213

MS2	2021	80.23%	19.77%	755	186
MS2	2022	76.78%	23.22%	721	218

English as a new language (ENL) student schedule data were analyzed for two schools over an 11-year period for a total of 22 implemented schedules. Each schedule included data for complete populations of students. Equitable course enrollment was defined as the ENL student group having no less than 5% lower enrollment than non-ENL students. If non-ENL students have an 80% enrollment in a course and ENL students have between 75%–85%, this is considered equitable. Highly included is defined as having 5% or more representation than the other group. In the previous example, if ENL students have more than 85% enrollment they would be considered highly included. Table 46 indicates whether or not ENL students had equitable/highly included or underrepresented course enrollment compared with non-ENL students in health, music, physical education, and visual arts in Middle School 1 (MS1) and Middle School 2 (MS2). Including all years and both schools, Table 46 indicates that ENL students had equitable/highly included course enrollment during 68.18% of the schedules in health, 27.27% in music, 100% of schedules in physical education and 40.91% in visual arts.

**Table 46**

*Equity Score ENL Health, Music, PE, & Visual Arts All Schedules*

<b><u>All Years Equitable Enrollment Percentage*</u></b>		68.18%	27.27%	100.00%	40.91%
<b>School</b>	<b>Year</b>	<b>ENL Health Enrollment</b>	<b>ENL Music Enrollment</b>	<b>ENL PE Enrollment</b>	<b>ENL Arts</b>
MS1	2012	1	0	1	1
MS1	2013	1	0	1	0
MS1	2014	0	0	1	1
MS1	2015	1	0	1	0

MS1	2016	1	0	1	1
MS1	2017	0	1	1	1
MS1	2018	1	1	1	0
MS1	2019	1	0	1	0
MS1	2020	0	1	1	1
MS1	2021	1	0	1	0
MS1	2022	1	0	1	0
MS2	2012	1	0	1	0
MS2	2013	1	0	1	0
MS2	2014	1	0	1	0
MS2	2015	0	1	1	1
MS2	2016	0	0	1	0
MS2	2017	1	0	1	0
MS2	2018	1	0	1	0
MS2	2019	0	0	1	0
MS2	2020	0	0	1	1
MS2	2021	1	1	1	1
MS2	2022	1	1	1	1

\*Key: 1 indicates equitable or overrepresentation for the ENL student population; 0 indicates inequitable (underrepresentation) for the ENL student population.

Table 47 provides equitable enrollment information for all music courses including band, chorus, orchestra, and general music. ENL students are equitably enrolled in 27.27% percent of schedules for band and chorus, which represent the lowest music course equitable participation. Orchestra had the highest representation of ENL students at 68.18%, while general music had the second highest equitable enrollment at 54.55%.

**Table 47**

*Equity Score ENL Ensembles and General Music All Schedules*

<b><u>All Years Equitable</u></b>	27.27%	27.27%	68.18%	54.55%
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<b><u>Enrollment Percentage*</u></b>					
School	Year	ENL Band Enrollment	ENL Chorus Enrollment	ENL Orchestra	Gen Music
MS1	2012	0	1	1	0
MS1	2013	0	1	0	0
MS1	2014	0	0	0	0
MS1	2015	0	0	0	0
MS1	2016	0	0	1	1
MS1	2017	0	0	1	1
MS1	2018	1	1	1	1
MS1	2019	1	1	1	0
MS1	2020	1	0	1	1
MS1	2021	1	0	1	1
MS1	2022	1	1	1	0
MS2	2012	0	0	0	1
MS2	2013	0	0	0	0
MS2	2014	0	0	1	1
MS2	2015	1	0	1	1
MS2	2016	0	0	1	1
MS2	2017	0	1	1	1
MS2	2018	0	0	1	0
MS2	2019	0	0	0	0
MS2	2020	0	0	1	0
MS2	2021	0	0	0	1
MS2	2022	0	0	1	1

\*Key: 1 indicates equitable or overrepresentation for the ENL student population; 0 indicates inequitable (underrepresentation) for the ENL student population.

**Equitable Health Enrollment for ENL Students.**

Table 48 includes Health course enrollment percentages for English as a new language (ENL) students and non-ENL student enrollment, and the enrollment difference.

For the ENL population MS1 has 6/11 equitable, 3/11 highly represented, 2/11

underrepresented schedules for health course enrollment. MS1 has an average difference of -0.81% for all school years. MS2 has 7/11 equitable and 4/11 underrepresented schedules for the ENL student group. MS2 has an average difference of 4.74%. Health is ranked second in equitable course enrollment for ENL students as compared with music, physical education and visual arts.

**Table 48**

*ENL Health Enrollment All Schedules*

School	Year	Non-ENL Health Enrollment	ENL Health Enrollment	Health Enrollment Difference
MS1	2012	35.17%	36.23%	-1.06%
MS1	2013	34.56%	40.00%	-5.44%
MS1	2014	22.81%	31.09%	-8.28%
MS1	2015	33.33%	32.26%	1.07%
MS1	2016	32.56%	31.75%	0.81%
MS1	2017	33.69%	26.32%	7.37%
MS1	2018	32.80%	31.25%	1.55%
MS1	2019	30.61%	44.09%	-13.48%
MS1	2020	35.46%	17.65%	17.81%
MS1	2021	32.32%	36.80%	-4.48%
MS1	2022	29.04%	33.85%	-4.81%
MS2	2012	32.04%	32.89%	-0.85%
MS2	2013	30.63%	29.27%	1.36%
MS2	2014	31.21%	29.03%	2.18%
MS2	2015	31.53%	15.85%	15.68%
MS2	2016	33.00%	21.43%	11.57%
MS2	2017	30.10%	25.53%	4.57%
MS2	2018	30.33%	28.80%	1.53%
MS2	2019	30.23%	21.33%	8.90%
MS2	2020	34.26%	27.23%	7.03%
MS2	2021	33.51%	33.33%	0.18%

MS2	2022	33.43%	33.49%	-0.06%
ENL Highly Represented: Less than -5%				
ENL Underrepresented: Greater than 5%				
ENL Equitable Representation: Between -5% and 5%				

**Equitable Music Enrollment for ENL Students.** English as a New Language (ENL) student music enrollment data are provided in Table 49. MS1 has 2/11 equitable, 1/11 highly represented and 8/11 underrepresented ENL populations in schedules. MS2 has 3/11 equitable and 8/11 underrepresented ENL populations. Although the standard for equitable enrollment is a 5% difference, several schedules have a much greater difference. Ten of the ENL underrepresented years have schedules with greater than a 10% difference, nine of the schedules have greater than a 15% difference, four have greater than a 25% difference and two have more than a 35% difference. During 2014 the ENL group difference was 48.57%. The average music enrollment difference for all years in MS1 is 14.46% and 12.79% in MS2. ENL students are underrepresented the most in music courses as compared with health, physical education and visual arts.

**Table 49**

*ENL Music Enrollment All Schedules*

School	Year	Non-ENL Music Enrollment	ENL Music Enrollment	Music Enrollment Difference
MS1	2012	96.80%	76.81%	19.99%
MS1	2013	58.05%	30.00%	28.05%
MS1	2014	71.38%	22.81%	48.57%
MS1	2015	70.20%	33.87%	36.33%
MS1	2016	67.09%	53.97%	13.12%
MS1	2017	68.08%	75.00%	-6.92%
MS1	2018	50.06%	50.00%	0.06%

MS1	2019	44.54%	36.56%	7.98%
MS1	2020	44.56%	47.90%	-3.34%
MS1	2021	43.89%	35.20%	8.69%
MS1	2022	51.17%	44.62%	6.55%
MS2	2012	71.38%	61.84%	9.54%
MS2	2013	88.50%	68.29%	20.21%
MS2	2014	90.16%	82.26%	7.90%
MS2	2015	66.90%	67.07%	-0.17%
MS2	2016	72.17%	54.76%	17.41%
MS2	2017	66.81%	58.16%	8.65%
MS2	2018	52.10%	25.54%	26.56%
MS2	2019	65.12%	45.50%	19.62%
MS2	2020	66.40%	42.72%	23.68%
MS2	2021	72.98%	69.89%	3.09%
MS2	2022	72.12%	67.89%	4.23%
SWD Highly Included: Less than -5%				
SWD Underrepresented: Greater than 5%				
SWD Equitable Representation: Between -5% and 5%				

English as a New Language (ENL) student band and chorus music enrollment data are provided in Table 50. MS1 has 5/11 equitable and 6/11 underrepresented ENL populations in band and chorus. MS2 has 1/11 equitable and 10/11 underrepresented ENL populations in band and chorus. The average band enrollment difference for all years in MS1 is 5.76% and 6.24% in MS2. The average chorus enrollment difference for all years in MS1 is 8.74% and 5.74% in MS2. ENL students are generally underrepresented in band and chorus compared with non-ENL students.

**Table 50**

*ENL Band & Chorus Enrollment All Schedules*

School	Year	Non-ENL	ENL Band	Band Diff.	Non-ENL Chorus	ENL Chorus	Chorus Diff.
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		Band					
MS1	2012	17.97%	10.14%	7.83%	8.27%	4.35%	3.92%
MS1	2013	9.42%	0.00%	9.42%	3.69%	2.86%	0.83%
MS1	2014	9.62%	0.00%	9.62%	10.60%	0.00%	10.60%
MS1	2015	14.61%	3.23%	11.38%	20.61%	6.45%	14.16%
MS1	2016	11.36%	1.59%	9.77%	21.78%	6.35%	15.43%
MS1	2017	8.33%	2.63%	5.70%	11.03%	5.26%	5.77%
MS1	2018	4.77%	2.08%	2.69%	5.63%	10.42%	-4.79%
MS1	2019	9.12%	8.60%	0.52%	9.36%	10.75%	-1.39%
MS1	2020	8.16%	4.20%	3.96%	12.06%	4.20%	7.86%
MS1	2021	7.38%	4.80%	2.58%	12.60%	4.80%	7.80%
MS1	2022	6.77%	6.92%	-0.15%	9.11%	6.15%	2.96%
MS2	2012	9.89%	3.95%	5.94%	17.08%	1.32%	15.76%
MS2	2013	7.04%	0.00%	7.04%	17.14%	2.44%	14.70%
MS2	2014	6.84%	1.61%	5.23%	16.45%	4.84%	11.61%
MS2	2015	5.14%	1.22%	3.92%	18.26%	0.00%	18.26%
MS2	2016	6.83%	1.19%	5.64%	13.00%	3.57%	9.43%
MS2	2017	7.05%	1.42%	5.63%	10.87%	6.38%	4.49%
MS2	2018	6.91%	0.54%	6.37%	12.61%	4.89%	7.72%
MS2	2019	13.00%	5.21%	7.79%	16.14%	6.16%	9.98%
MS2	2020	12.88%	1.88%	11.00%	14.21%	3.76%	10.45%
MS2	2021	10.46%	5.38%	5.08%	19.21%	5.91%	13.30%
MS2	2022	9.15%	4.13%	5.02%	18.86%	5.50%	13.36%
ENL Highly Represented							
ENL Underrepresented							
ENL Equitable Representation							

English as a New Language (ENL) student orchestra and general music enrollment data are provided in Table 51. MS1 has 8/11 equitable and 3/11 underrepresented ENL populations in orchestra. MS2 has 6/11 equitable, 1 highly represented, and 4/11 underrepresented ENL populations in orchestra. The average



orchestra enrollment difference for all years in MS1 is 1.29% and in MS2 is 2.91%.

Orchestra has the highest equitable representation for ENL students out of all music courses.

MS1 has 2/11 highly represented, 3/11 equitable, and 6/11 underrepresented ENL populations in general music. MS2 has 2/11 highly represented, 5/11 equitable, and 4/11 underrepresented ENL populations in general music. The average general music enrollment difference for all years in MS1 is 6.31% and in MS2 is 3.76%. General music has the second highest equitable representation for ENL students out of all music courses.

**Table 51**

*ENL Orchestra & General Music Enrollment All Schedules*

School	Year	Non-ENL Orchestra	ENL Orchestra	Orchestra Diff.	Non-ENL Gen Music	ENL Gen Music	Gen Music Diff.
MS1	2012	12.90%	14.49%	-1.59%	65.05%	50.72%	14.33%
MS1	2013	7.87%	2.86%	5.01%	43.74%	24.29%	19.45%
MS1	2014	10.23%	0%	10.23%	48.11%	22.81%	25.30%
MS1	2015	9.54%	1.61%	7.93%	46.41%	24.19%	22.22%
MS1	2016	6.95%	3.17%	3.78%	40.79%	44.44%	-3.65%
MS1	2017	5.28%	1.32%	3.96%	59.62%	73.68%	-14.06%
MS1	2018	2.33%	4.17%	-1.84%	41.98%	42.71%	-0.73%
MS1	2019	3.00%	6.45%	-3.45%	34.33%	25.81%	8.52%
MS1	2020	3.31%	7.56%	-4.25%	30.97%	39.50%	-8.53%
MS1	2021	5.47%	8.00%	-2.53%	27.35%	26.40%	0.95%
MS1	2022	6.90%	10.00%	-3.10%	38.67%	33.08%	5.59%
MS2	2012	7.66%	1.32%	6.34%	63.60%	61.84%	1.76%
MS2	2013	7.28%	0.00%	7.28%	82.75%	68.29%	14.46%
MS2	2014	6.84%	3.23%	3.61%	85.23%	80.65%	4.58%
MS2	2015	5.56%	1.22%	4.34%	48.50%	65.85%	-17.35%
MS2	2016	4.33%	1.19%	3.14%	58.67%	54.76%	3.91%

MS2	2017	4.85%	4.26%	0.59%	55.07%	52.48%	2.59%
MS2	2018	2.70%	0.00%	2.70%	40.39%	21.74%	18.65%
MS2	2019	6.16%	0.95%	5.21%	45.55%	36.97%	8.58%
MS2	2020	5.18%	0.94%	4.24%	51.00%	44.13%	6.87%
MS2	2021	7.02%	1.08%	5.94%	47.02%	59.68%	-12.66%
MS2	2022	49.65%	61.01%	-11.36%	6.80%	2.29%	4.51%
ENL Highly Represented							
ENL Underrepresented							
ENL Equitable Representation							

**Equitable Physical Education Enrollment for ENL Students.** Physical education was consistently equitable across all schedules for English as a new language (ENL) students (see Table 52). ENL students were equitably represented in 20 schedules and highly represented in 2 schedules when compared with non-ENL students. The two highly represented years in MS2 had ENL students highly represented by more than 10%. MS1 has an average enrollment difference of 0.06% and MS2 has an average difference of -2.27% between non-ENL and ENL students. Physical education is the only course out of music, visual arts, and health that has equitable/highly represented for ENL student enrollment in all years.

**Table 52**

*ENL Physical Education Enrollment All Schedules*

School	Year	Non ENL PE Enrollment	ENL PE Enrollment	PE Enrollment Difference
MS1	2012	100.00%	100.00%	0.00%
MS1	2013	99.76%	100.00%	-0.24%
MS1	2014	100.00%	100.00%	0.00%
MS1	2015	100.00%	100.00%	0.00%
MS1	2016	100.00%	100.00%	0.00%

MS1	2017	100.00%	100.00%	0.00%
MS1	2018	100.00%	98.96%	1.04%
MS1	2019	100.00%	100.00%	0.00%
MS1	2020	100.00%	100.00%	0.00%
MS1	2021	100.00%	100.00%	0.00%
MS1	2022	99.87%	100.00%	-0.13%
MS2	2012	85.63%	97.37%	-11.74%
MS2	2013	89.20%	91.46%	-2.26%
MS2	2014	89.56%	87.10%	2.46%
MS2	2015	78.89%	92.68%	-13.79%
MS2	2016	99.83%	98.81%	1.02%
MS2	2017	99.85%	100.00%	-0.15%
MS2	2018	98.80%	99.46%	-0.66%
MS2	2019	99.86%	100.00%	-0.14%
MS2	2020	100.00%	100.00%	0.00%
MS2	2021	100.00%	100.00%	0.00%
MS2	2022	99.86%	99.54%	0.32%
Highly Represented: Less than -5%				
Underrepresented: Greater than 5%				
Equitable Representation: Between -5% and 5%				

**Equitable Visual Arts Enrollment for ENL Students.** English as a new language (ENL) students in visual arts were equitably represented in less than half of the implemented schedules compared with their non-ENL peers (see Table 53). During 13/22 years ENL students were unrepresented and during 9/22 years ENL students were equitably or highly represented. The average equitable enrollment different in MS1 is 6.06% and is 9.3% in MS2. ENL students have a tendency to be underrepresented in visual arts courses. Visual Arts are ranked second in underrepresented ENL course enrollment compared with music, physical education and health.

**Table 53**

*ENL Visual Arts Enrollment All Schedules*

School	Year	Non-ENL Art Enrollment	ENL Art Enrollment	Art Enrollment Difference
MS1	2012	83.13%	78.26%	4.87%
MS1	2013	45.53%	21.43%	24.10%
MS1	2014	31.55%	28.07%	3.48%
MS1	2015	30.04%	14.52%	15.52%
MS1	2016	32.91%	28.57%	4.34%
MS1	2017	43.90%	50.00%	-6.10%
MS1	2018	50.92%	44.79%	6.13%
MS1	2019	50.54%	44.09%	6.45%
MS1	2020	53.66%	70.59%	-16.93%
MS1	2021	50.25%	37.60%	12.65%
MS1	2022	49.09%	36.92%	12.17%
MS2	2012	65.72%	59.21%	6.51%
MS2	2013	95.31%	87.80%	7.51%
MS2	2014	85.71%	77.42%	8.29%
MS2	2015	55.78%	63.41%	-7.63%
MS2	2016	34.00%	19.05%	14.95%

MS2	2017	64.32%	43.97%	20.35%
MS2	2018	68.47%	38.04%	30.43%
MS2	2019	70.31%	54.03%	16.28%
MS2	2020	62.68%	61.03%	1.65%
MS2	2021	66.62%	67.20%	-0.58%
MS2	2022	58.25%	53.67%	4.58%
Highly Represented: Less than -5%				
Underrepresented: Greater than 5%				
Equitable Representation: Between -5% and 5%				

### ***Equitable Course Enrollment Percentage for SWDs***

Table 54 provides enrollment data and percentages for students with disabilities (SWDs) and non-SWDs. Non-SWDs are students without classified disabilities (see p. 20 for more information). Enrollment is defined as being scheduled for at least one day because the data set provided by the school district does not include start and end dates of courses. From 2012–2022 SWDs in Middle School 1 (MS1) represent 14.82% of the population, while SWDs represent 17.18% of the population in Middle School 2 (MS2). The average total student enrollment in MS1 is 922 students and 880 students in MS2.

**Table 54**

### ***SWD Student Enrollment All Schedules***

School	Year	Non-SWD Total Enrollment Percent	SWD Total Enrollment Percent	Non-SWD Total Enrollment Count	SWD Total Enrollment Count
MS1	2012	84.53%	15.47%	825	151
MS1	2013	86.47%	13.53%	786	123
MS1	2014	85.65%	14.35%	752	126
MS1	2015	86.94%	13.06%	792	119
MS1	2016	85.75%	14.25%	794	132
MS1	2017	82.65%	17.35%	767	161

MS1	2018	84.78%	15.22%	774	139
MS1	2019	85.64%	14.36%	793	133
MS1	2020	86.74%	13.26%	837	128
MS1	2021	84.41%	15.59%	769	142
MS1	2022	83.41%	16.59%	749	149
MS2	2012	84.86%	15.14%	785	140
MS2	2013	83.62%	16.38%	781	153
MS2	2014	82.01%	17.99%	734	161
MS2	2015	80.59%	19.41%	631	152
MS2	2016	77.34%	22.66%	529	155
MS2	2017	80.78%	19.22%	664	158
MS2	2018	83.18%	16.82%	707	143
MS2	2019	85.35%	14.65%	804	138
MS2	2020	86.85%	13.15%	839	127
MS2	2021	83.53%	16.47%	786	155
MS2	2022	82.96%	17.04%	779	160

Students with disabilities (SWDs) schedule data were analyzed for two middle schools over an 11-year period for a total of 22 implemented schedules. Each schedule includes data for complete populations of students. Equitable course enrollment is defined as the SWD group having up to 5% lower enrollment than the non-SWD students. Highly represented is defined as having more than 5% representation than the non-SWDs. Table 55 indicates whether or not SWDs had equitable/ highly represented or underrepresented course enrollment compared with non-SWDs in health, music, physical education, and visual arts in Middle School 1 (MS1) and Middle School 2 (MS2). Including all years and both schools, Table 55 indicates that ENL students had equitable/ highly represented course enrollment during 72.73% of the schedules in health, 36.36% in music, 100% of schedules in physical education and 54.55% in art.

**Table 55**

*SWD Equity Score Health, Music, PE, Visual Arts All Schedules*

<b>All Years Equitable Enrollment Percentage*</b>		72.73%	36.36%	100.00%	54.55%
School	Year	Health	Music	Phys. Ed.	Art
MS1	2012	1	0	1	0
MS1	2013	1	0	1	0
MS1	2014	0	0	1	0
MS1	2015	1	0	1	0
MS1	2016	1	0	1	0
MS1	2017	0	1	1	1
MS1	2018	1	0	1	0
MS1	2019	1	1	1	1
MS1	2020	1	1	1	1
MS1	2021	1	0	1	1
MS1	2022	1	0	1	0
MS2	2012	1	0	1	0
MS2	2013	0	0	1	0
MS2	2014	0	1	1	1
MS2	2015	0	1	1	1
MS2	2016	1	0	1	0
MS2	2017	0	0	1	1
MS2	2018	1	0	1	1
MS2	2019	1	0	1	1
MS2	2020	1	1	1	1
MS2	2021	1	1	1	1
MS2	2022	1	1	1	1

\*Key: 1 indicates equitable or highly represented for the SWD student population; 0 indicates inequitable (underrepresentation) for the SWD student population.

Table 56 provides equitable enrollment information for all music courses including band, chorus, orchestra, and general music for SWDs. SWDs are equitably

enrolled in 45.45% of schedules for band, 27.27% for chorus, 68.18% for orchestra, and 95.45% for general music. According to scheduling data in this study, SWDs are more likely to be included in general music and orchestra, while they are more likely to be underrepresented in band and chorus.

**Table 56**

*Equity Score SWD Ensembles and General Music All Schedules*

<b><u>All Years Equitable Enrollment Percentage*</u></b>		45.45%	27.27%	68.18%	95.45%
<b>School</b>	<b>Year</b>	<b>SWD Band Enrollment</b>	<b>SWD Chorus Enrollment</b>	<b>SWD Orchestra</b>	<b>SWD Gen Music</b>
MS1	2012	0	0	1	1
MS1	2013	0	1	0	1
MS1	2014	0	0	0	1
MS1	2015	0	0	0	1
MS1	2016	0	0	1	1
MS1	2017	0	0	1	1
MS1	2018	1	1	1	1
MS1	2019	1	1	1	1
MS1	2020	1	0	1	1
MS1	2021	1	1	0	1
MS1	2022	0	0	0	0
MS2	2012	0	0	0	1
MS2	2013	0	0	0	1
MS2	2014	1	0	1	1
MS2	2015	1	0	1	1
MS2	2016	1	0	1	1
MS2	2017	0	0	1	1
MS2	2018	1	0	1	1
MS2	2019	0	0	1	1
MS2	2020	1	1	1	1



MS2	2021	1	1	1	1
MS2	2022	0	0	1	1

\*Key: 1 indicates equitable or highly represented for the SWD student population; 0 indicates inequitable (underrepresentation) for the SWD student population.

**Equitable Health Enrollment for SWDs.** Students with disabilities (SWD) have equitable/highly represented health course enrollment in 16 out of 22 (72.73%) implemented schedules and are underrepresented in 6 out of 22 (27.28%) schedules (Table 57). The average health enrollment difference for all years in MS1 is -3.09% and 4.02% in MS2. Based on all years there is approximately a one in four chance that SWDs will not be equitably represented in health courses. Health is ranked second in equitable course enrollment for SWDs as compared with music, physical education and visual arts.

**Table 57**

*SWD Health Enrollment All Schedules*

School	Year	Non-SWD Health Enrollment	SWD Health Enrollment	Health Enrollment Difference
MS1	2012	31.52%	55.63%	-24.11%
MS1	2013	31.93%	54.47%	-22.54%
MS1	2014	32.18%	24.60%	7.58%
MS1	2015	33.46%	31.93%	1.53%
MS1	2016	32.37%	33.33%	-0.96%
MS1	2017	34.42%	26.71%	7.71%
MS1	2018	32.43%	33.81%	-1.38%
MS1	2019	32.28%	30.08%	2.20%
MS1	2020	33.57%	31.25%	2.32%
MS1	2021	33.29%	30.99%	2.30%
MS1	2022	28.30%	36.91%	-8.61%
MS2	2012	31.85%	33.57%	-1.72%
MS2	2013	32.52%	20.26%	12.26%
MS2	2014	33.11%	21.74%	11.37%

MS2	2015	32.96%	17.11%	15.85%
MS2	2016	31.38%	32.26%	-0.88%
MS2	2017	31.17%	21.52%	9.65%
MS2	2018	29.42%	32.87%	-3.45%
MS2	2019	28.61%	26.09%	2.52%
MS2	2020	32.90%	31.50%	1.40%
MS2	2021	32.82%	36.77%	-3.95%
MS2	2022	33.63%	32.50%	1.13%
SWD Highly Represented: Less than -5%				
SWD Underrepresented: Greater than 5%				
SWD Equitable Representation: Between -5% and 5%				

**Equitable Music Enrollment for SWDs.** Students with disabilities (SWDs) have underrepresentation in music course enrollment in 14 out of 22 (63.64%) implemented schedules and are equitable/highly represented in 8 out of 22 (36.36%) schedules (Table 58). The average music enrollment difference for all years in MS1 is 11.4% and 3.77% in MS2. The difference was 10% or greater in 8 schedules, 15% or greater in 6 schedules and 20% or greater in 2 schedules. Based on all years there is approximately a one in three chance that SWDs will not be equitably represented in music courses. SWDs have the lowest representation in music courses when compared with health, physical education and visual arts.

**Table 58**

*SWD Music Enrollment All Schedules*

School	Year	Non-SWD Music Enrollment	SWD Music Enrollment	Music Enrollment Difference
MS1	2012	99.27%	74.17%	25.10%
MS1	2013	57.25%	47.15%	10.10%
MS1	2014	71.28%	50.00%	21.28%

MS1	2015	69.82%	53.78%	16.04%
MS1	2016	69.02%	49.24%	19.78%
MS1	2017	68.32%	70.19%	-1.87%
MS1	2018	51.42%	42.45%	8.97%
MS1	2019	44.01%	42.11%	1.90%
MS1	2020	45.28%	42.97%	2.31%
MS1	2021	45.12%	29.58%	15.54%
MS1	2022	51.27%	44.97%	6.30%
MS2	2012	71.72%	64.29%	7.43%
MS2	2013	88.09%	79.74%	8.35%
MS2	2014	89.65%	89.44%	0.21%
MS2	2015	67.19%	65.79%	1.40%
MS2	2016	73.53%	58.06%	15.47%
MS2	2017	66.87%	58.86%	8.01%
MS2	2018	47.67%	39.86%	7.81%
MS2	2019	62.31%	51.45%	10.86%
MS2	2020	60.31%	66.93%	-6.62%
MS2	2021	71.25%	78.06%	-6.81%
MS2	2022	70.35%	75.00%	-4.65%
SWD Highly Represented: Less than -5%				
SWD Underrepresented: Greater than 5%				
SWD Equitable Representation: Between -5% and 5%				

Band and chorus music enrollment data for SWDs are provided in Table 59. MS1 has 4/11 equitable and 7/11 underrepresented SWD populations in band. MS2 has 6/11 equitable and 5/11 underrepresented SWD populations in band. The average band enrollment difference for all years in MS1 is 8.18% and 5.24% in MS2. Students in MS1 tend to be underrepresented in band, while SWDs in MS2 are represented during approximately half of the years (54.55%).

MS1 has 4/11 equitable and 7/11 underrepresented SWD populations in chorus. MS2 has 2/11 equitable schedules 9/11 underrepresented schedules for chorus. The average chorus enrollment difference for all years in MS1 is 6.98% and 9.62% in MS2. SWDs students are generally underrepresented in chorus compared with non-SWDs.

**Table 59**

*SWD Band & Chorus Enrollment All Schedules*

School	Year	Non-SWD Band	SWD Band	Band Diff.	SWD Chorus	SWD Chorus	Chorus Diff.
MS1	2012	20.36%	1.32%	19.04%	9.09%	1.99%	7.10%
MS1	2013	9.92%	0.81%	9.11%	4.07%	0.81%	3.26%
MS1	2014	10.37%	0.79%	9.58%	11.04%	3.17%	7.87%
MS1	2015	15.66%	1.68%	13.98%	21.09%	10.08%	11.01%
MS1	2016	11.84%	3.79%	8.05%	23.05%	6.82%	16.23%
MS1	2017	9.13%	1.86%	7.27%	11.60%	5.59%	6.01%
MS1	2018	5.04%	1.44%	3.60%	6.72%	2.88%	3.84%
MS1	2019	9.58%	6.02%	3.56%	10.09%	6.02%	4.07%
MS1	2020	8.24%	3.91%	4.33%	11.95%	5.47%	6.48%
MS1	2021	7.67%	3.52%	4.15%	12.22%	7.75%	4.47%
MS1	2022	8.01%	0.67%	7.34%	9.75%	3.36%	6.39%
MS2	2012	10.83%	1.43%	9.40%	17.96%	3.57%	14.39%
MS2	2013	7.43%	1.31%	6.12%	18.31%	3.27%	15.04%
MS2	2014	7.36%	2.48%	4.88%	18.12%	4.35%	13.77%
MS2	2015	5.55%	1.32%	4.23%	19.33%	3.95%	15.38%
MS2	2016	6.81%	3.87%	2.94%	14.56%	2.58%	11.98%
MS2	2017	7.08%	1.90%	5.18%	11.90%	2.53%	9.37%
MS2	2018	6.36%	1.40%	4.96%	12.16%	4.90%	7.26%
MS2	2019	12.19%	5.80%	6.39%	14.68%	9.42%	5.26%
MS2	2020	11.08%	6.30%	4.78%	12.28%	9.45%	2.83%
MS2	2021	10.05%	6.45%	3.60%	17.18%	13.55%	3.63%
MS2	2022	8.86%	3.75%	5.11%	16.94%	10.00%	6.94%

SWD Highly Represented
SWD Underrepresented
SWD Equitable Representation

Orchestra and general music enrollment data for SWDs are provided in Table 60. MS1 has 6/11 equitable and 5/11 underrepresented SWD populations in orchestra. MS2 has 9/11 equitable and 2/11 underrepresented SWD populations in orchestra. The average orchestra enrollment difference for all years in MS1 is 3.65% and 4.86% in MS2. SWDs are included in orchestra during most of the school years (15/22 schedules).

MS1 has 4/11 highly represented, 6/11 equitable, and 1/11 underrepresented SWD populations in general music. MS2 has 4/11 highly represented and 7/11 equitable schedules for general music. The average general music enrollment difference for all years in MS1 is -2.01% and -2.76% in MS2. SWDs are equitably enrolled in general music during 21/22 schedules (95.45%).

**Table 60**

*SWD Orchestra & General Music Enrollment All Schedules*

School	Year	Non-SWD Orchestra	SWD Orchestra	Orchestra Diff.	Non-SWD Gen Music	SWD Gen Music	Gen Music Diff.
MS1	2012	13.58%	9.93%	3.65%	63.88%	64.90%	-1.02%
MS1	2013	8.40%	1.63%	6.77%	41.98%	43.90%	-1.92%
MS1	2014	10.77%	2.38%	8.39%	46.81%	44.44%	2.37%
MS1	2015	9.97%	2.52%	7.45%	44.19%	49.58%	-5.39%
MS1	2016	7.30%	3.03%	4.27%	40.81%	42.42%	-1.61%
MS1	2017	5.74%	1.24%	4.50%	58.93%	69.57%	-10.64%
MS1	2018	2.71%	1.44%	1.27%	42.64%	38.85%	3.79%
MS1	2019	3.53%	2.26%	1.27%	32.53%	39.10%	-6.57%
MS1	2020	4.18%	1.56%	2.62%	31.30%	36.72%	-5.42%
MS1	2021	6.76%	0.70%	6.06%	28.35%	21.13%	7.22%

MS1	2022	8.54%	1.34%	7.20%	37.38%	40.27%	-2.89%
MS2	2012	8.03%	2.14%	5.89%	63.44%	63.57%	-0.13%
MS2	2013	7.94%	0%	7.94%	81.82%	79.74%	2.08%
MS2	2014	7.36%	3.11%	4.25%	84.20%	88.20%	-4.00%
MS2	2015	5.71%	2.63%	3.08%	47.70%	61.18%	-13.48%
MS2	2016	4.16%	3.23%	0.93%	58.79%	56.13%	2.66%
MS2	2017	5.57%	1.27%	4.30%	54.37%	55.70%	-1.33%
MS2	2018	2.55%	0.00%	2.55%	36.21%	37.06%	-0.85%
MS2	2019	5.60%	1.45%	4.15%	43.91%	42.03%	1.88%
MS2	2020	4.53%	2.36%	2.17%	48.15%	58.27%	-10.12%
MS2	2021	6.62%	1.94%	4.68%	47.84%	58.06%	-10.22%
MS2	2022	6.29%	3.13%	3.16%	50.06%	63.13%	-13.07%
SWD Highly Represented							
SWD Underrepresented							
SWD Equitable Representation							

**Equitable Physical Education Enrollment for SWDs.** Students with disabilities (SWDs) are equitably/highly represented in all 22 schedules. The average physical education enrollment difference for all years in MS1 is 0.11% and -2.74% in MS2. SWDs had equitable representation in 18 out of 22 (81.82%) schedules and are highly represented in 4 out of 22 (18.19%) schedules. Based on all years there has been a trend of equitable/highly represented enrollment in physical education for SWDs in all years (100%). SWDs have the highest representation in physical education courses when compared with health, music and visual arts.

**Table 61**

*SWD Physical Education Enrollment All Schedules*

School	Year	Non SWD PE Enrollment	SWD PE Enrollment	PE Enrollment Difference
MS1	2012	100.00%	100.00%	0.00%

MS1	2013	99.87%	99.19%	0.68%
MS1	2014	100.00%	100.00%	0.00%
MS1	2015	100.00%	100.00%	0.00%
MS1	2016	100.00%	100.00%	0.00%
MS1	2017	100.00%	100.00%	0.00%
MS1	2018	99.87%	100.00%	-0.13%
MS1	2019	100.00%	100.00%	0.00%
MS1	2020	100.00%	100.00%	0.00%
MS1	2021	100.00%	100.00%	0.00%
MS1	2022	100.00%	99.33%	0.67%
MS2	2012	85.48%	92.86%	-7.38%
MS2	2013	88.48%	94.12%	-5.64%
MS2	2014	88.15%	95.03%	-6.88%
MS2	2015	77.97%	90.13%	-12.16%
MS2	2016	99.62%	100.00%	-0.38%
MS2	2017	100.00%	99.37%	0.63%
MS2	2018	99.15%	97.90%	1.25%
MS2	2019	100.00%	99.28%	0.72%
MS2	2020	100.00%	100.00%	0.00%
MS2	2021	100.00%	100.00%	0.00%
MS2	2022	99.74%	100.00%	-0.26%
SWD Highly Represented: Less than -5%				
SWD Underrepresented: Greater than 5%				
SWD Equitable Representation: Between -5% and 5%				

**Equitable Visual Arts Enrollment for SWDs.** Students with disabilities (SWDs)

have underrepresentation in visual arts course enrollment in 10 out of 22 (45.45%) implemented schedules and are have equitable/highly represented in 12 out of 22 (54.55%) schedules. The average visual arts enrollment difference for all years in MS1 is 9.19% and -2.37% in MS2. The underrepresented difference was 10% or greater in six schedules and 15% or greater in four. Based on all years there is approximately a one in two chance that SWDs will not be equitably represented in visual arts courses. SWDs have the second lowest representation in art courses when compared with health, physical education and music.

**Table 62**

*SWD Visual Arts Enrollment All Schedules*

School	Year	Non-SWD Art Enrollment	SWD Art	Art Enrollment Difference
MS1	2012	84.97%	70.86%	14.11%
MS1	2013	46.18%	27.64%	18.54%
MS1	2014	33.78%	16.67%	17.11%
MS1	2015	30.81%	16.81%	14.00%
MS1	2016	34.89%	18.94%	15.95%
MS1	2017	44.98%	41.61%	3.37%
MS1	2018	52.07%	40.29%	11.78%
MS1	2019	49.81%	50.38%	-0.57%
MS1	2020	55.32%	58.59%	-3.27%
MS1	2021	49.02%	45.77%	3.25%
MS1	2022	48.46%	41.61%	6.85%
MS2	2012	65.99%	60.71%	5.28%
MS2	2013	95.77%	88.89%	6.88%
MS2	2014	84.60%	87.58%	-2.98%
MS2	2015	52.93%	71.71%	-18.78%



MS2	2016	34.40%	24.52%	9.88%
MS2	2017	61.14%	59.49%	1.65%
MS2	2018	62.23%	60.14%	2.09%
MS2	2019	64.68%	78.26%	-13.58%
MS2	2020	61.74%	66.14%	-4.40%
MS2	2021	66.41%	68.39%	-1.98%
MS2	2022	55.46%	65.63%	-10.17%
SWD Highly Represented: Less than -5%				
SWD Underrepresented: Greater than 5%				
SWD Equitable Representation: Between -5% and 5%				

### ***Equitable Course Enrollment Percentage for Gender***

Table 63 provides enrollment data and percentages for gender including female/male. The data set provided by the school district does not include start and end dates, so enrollment is defined as being scheduled for at least one day in a school. From 2012–2022 females in Middle School 1 (MS1) represent 47.62% of the population and males represent 52.38%. In Middle School 2 (MS2) females represent 47.84% and males represent 52.16%. The average total student enrollment in MS1 is 922 students and 880 students in MS2.

**Table 63**

### ***Gender Student Enrollment All Schedules***

School	Year	Female Enrollment Percent	Male Enrollment Percent	Female Enrollment Count	Male Enrollment Count	Total Enrollment
MS1	2012	46.82%	53.18%	457	519	976
MS1	2013	48.62%	51.38%	442	467	909
MS1	2014	47.95%	52.05%	421	457	878
MS1	2015	46.87%	53.13%	427	484	911
MS1	2016	46.11%	53.89%	427	499	926

MS1	2017	45.37%	54.63%	421	507	928
MS1	2018	46.22%	53.78%	422	491	913
MS1	2019	48.06%	51.94%	445	481	926
MS1	2020	49.64%	50.36%	479	486	965
MS1	2021	49.40%	50.60%	450	461	911
MS1	2022	48.78%	51.22%	438	460	898
MS2	2012	49.30%	50.70%	456	469	925
MS2	2013	52.78%	47.22%	493	441	934
MS2	2014	49.94%	50.06%	447	448	895
MS2	2015	50.32%	49.68%	394	389	783
MS2	2016	47.95%	52.05%	328	356	684
MS2	2017	46.47%	53.53%	382	440	822
MS2	2018	46.59%	53.41%	396	454	850
MS2	2019	46.39%	53.61%	437	505	942
MS2	2020	44.93%	55.07%	434	532	966
MS2	2021	45.48%	54.52%	428	513	941
MS2	2022	46.11%	53.89%	433	506	939

Gender schedule data were analyzed for two schools over an 11-year period for a total of 22 implemented schedules. Each schedule includes data for complete populations of students. Female and male are the only genders represented in all schedules. Equitable course enrollment is defined as one gender having up to 5% lower enrollment than the other gender. Overrepresentation is defined as having 5% or more representation than the other group. Table 64 indicates whether or not females and males had equitable enrollment or underrepresented/overrepresented course enrollment in health, music, physical education, and visual arts in Middle School 1 (MS1) and Middle School 2 (MS2). Including all years and both schools, Table 64 indicates that females and males had equitable course enrollment during 95.45% of the schedules in health, 36.36% in

music, 81.82% of schedules in physical education and 81.82% in visual arts. Music tended to favor females, physical education favored males, and visual arts favored females and males two times each out of the four years that there was not equitable representation.

**Table 64**

*Gender Equity Score All Schedules*

<b>All Years Gender Equity Score</b>			95.45%	36.36%	81.82%	81.82%
<b>School</b>	<b>Year</b>	<b>Schedule Framework</b>	<b>Health</b>	<b>Music</b>	<b>Phys. Ed.</b>	<b>Art</b>
MS1	2012	A-F 8P	1	1	1	1
MS1	2013	A-F 8P	1	1	1	1
MS1	2014	A-F 8P	1	0	1	1
MS1	2015	A-F 8P	1	0	1	1
MS1	2016	A-F 8P	1	0	1	1
MS1	2017	A-F 8P	1	1	1	1
MS1	2018	A-F 8P	1	0	1	1
MS1	2019	A-F 8P	1	1	1	1
MS1	2020	A-F 8P	1	1	1	1
MS1	2021	A-F 8P	1	0	1	0
MS1	2022	A-F 8P	1	0	1	1
MS2	2012	A/B 8P	1	0	0	1
MS2	2013	A-D 7P	1	0	0	1
MS2	2014	A-D 7P	1	1	0	1
MS2	2015	A-F 8P	1	0	0	0
MS2	2016	A-D 7P	1	0	1	0
MS2	2017	A/B 8P	0	1	1	1
MS2	2018	A/B 7P	1	0	1	0
MS2	2019	A/B 7P	1	0	1	1
MS2	2020	A/B 7P	1	0	1	1
MS2	2021	Equity Plan	1	1	1	1

MS2	2022	Equity Plan	1	0	1	1
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\*Key: 1 indicates equitable representation for gender (female/male); 0 indicates inequitable (underrepresentation) for either gender (male/female).

**Equitable Health Enrollment for Gender.** Table 65 includes health course enrollment percentages for gender, and the enrollment difference. Females and males are equitably represented in health course enrollment in 20/22 schedules, and have underrepresentation/overrepresentation in 2/22 schedules. MS1 has an average difference of 0.07% for gender and MS2 has an average difference of 0.36% in all school years. MS1 has equitable health enrollment for gender during all years, while MS2 has equitable enrollment during 9/11 years. The MS2 2012 schedule favored females and the MS2 2017 schedule favored males. Health is ranked first in equitable course enrollment for gender as compared with music, physical education and visual arts.

**Table 65**

*Gender Health Enrollment All Schedules*

School	Year	Female Health Enrollment	Male Health Enrollment	Female Health Enrollment Difference	Male Health Enrollment Difference
MS1	2012	32.82%	37.38%	-4.56%	4.56%
MS1	2013	35.97%	34.05%	1.92%	-1.92%
MS1	2014	31.35%	30.85%	0.50%	-0.50%
MS1	2015	33.26%	33.26%	0.00%	0.00%
MS1	2016	32.32%	32.67%	-0.35%	0.35%
MS1	2017	34.20%	32.15%	2.05%	-2.05%
MS1	2018	30.09%	34.83%	-4.74%	4.74%
MS1	2019	34.38%	29.73%	4.65%	-4.65%
MS1	2020	34.24%	32.30%	1.94%	-1.94%
MS1	2021	33.11%	32.75%	0.36%	-0.36%
MS1	2022	29.22%	30.22%	-1.00%	1.00%

MS2	2012	35.31%	29.00%	6.31%	-6.31%
MS2	2013	30.22%	30.84%	-0.62%	0.62%
MS2	2014	30.20%	31.92%	-1.72%	1.72%
MS2	2015	27.92%	31.88%	-3.96%	3.96%
MS2	2016	32.32%	30.90%	1.42%	-1.42%
MS2	2017	26.18%	32.05%	-5.87%	5.87%
MS2	2018	29.04%	30.84%	-1.80%	1.80%
MS2	2019	30.66%	26.14%	4.52%	-4.52%
MS2	2020	33.41%	32.14%	1.27%	-1.27%
MS2	2021	31.54%	35.09%	-3.55%	3.55%
MS2	2022	33.49%	33.40%	0.09%	-0.09%
Gender Overrepresented: Greater than 5%					
Gender Underrepresented: Less than -5%					
Gender Equitable Representation: Between -5% and 5%					

**Equitable Music Enrollment for Gender.** Table 66 includes all music course enrollment percentages for gender, and the enrollment difference. If a student was enrolled in at least one music course (general music, band, chorus, or orchestra) the student would be counted once for music enrollment. Females and males are equitably represented in music course enrollment in 8/22 schedules when considering general music and ensemble courses altogether. Females are overrepresented, while males are underrepresented in more than 50% of the schedules (13/22). Females are underrepresented, while males have overrepresentation in 1/22 schedules for all music courses. MS1 has an average difference of 7.29% favoring females and -7.29% for males. MS2 has an average difference of 5.14% favoring females and -5.14% for males in all school years. MS1 and MS2 have female overrepresentation in music courses in six schedules each. Males only have one year of overrepresentation in MS2 when considering all music courses. Music is ranked last in equitable course enrollment for gender favoring females as compared with health, physical education and visual arts. The next section desegregates the music courses providing data for general music, band, chorus, and orchestra.

**Table 66**

*Gender Music Enrollment All Schedules*

School	Year	Female Music Enrollment	Male Music Enrollment	Female Music Enrollment Difference	Male Music Enrollment Difference
MS1	2012	97.59%	93.45%	4.14%	-4.14%
MS1	2013	57.47%	54.39%	3.08%	-3.08%
MS1	2014	73.63%	63.24%	10.39%	-10.39%
MS1	2015	73.54%	62.60%	10.94%	-10.94%
MS1	2016	71.66%	61.52%	10.14%	-10.14%

MS1	2017	70.78%	66.86%	3.92%	-3.92%
MS1	2018	54.98%	45.82%	9.16%	-9.16%
MS1	2019	46.29%	41.37%	4.92%	-4.92%
MS1	2020	46.35%	43.62%	2.73%	-2.73%
MS1	2021	48.00%	37.53%	10.47%	-10.47%
MS1	2022	55.48%	45.22%	10.26%	-10.26%
MS2	2012	75.66%	65.67%	9.99%	-9.99%
MS2	2013	83.98%	89.80%	-5.82%	5.82%
MS2	2014	90.16%	89.06%	1.10%	-1.10%
MS2	2015	72.84%	60.93%	11.91%	-11.91%
MS2	2016	72.87%	67.42%	5.45%	-5.45%
MS2	2017	64.92%	65.68%	-0.76%	0.76%
MS2	2018	52.27%	41.19%	11.08%	-11.08%
MS2	2019	64.30%	57.62%	6.68%	-6.68%
MS2	2020	64.75%	58.27%	6.48%	-6.48%
MS2	2021	74.53%	70.57%	3.96%	-3.96%
MS2	2022	74.60%	68.18%	6.42%	-6.42%
Gender Overrepresented: Greater than 5%					
Gender Underrepresented: Less than -5%					
Gender Equitable Representation: Between -5% and 5%					

Band and chorus music enrollment data for gender are provided in Table 67. Band enrollment in MS1 and MS2 have 20/22 equitable schedules for gender; and near parity in that, females and males both have one overrepresented year in band each out of the 22 implemented schedules. The average band enrollment difference for all years in MS1 for females and males are -2.31% and 2.31% favoring males. In MS2 the difference is 1.69% and -1.69% for females and males favoring females. Females and males were equitably enrolled in 90.9% of all schedules for band.

MS1 has 1/11 equitable schedule and 10/11 overrepresented/underrepresented years in chorus favoring females. MS2 has 0/11 equitable schedules for chorus 11/11 schedules favoring females. The average chorus enrollment difference for all years in MS1 is 11.35% and -11.35% favoring females. The average chorus enrollment difference for all years in MS2 is 15.09% and -15.09% favoring females. Females are overrepresented in chorus in all but one implemented schedule.

**Table 67**

*Gender Band & Chorus Enrollment All Schedules*

School	Year	Female Band	Male Band	Female Band Diff.	Male Band Diff.	Female Chorus	Male Chorus	Female Chorus Diff.	Male Chorus Diff.
MS1	2012	15.97%	18.69%	-2.72%	2.72%	11.82%	4.62%	7.20%	-7.20%
MS1	2013	7.24%	10.06%	-2.82%	2.82%	5.43%	1.93%	3.50%	-3.50%
MS1	2014	8.55%	9.41%	-0.86%	0.86%	16.39%	3.94%	12.45%	-12.45%
MS1	2015	11.71%	15.70%	-3.99%	3.99%	27.63%	12.60%	15.03%	-15.03%
MS1	2016	10.30%	11.02%	-0.72%	0.72%	33.72%	9.62%	24.10%	-24.10%
MS1	2017	6.89%	8.68%	-1.79%	1.79%	15.44%	6.51%	8.93%	-8.93%
MS1	2018	4.50%	4.48%	0.02%	-0.02%	9.48%	3.26%	6.22%	-6.22%
MS1	2019	7.87%	10.19%	-2.32%	2.32%	15.06%	4.37%	10.69%	-10.69%
MS1	2020	4.59%	10.70%	-6.11%	6.11%	17.33%	4.94%	12.39%	-12.39%
MS1	2021	5.56%	8.46%	-2.90%	2.90%	18.44%	4.77%	13.67%	-13.67%
MS1	2022	6.16%	7.39%	-1.23%	1.23%	14.16%	3.48%	10.68%	-10.68%
MS2	2012	10.09%	8.74%	1.35%	-1.35%	24.56%	7.25%	17.31%	-17.31%
MS2	2013	7.30%	5.44%	1.86%	-1.86%	22.92%	7.94%	14.98%	-14.98%
MS2	2014	6.71%	6.25%	0.46%	-0.46%	22.15%	9.15%	13.00%	-13.00%
MS2	2015	5.08%	4.37%	0.71%	-0.71%	24.37%	8.23%	16.14%	-16.14%
MS2	2016	110.79%	87.35%	23.44%	-23.44%	19.51%	4.78%	14.73%	-14.73%
MS2	2017	4.97%	7.05%	-2.08%	2.08%	17.80%	3.41%	14.39%	-14.39%
MS2	2018	4.55%	6.39%	-1.84%	1.84%	18.18%	4.63%	13.55%	-13.55%
MS2	2019	9.61%	12.67%	-3.06%	3.06%	21.51%	7.33%	14.18%	-14.18%



MS2	2020	9.22%	11.47%	-2.25%	2.25%	20.28%	5.08%	15.20%	-15.20%
MS2	2021	9.58%	9.36%	0.22%	-0.22%	26.40%	8.38%	18.02%	-18.02%
MS2	2022	7.85%	8.10%	-0.25%	0.25%	23.56%	9.09%	14.47%	-14.47%
Gender Overrepresented: Greater than 5%									
Gender Underrepresented: Less than -5%									
Gender Equitable Representation: Between -5% and 5%									

Orchestra and general music enrollment data for gender are provided in Table 68. MS1 has 1/11 equitable schedule for gender and 10/11 overrepresented/underrepresented schedules for females/males in orchestra showing more representation for females. MS2 has 2/11 equitable schedule for gender and 9/11 overrepresented/underrepresented schedules for females/males in orchestra. The average orchestra enrollment difference for all years in MS1 for females and males are 7.68% and -7.68% favoring females. In MS2 the difference is 6.73% and -6.73% for females and males favoring females. Females and males were equitably enrolled in 13.64% of all schedules for orchestra, while 86.36% of schedules were overrepresented by females.

MS1 has 7/11 equitable and 4/11 overrepresented males/underrepresented females for populations in general music. MS2 has 6/11 equitable schedules 1/11 overrepresented females/underrepresented males, and 4/11 overrepresented males/underrepresented females. The average general music enrollment difference for all years in MS1 is -3.24% and 3.24% for females and males. The average general music enrollment difference for all years in MS2 is -4.55% and 4.55% for females and males. Females are underrepresented in general music in all but one implemented schedule out of the nine schedules that do not have equitable enrollment. General music has equitable

representation of females and males in 13/22 schedules. Males are overrepresented in 8/22 schedules, while females are overrepresented in 1/22 schedules.

**Table 68**

*Gender Orchestra & General Music Enrollment All Schedules*

School	Year	Female Orchestra	Male Orchestra	Female Orchestra Diff.	Male Orchestra Diff.	Female General Music	Male General Music	Female General Music Diff.	Male General Music Diff.
MS1	2012	16.19%	10.21%	5.98%	-5.98%	62.36%	65.51%	-3.15%	3.15%
MS1	2013	12.22%	3.00%	9.22%	-9.22%	39.37%	44.97%	-5.60%	5.60%
MS1	2014	15.91%	3.72%	12.19%	-12.19%	42.28%	50.33%	-8.05%	8.05%
MS1	2015	14.05%	4.55%	9.50%	-9.50%	42.86%	46.69%	-3.83%	3.83%
MS1	2016	12.18%	2.00%	10.18%	-10.18%	35.13%	46.09%	-10.96%	10.96%
MS1	2017	8.55%	1.97%	6.58%	-6.58%	59.86%	61.54%	-1.68%	1.68%
MS1	2018	4.50%	0.81%	3.69%	-3.69%	44.31%	40.12%	4.19%	-4.19%
MS1	2019	6.29%	0.62%	5.67%	-5.67%	33.26%	33.68%	-0.42%	0.42%
MS1	2020	6.68%	1.03%	5.65%	-5.65%	29.02%	34.98%	-5.96%	5.96%
MS1	2021	9.78%	1.95%	7.83%	-7.83%	26.67%	27.77%	-1.10%	1.10%
MS1	2022	11.42%	3.48%	7.94%	-7.94%	38.36%	37.39%	0.97%	-0.97%
MS2	2012	12.06%	2.35%	9.71%	-9.71%	66.45%	60.55%	5.90%	-5.90%
MS2	2013	10.14%	2.72%	7.42%	-7.42%	76.06%	87.53%	-11.47%	11.47%
MS2	2014	10.07%	3.13%	6.94%	-6.94%	83.00%	86.83%	-3.83%	3.83%
MS2	2015	7.87%	2.31%	5.56%	-5.56%	49.24%	51.41%	-2.17%	2.17%
MS2	2016	6.40%	1.69%	4.71%	-4.71%	55.79%	60.39%	-4.60%	4.60%
MS2	2017	8.64%	1.36%	7.28%	-7.28%	48.43%	60.00%	-11.57%	11.57%
MS2	2018	3.28%	1.10%	2.18%	-2.18%	37.37%	35.46%	1.91%	-1.91%
MS2	2019	8.92%	1.58%	7.34%	-7.34%	41.42%	45.54%	-4.12%	4.12%
MS2	2020	7.60%	1.50%	6.10%	-6.10%	47.70%	50.94%	-3.24%	3.24%
MS2	2021	10.98%	1.56%	9.42%	-9.42%	43.22%	54.78%	-11.56%	11.56%
MS2	2022	9.70%	2.37%	7.33%	-7.33%	49.42%	54.74%	-5.32%	5.32%
Gender Overrepresented: Greater than 5%									
Gender Underrepresented: Less than -5%									

**Equitable Physical Education Enrollment for Gender.** Table 69 contains physical education course enrollment percentages for gender, and the enrollment difference. Females and males are equitably represented in physical education course enrollment in 18/22 schedules. Females are overrepresented, while males are underrepresented in approximately 18% of the schedules (4/22). MS1 has equitable physical education enrollment in all years. All 4 of the schedules in which females were underrepresented are from MS2 during the years 2012–2015. MS1 has an average difference of 0.08% for females and -0.08% for males in physical education. MS2 has an average difference of -9.13% for females and -9.13% for males in all school years for physical education courses. MS1 and MS2 have equitable enrollment for physical education except for four consecutive years. Physical education is ranked third in equitable course enrollment for gender as compared with health, music and visual arts.

**Table 69**

*Gender Physical Education Enrollment All Schedules*

School	Year	Female PE Enrollment	Male PE Enrollment	Female PE Enrollment Difference	Male PE Enrollment Difference
MS1	2012	100.00%	100.00%	0.00%	0.00%
MS1	2013	100.00%	99.57%	0.43%	-0.43%
MS1	2014	100.00%	100.00%	0.00%	0.00%
MS1	2015	100.00%	100.00%	0.00%	0.00%
MS1	2016	100.00%	100.00%	0.00%	0.00%
MS1	2017	100.00%	100.00%	0.00%	0.00%
MS1	2018	100.00%	99.80%	0.20%	-0.20%
MS1	2019	100.00%	100.00%	0.00%	0.00%
MS1	2020	100.00%	100.00%	0.00%	0.00%

MS1	2021	100.00%	100.00%	0.00%	0.00%
MS1	2022	100.00%	99.78%	0.22%	-0.22%
MS2	2012	73.46%	99.36%	-25.90%	25.90%
MS2	2013	79.92%	100.00%	-20.08%	20.08%
MS2	2014	79.64%	99.11%	-19.47%	19.47%
MS2	2015	62.94%	97.94%	-35.00%	35.00%
MS2	2016	99.70%	99.72%	-0.02%	0.02%
MS2	2017	100.00%	99.77%	0.23%	-0.23%
MS2	2018	98.99%	98.90%	0.09%	-0.09%
MS2	2019	99.77%	100.00%	-0.23%	0.23%
MS2	2020	100.00%	100.00%	0.00%	0.00%
MS2	2021	100.00%	100.00%	0.00%	0.00%
MS2	2022	99.77%	99.80%	-0.03%	0.03%
Gender Overrepresented: Greater than 5%					
Gender Underrepresented: Less than -5%					
Gender Equitable Representation: Between -5% and 5%					

**Equitable Visual Arts Enrollment for Gender.** Table 70 includes visual arts course enrollment percentages for gender, and the enrollment difference. Males and females are equitably represented in visual arts course enrollment in 18/22 schedules. Females are underrepresented during two years, one year in MS1 and one in MS2. Males are underrepresented during two years in MS2. Females and males are both underrepresented during two years. MS1 has an average difference of -0.91% for females and 0.91% for males. MS2 has an average difference of -0.04% for females and -0.04% for males in all school years. Visual arts are ranked second in equitable course enrollment for gender as compared with health, physical education and visual arts.

**Table 70**

*Gender Visual Arts Enrollment All Schedules*

School	Year	Female Art Enrollment	Male Art	Female Art Enrollment Difference	Male Art Enrollment Difference
MS1	2012	82.28%	83.24%	-0.96%	0.96%
MS1	2013	41.86%	45.40%	-3.54%	3.54%
MS1	2014	29.69%	32.82%	-3.13%	3.13%
MS1	2015	28.10%	29.75%	-1.65%	1.65%
MS1	2016	33.72%	31.66%	2.06%	-2.06%
MS1	2017	43.23%	45.36%	-2.13%	2.13%
MS1	2018	51.90%	48.88%	3.02%	-3.02%
MS1	2019	51.24%	48.65%	2.59%	-2.59%
MS1	2020	57.62%	53.91%	3.71%	-3.71%
MS1	2021	45.78%	51.19%	-5.41%	5.41%
MS1	2022	44.98%	49.57%	-4.59%	4.59%
MS2	2012	66.01%	64.39%	1.62%	-1.62%
MS2	2013	94.32%	95.01%	-0.69%	0.69%
MS2	2014	83.45%	86.83%	-3.38%	3.38%
MS2	2015	60.15%	52.96%	7.19%	-7.19%
MS2	2016	35.06%	29.49%	5.57%	-5.57%
MS2	2017	60.47%	61.14%	-0.67%	0.67%
MS2	2018	58.08%	65.20%	-7.12%	7.12%
MS2	2019	66.82%	66.53%	0.29%	-0.29%
MS2	2020	60.83%	63.53%	-2.70%	2.70%
MS2	2021	67.52%	66.08%	1.44%	-1.44%
MS2	2022	56.12%	58.10%	-1.98%	1.98%
Gender Overrepresented: Greater than 5%					
Gender Underrepresented: Less than -5%					
Gender Equitable Representation: Between -5% and 5%					

***Equitable Course Enrollment Percentage for Ethnicity***

Table 71 provides enrollment counts, while Table 72 includes enrollment percentages for ethnicity during all school years. Enrollment is defined as being scheduled for at least one day because the data set provided by the school district does

not include start and end dates of courses. If a group was not enrolled in school at all during an implemented schedule the group is excluded, and this is indicated in the tables with “N/A” for not applicable. From 2012–2022 MS1 student groups by ethnicity average includes 0.29% American Indian/Alaska Native, 3.02% Asian, 25.53% Black or African American, 45.82% Hispanic/Latino, 2.28% Multiracial, 0.11% Native Hawaiian/Other Pacific Islander, and 24.36% White. MS2 is average representation for all years includes 0.34% American Indian/Alaska Native, 1.85% Asian, 29.82% Black or African American, 46.53% Hispanic/Latino, 2.56% Multiracial, 0.17% Native Hawaiian/Other Pacific Islander, and 18.84% White. Hispanic/Latino represents the largest ethnic percentage. Black or African American and White represent the second third largest ethnic percentages during each year. Black or African American students represent the second largest ethnic percentages during 15/22 schedules and White students represent the second largest ethnic percentages during 7/22 schedules. MS1 and MS2 have highly diverse populations, especially when factoring in English as a new language (ENL) status, students with disabilities (SWDs) status, gender, ethnicity, and free/reduced lunch. The school district was unwilling to share free/reduced lunch variable data because the district indicated that this is highly sensitive information.

**Table 71**

*Ethnicity Student Enrollment Count All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Total
MS1	2012	N/A	34	259	389	4	N/A	290	976
MS1	2013	N/A	40	223	390	3	N/A	253	909
MS1	2014	3	39	243	349	7	N/A	237	878
MS1	2015	5	33	236	382	11	N/A	244	911

MS1	2016	5	25	243	381	9	1	262	926
MS1	2017	3	22	222	405	9	1	266	928
MS1	2018	N/A	20	219	421	18	1	234	913
MS1	2019	1	22	207	452	25	N/A	219	926
MS1	2020	1	25	214	506	39	N/A	180	965
MS1	2021	2	21	212	485	38	N/A	153	911
MS1	2022	1	25	209	487	41	1	134	898
MS2	2012	1	17	365	318	5	N/A	219	925
MS2	2013	1	17	339	361	10	N/A	206	934
MS2	2014	3	14	338	337	8	N/A	195	895
MS2	2015	6	14	285	297	11	N/A	170	783
MS2	2016	3	13	245	264	10	N/A	149	684
MS2	2017	1	17	254	398	9	1	142	822
MS2	2018	3	19	227	439	19	2	141	850
MS2	2019	3	22	214	501	39	2	161	942
MS2	2020	5	18	200	536	48	1	158	966
MS2	2021	2	15	191	532	49	N/A	152	941
MS2	2022	4	13	197	557	48	N/A	120	939

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Table 72**

*Ethnicity Enrollment Percentage All Schedules*

All Years Average Enrollment By Race		0.32%	2.44%	27.18%	46.18%	2.28%	0.14%	21.60%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A*	3.48%	26.54%	39.86%	0.41%	N/A	29.71%
MS1	2013	N/A	4.40%	24.53%	42.90%	0.33%	N/A	27.83%
MS1	2014	0.34%	4.44%	27.68%	39.75%	0.80%	N/A	26.99%
MS1	2015	0.55%	3.62%	25.91%	41.93%	1.21%	N/A	26.78%
MS1	2016	0.54%	2.70%	26.24%	41.14%	0.97%	0.11%	28.29%
MS1	2017	0.32%	2.37%	23.92%	43.64%	0.97%	0.11%	28.66%

MS1	2018	N/A	2.19%	23.99%	46.11%	1.97%	0.11%	25.63%
MS1	2019	0.11%	2.38%	22.35%	48.81%	2.70%	N/A	23.65%
MS1	2020	0.10%	2.59%	22.18%	52.44%	4.04%	N/A	18.65%
MS1	2021	0.22%	2.31%	23.27%	53.24%	4.17%	N/A	16.79%
MS1	2022	0.11%	2.78%	23.27%	54.23%	4.57%	0.11%	14.92%
MS2	2012	0.11%	1.84%	39.46%	34.38%	0.54%	N/A	23.68%
MS2	2013	0.11%	1.82%	36.30%	38.65%	1.07%	N/A	22.06%
MS2	2014	0.34%	1.56%	37.77%	37.65%	0.89%	N/A	21.79%
MS2	2015	0.77%	1.79%	36.40%	37.93%	1.40%	N/A	21.71%
MS2	2016	0.44%	1.90%	35.82%	38.60%	1.46%	N/A	21.78%
MS2	2017	0.12%	2.07%	30.90%	48.42%	1.09%	0.12%	17.27%
MS2	2018	0.35%	2.24%	26.71%	51.65%	2.24%	0.24%	16.59%
MS2	2019	0.32%	2.34%	22.72%	53.18%	4.14%	0.21%	17.09%
MS2	2020	0.52%	1.86%	20.70%	55.49%	4.97%	0.10%	16.36%
MS2	2021	0.21%	1.59%	20.30%	56.54%	5.21%	N/A	16.15%
MS2	2022	0.43%	1.38%	20.98%	59.32%	5.11%	N/A	12.78%

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Table 73 provides aggregated equity score averages for health, music, physical education and visual arts for seven ethnic groups by year, and indicates the average for all years. The 5% equity standard is applied to determine if each course has equitable enrollment for each ethnicity. Each time a course is equitable for a group (up to a 5% difference for an ethnic group compared with the entire group average enrollment) or highly represented (the group having greater than 5% representation) the course is assigned a score of 1. If course enrollment is not equitable (the group has lower than 5% representation compared with the group average) the course is assigned a score of 0. Table 73 indicates aggregated averages of 0's and 1's for ethnicity enrollment in health,



music, physical education, and visual arts courses. There are four equity rating descriptions including: equitably included, approaching equitable, underrepresented, and greatly underrepresented. These ratings are underlined when they are used as equity rating descriptions to clearly indicate to the reader that the ratings represent a range of percentages. Equitably included representation for a group is defined as 85% or more of courses for the particular group having equitable course enrollment with the 5% equity standard. Approaching equitable is 80%–84.99%, underrepresented is 70%–79.99%, and greatly underrepresented is below 70% of courses achieving the 5% equity standard.

MS1 2015 Schedule A–F 8P for Asians will be discussed in detail to assist readers in interpreting the data in Table 73. In 2015 MS1 Schedule A–F Asians are equitably included using the 5% standard in health (Table 77, p. 187), physical education, (Table 79, p. 190), and visual arts (Table 92, p. 207). Asians are not equitably included in music (Table 79, p. 190). Out of the four courses, Asians were equitably included 75%, which results in an underrepresented rating. Asians are assigned an overall underrepresented rating because 75% is between 70%–79%, and they are not being equitably included in 25% of all courses analyzed for MS1 2015 A–F 8P.

Black/African American, Hispanic/Latino, Native Hawaiian/Other Pacific Islander, and White students are equitably included overall when averaging health, music, physical education, and visual arts equitable enrollment. American Indian/Alaska Native and Multiracial students are approaching equitable, while Asians are underrepresented. MS1 2017 A–F 2017 and MS1 2022 are the only implemented schedules with the equitably included rating for all ethnicities (Table 73).

**Table 73**

*Ethnicity Equity Score Health, Music, PE, & Visual Arts All Schedules*

Equity Percentage			83.99%	74.43%	95.27%	91.29%	84.28%	91.67%	92.99%
School	Year	Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	A–F 8P	N/A	79.17%	100%	100%	75%	N/A	79.17%
MS1	2013	A–F 8P	N/A	62.5%	100%	75%	100%	N/A	100%
MS1	2014	A–F 8P	100%	50%	100%	100%	50%	N/A	100%
MS1	2015	A–F 8P	100%	75%	100%	75%	75%	N/A	100%
MS1	2016	A–F 8P	33.33%	50%	75%	50%	25%	100%	100%
MS1	2017	A–F 8P	100.00%	100%	100%	100%	100%	100%	100%
MS1	2018	A–F 8P	N/A	87.5%	100%	100%	100%	66.67%	100%
MS1	2019	A–F 8P	33.33%	87.5%	100%	100%	87.5%	N/A	100%
MS1	2020	A–F 8P	100%	75%	100%	100%	87.5%	N/A	75%
MS1	2021	A–F 8P	83.33%	87.5%	100%	87.5%	87.5%	N/A	100%
MS1	2022	A–F 8P	100%	87.5%	100%	87.5%	87.5%	100%	100%
MS2	2012	A/B 8P	100%	87.5%	100%	100%	37.5%	N/A	100%
MS2	2013	A–D 7P	100%	58.33%	100%	100%	100%	N/A	91.67%
MS2	2014	A–D 7P	100%	91.67%	83.33%	100%	66.67%	N/A	100%
MS2	2015	A–F 8P	66.67%	25%	100%	100%	91.67%	N/A	100%
MS2	2016	A–D 7P	100%	50%	100%	100%	100%	N/A	75%
MS2	2017	A/B 8P	50%	100%	75%	87.5%	100%	100%	87.5%
MS2	2018	A/B 7P	100%	83.33%	100%	66.67%	91.67%	100%	83.33%
MS2	2019	A/B 7P	75%	75%	75%	91.67%	91.67%	100%	91.67%
MS2	2020	A/B 7P	87.50%	75%	100%	100%	100%	66.67%	100%
MS2	2021	Equity Plan	100.00%	75%	100%	100%	100%	N/A	75%
MS2	2022	Equity Plan	66.67%	75%	87.5%	87.5%	100%	N/A	87.5%
Equitable: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Equitable Health Enrollment for Ethnicity.** Health courses were offered in grade 6 during four implemented schedules and in grade 7 during all implemented schedules. It was necessary to present the data by grade level for health because health is not offered in all grade levels. Asians, American Indians/Alaska Natives, and Native Hawaiians/Other Pacific Islanders are not enrolled during each year and grade level. There are years when specific ethnic groups are not represented in all grade levels and this happens by chance due to low enrollment of ethnic groups. Health may have been offered in grade 7 for example, while there were only American Indians/Alaska Natives in grade 8. If grade levels were not separated for health it would appear erroneously that American Indians/Alaska Natives are not equitably included in health in grade 7, when there are 0 American Indians/Alaska Natives in grade 7. Desegregating grade levels was necessary to accurately reflect the ethnicity data.

Health is required once in middle school for 0.5 units of study (New York State Education Department, 2012; 2019b), and there was one health teacher per school. The master scheduler determines what grade that mandated health would be offered. Table 74 includes data for all health courses in all grade levels. According to all of the aggregated data for health course enrollment all ethnic groups are equitably enrolled in health, except for Asians, who are greatly underrepresented during 5 implemented schedules. Table 75 and Table 76 display equitable enrollment information and percentages for Grade 6 health courses. Table 77 and Table 78 display grade 7 health enrollment information during all 22 schedules.

**Table 74**

*Ethnicity All Grades Health Equitable Enrollment Percentage*

Equity Percentage			85%	77.27%	100%	100%	93%	100%	93.18%
School	Year	Sch. Count	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	A–F 8P	N/A	0%	100%	100%	50%	N/A	50%
MS1	2013	A–F 8P	N/A	0%	100%	100%	N/A	N/A	100%
MS1	2014	A–F 8P	N/A	100%	100%	100%	100%	N/A	100%
MS1	2015	A–F 8P	100%	100%	100%	100%	100%	N/A	100%
MS1	2016	A–F 8P	100%	100%	100%	100%	100%	N/A	100%
MS1	2017	A–F 8P	N/A	100%	100%	100%	100%	100%	100%
MS1	2018	A–F 8P	N/A	100%	100%	100%	100%	N/A	100%
MS1	2019	A–F 8P	N/A	100%	100%	100%	100%	N/A	100%
MS1	2020	A–F 8P	100%	100%	100%	100%	100%	N/A	100%
MS1	2021	A–F 8P	N/A	100%	100%	100%	100%	N/A	100%
MS1	2022	A–F 8P	100%	100%	100%	100%	100%	N/A	100%
MS2	2012	A/B 8P	N/A	100%	100%	100%	100%	N/A	100%
MS2	2013	A–D 7P	N/A	100%	100%	100%	100%	N/A	100%
MS2	2014	A–D 7P	100%	100%	100%	100%	0%	N/A	100%
MS2	2015	A–F 8P	0%	0%	100%	100%	100%	N/A	100%
MS2	2016	A–D 7P	100%	0%	100%	100%	100%	N/A	0%
MS2	2017	A/B 8P	N/A	100%	100%	100%	100%	N/A	100%
MS2	2018	A/B 7P	N/A	100%	100%	100%	100%	N/A	100%
MS2	2019	A/B 7P	50%	0%	100%	100%	100%	100%	100%
MS2	2020	A/B 7P	100%	100%	100%	100%	100%	N/A	100%
MS2	2021	Equity Plan	100%	100%	100%	100%	100%	N/A	100%
MS2	2022	Equity Plan	N/A	100%	100%	100%	100%	N/A	100%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99%(Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99%(Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70%(Courses within the 5% Equity Standard)									

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Grade 6 health was offered during two years in Middle School 1 (MS1) and two years in Middle School 2 (MS2). Grade 6 and 7 health courses are the same course contents taught by the same health teacher. The scheduler appears to have made the decision to offer this course curriculum in grade 6, instead grades 7 or 8 as the regulations specify (New York State Education Department, 2012; 2019b). In grade 6 MS1 had the following equitable enrollment percentages: 50% Asian, 100% Black or African American, 100% Hispanic/Latino, 0% Multiracial, and 100% White. In grade 6 MS2 had the following equitable enrollment percentages: 0% American Indian/Alaska Native, 50% Asian, 50% Black or African American, 100% Hispanic/Latino, 50% Multiracial, and 100% White. This grade 6 health course was not an elective and appears to satisfy the middle school 0.5 unit of study for health.

**Table 75**

*Ethnicity Grade 6 Health Equitable Enrollment Percentage*

Equity Percentage**		0.00%	50.00%	75.00%	100.00%	25.00%	N/A	100.00%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	1	1	1	0	N/A	1
MS1	2013	N/A	0	1	1	0	N/A	1
MS2	2015	0	1	0	1	0	N/A	1
MS2	2019	0	0	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or overrepresentation for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 76**

*Ethnicity Grade 6 Health Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	50.00%	49.35%	52.27%	0.00%	N/A	55.81%	52.09%
MS1	2013	N/A	0.00%	8.14%	3.31%	0.00%	N/A	6.33%	5.30%
MS2	2015	0.00%	40.00%	8.82%	20.51%	0.00%	N/A	32.65%	19.23%
MS2	2019	0.00%	0.00%	18.97%	16.00%	36.84%	N/A	14.06%	16.98%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Health courses were offered in Grade 7 during each year for MS1 and MS2. Table 77 and Table 46 display grade 7 health enrollment information during all 22 schedules. In grade 7 MS1 had the following equitable enrollment percentages: 100% American Indian/Alaska Native, 90.91% Asian, 100% Black or African American, 100% Hispanic/Latino, 100% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 90.91% White. In grade 7 MS2 had the following equitable enrollment percentages: 83.33% American Indian/Alaska Native, 72.73% Asian, 100% Black or African American, 100% Hispanic/Latino, 90.91% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 90.91% White. Asians were not enrolled during 7/11 MS1 schedules and 5/11 MS2 schedules. Native Hawaiians/Other Pacific Islanders were not enrolled during 10/11 schedules in MS1 and 10/11 schedules in MS2.

**Table 77**

*Ethnicity Grade 7 Health Equitable Enrollment Percentage*

<b>Equity Percentage**</b>		90.00%	81.82%	100%	100%	95.24%	100%	90.91%
<b>School</b>	<b>Year</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>

MS1	2012	N/A	0	1	1	1	N/A	0
MS1	2013	N/A	1	1	1	N/A	N/A	1
MS1	2014	N/A	1	1	1	1	N/A	1
MS1	2015	1	1	1	1	1	N/A	1
MS1	2016	1	1	1	1	1	N/A	1
MS1	2017	N/A	1	1	1	1	1	1
MS1	2018	N/A	1	1	1	1	N/A	1
MS1	2019	N/A	1	1	1	1	N/A	1
MS1	2020	1	1	1	1	1	N/A	1
MS1	2021	N/A	1	1	1	1	N/A	1
MS1	2022	1	1	1	1	1	N/A	1
MS2	2012	N/A	1	1	1	1	N/A	1
MS2	2013	N/A	1	1	1	1	N/A	1
MS2	2014	1	1	1	1	0	N/A	1
MS2	2015	0	0	1	1	1	N/A	1
MS2	2016	1	0	1	1	1	N/A	0
MS2	2017	N/A	1	1	1	1	N/A	1
MS2	2018	N/A	1	1	1	1	N/A	1
MS2	2019	1	0	1	1	1	1	1
MS2	2020	1	1	1	1	1	N/A	1
MS2	2021	1	1	1	1	1	N/A	1
MS2	2022	N/A	1	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 78**

*Ethnicity Grade 7 Health Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	20.00%	51.39%	53.62%	100%	N/A	42.86%	49.06%
MS1	2013	N/A	87.50%	98.68%	97.74%	N/A	N/A	97.53%	97.39%

MS1	2014	N/A	100%	91.46%	94.74%	100%	N/A	93.59%	93.81%
MS1	2015	100%	100%	98.89%	99.16%	100%	N/A	100%	99.34%
MS1	2016	100%	100%	93.44%	98.48%	100%	N/A	100%	97.97%
MS1	2017	N/A	100%	95.00%	95.45%	100%	100%	100%	96.84%
MS1	2018	N/A	100%	100%	100%	100%	N/A	100%	100%
MS1	2019	N/A	100%	100%	100%	100%	N/A	100%	100%
MS1	2020	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2021	N/A	100%	100%	100%	100%	N/A	100%	100%
MS1	2022	100%	100%	85.53%	90.80%	90.00%	N/A	90.24%	89.60%
MS2	2012	N/A	100.00%	95.80%	93.33%	100%	N/A	98.72%	95.81%
MS2	2013	N/A	100%	90.83%	89.23%	100.00%	N/A	93.94%	91.05%
MS2	2014	100%	100%	81.10%	84.00%	75.00%	N/A	92.19%	84.71%
MS2	2015	50.00%	50.00%	71.30%	76.47%	100.00%	N/A	77.42%	74.33%
MS2	2016	100%	71.43%	90.70%	81.11%	80.00%	N/A	76.47%	83.33%
MS2	2017	N/A	100%	95.83%	88.80%	100.00%	N/A	98.00%	92.97%
MS2	2018	N/A	100%	97.30%	98.56%	100%	N/A	100%	98.45%
MS2	2019	100%	54.55%	62.50%	63.03%	62.50%	100.00%	74.07%	64.91%
MS2	2020	100%	100%	100%	98.83%	100%	N/A	100%	99.37%
MS2	2021	100%	100%	100%	100%	100%	N/A	100%	100%
MS2	2022	N/A	100%	100%	100%	100%	N/A	100%	100%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.



**Equitable Music Enrollment for Ethnicity.** Equitable music course enrollment percentages for ethnicity are presented in Table 79 and Table 80. MS1 has the following equitable average enrollment percentages for all 11 years: 75% American Indian/Alaska Native, 81.82% Asian, 100% Black or African American, 90.91% Hispanic/Latino, 81.82% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 100% White. The percentages represent the percentage of years that ethnic groups were equitably enrolled in music. The American Indian/Alaska Native group was not enrolled in school during 4 years in MS1 and the Native Hawaiian/Other Pacific Islander group was not enrolled in school during 7 years in MS1. MS2 has the following equitable enrollment percentages: 81.82% American Indian/Alaska Native, 63.64% Asian, 81.82% Black or African American, 90.91% Hispanic/Latino, 100% Multiracial, 75% Native Hawaiian/Other Pacific Islander, and 100% White. The Native Hawaiian/Other Pacific Islander group was not enrolled in school during seven years in MS2.

**Table 79**

*Ethnicity Music Equitable Enrollment Percentage*

<b>All Years Equity Percentage**</b>		78.95%	72.73%	90.91%	90.91%	90.91%	87.50%	100%
<b>School</b>	<b>Year</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>
MS1	2012	N/A	1	1	1	1	N/A	1
MS1	2013	N/A	1	1	1	1	N/A	1
MS1	2014	1	1	1	1	0	N/A	1
MS1	2015	1	0	1	1	1	N/A	1
MS1	2016	0	0	1	0	0	1	1
MS1	2017	1	1	1	1	1	1	1
MS1	2018	N/A	1	1	1	1	1	1
MS1	2019	0	1	1	1	1	N/A	1

MS1	2020	1	1	1	1	1	N/A	1
MS1	2021	1	1	1	1	1	N/A	1
MS1	2022	1	1	1	1	1	1	1
MS2	2012	1	1	1	1	1	N/A	1
MS2	2013	1	0	1	1	1	N/A	1
MS2	2014	1	1	1	1	1	N/A	1
MS2	2015	1	1	1	1	1	N/A	1
MS2	2016	1	1	1	1	1	N/A	1
MS2	2017	0	1	0	1	1	1	1
MS2	2018	1	1	1	0	1	1	1
MS2	2019	1	1	0	1	1	1	1
MS2	2020	1	0	1	1	1	0	1
MS2	2021	1	0	1	1	1	N/A	1
MS2	2022	0	0	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 80**

*Ethnicity Music Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	100.00%	94.98%	93.57%	100.00%	N/A	97.59%	95.39%
MS1	2013	N/A	60.00%	61.88%	52.31%	66.67%	N/A	55.34%	55.89%
MS1	2014	100.00%	74.36%	70.37%	64.47%	57.14%	N/A	70.46%	68.22%
MS1	2015	80.00%	57.58%	69.92%	66.49%	81.82%	N/A	68.03%	67.73%
MS1	2016	60%	56.0%	71.60%	60.37%	55.56%	100%	70.99%	66.20%
MS1	2017	100.00%	68.18%	68.92%	69.38%	77.78%	100%	66.54%	68.64%
MS1	2018	N/A	60.00%	51.14%	49.64%	83.33%	100%	46.15%	50.05%
MS1	2019	0%	45.45%	45.89%	42.04%	44.00%	N/A	45.21%	43.74%
MS1	2020	100.00%	44.00%	44.39%	46.84%	58.97%	N/A	37.22%	44.97%
MS1	2021	50.00%	38.10%	43.40%	42.47%	44.74%	N/A	42.48%	42.70%

MS1	2022	100.00%	64.00%	47.37%	48.67%	63.41%	100%	52.99%	50.22%
MS2	2012	100.00%	76.47%	68.49%	69.81%	60%	N/A	74.89%	70.59%
MS2	2013	100.00%	76.47%	84.96%	84.21%	100.00%	N/A	94.17%	86.72%
MS2	2014	100.00%	92.86%	88.76%	88.72%	87.50%	N/A	92.31%	89.61%
MS2	2015	83.33%	71.43%	69.12%	66.33%	81.82%	N/A	62.35%	66.92%
MS2	2016	66.67%	69.23%	69.39%	66.67%	70.00%	N/A	77.18%	70.03%
MS2	2017	0.00%	70.59%	62.60%	65.33%	66.67%	100%	69.72%	65.33%
MS2	2018	100.00%	63.16%	48.90%	37.36%	63.16%	100%	63.83%	46.35%
MS2	2019	66.67%	72.73%	53.74%	58.08%	76.92%	100%	72.05%	60.72%
MS2	2020	80.00%	50.00%	61.50%	57.84%	64.58%	0%	72.15%	61.18%
MS2	2021	100.00%	66.67%	75.39%	72.93%	77.55%	N/A	65.13%	72.37%
MS2	2022	25.00%	61.54%	73.10%	70.56%	79.17%	N/A	70.00%	71.14%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Equitable band course enrollment percentages for ethnicity are presented in Table 81 and Table 82. MS1 has the following average equitable enrollment percentages for all 11 years: 75% American Indian/Alaska Native, 100% Asian, 90.91% Black or African American, 100% Hispanic/Latino, 36.36% Multiracial, 0% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled during 3 years in MS1 and the Native Hawaiian/Other Pacific Islander group was not enrolled during 7 years in MS1. MS2 has the following equitable enrollment percentages: 60% American Indian/Alaska Native, 72.73% Asian, 100% Black or African American, 100% Hispanic/Latino, 72.73% Multiracial, 0% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled during 1 year in MS2 and the Native Hawaiian/Other Pacific

Islander group was not enrolled during 7 years in MS2. Asian, Black or African American, Hispanic/Latino, and White students tend to enroll in band, while American Indian/Alaska Native, Multiracial, and Hawaiian/Other Pacific Islander students do not.

**Table 81**

*Ethnicity Band Equitable Enrollment Percentage*

<b>All Years Equitable Enrollment Percentage**</b>		66.67%	86.36%	95.45%	100%	54.55%	0%	100%
<b>School</b>	<b>Year</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>
MS1	2012	N/A	1	0	1	0	N/A	1
MS1	2013	N/A	1	1	1	0	N/A	1
MS1	2014	0	1	1	1	0	N/A	1
MS1	2015	1	1	1	1	0	N/A	1
MS1	2016	1	1	1	1	0	0	1
MS1	2017	1	1	1	1	0	0	1
MS1	2018	N/A	1	1	1	1	0	1
MS1	2019	0	1	1	1	0	N/A	1
MS1	2020	1	1	1	1	1	N/A	1
MS1	2021	1	1	1	1	1	N/A	1
MS1	2022	1	1	1	1	1	0	1
MS2	2012	0	1	1	1	0	N/A	1
MS2	2013	0	1	1	1	0	N/A	1
MS2	2014	1	1	1	1	0	N/A	1
MS2	2015	1	1	1	1	1	N/A	1
MS2	2016	1	1	1	1	1	N/A	1
MS2	2017	N/A	1	1	1	1	0	1
MS2	2018	1	1	1	1	1	0	1
MS2	2019	1	1	1	1	1	0	1
MS2	2020	1	0	1	1	1	N/A	1
MS2	2021	0	0	1	1	1	N/A	1
MS2	2022	0	0	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 82**

*Ethnicity Band Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	32.35%	10.04%	15.94%	0%	N/A	24.48%	17.42%
MS1	2013	N/A	17.50%	6.28%	6.67%	0%	N/A	12.65%	8.69%
MS1	2014	0%	17.95%	8.64%	6.02%	0%	N/A	12.66%	9.00%
MS1	2015	20%	30.30%	13.56%	9.69%	0%	N/A	18.85%	13.83%
MS1	2016	20%	24.00%	9.05%	8.14%	0%	0%	14.89%	10.69%
MS1	2017	33.33%	22.73%	6.76%	4.94%	0%	0%	12.03%	7.87%
MS1	2018	N/A	20.00%	5.02%	3.09%	5.56%	0%	5.13%	4.49%
MS1	2019	0%	13.64%	7.25%	9.07%	4.00%	N/A	10.96%	9.07%
MS1	2020	100.00%	16.00%	6.07%	7.71%	10.26%	N/A	7.22%	7.67%
MS1	2021	50.00%	28.57%	2.83%	7.42%	7.89%	N/A	7.84%	7.03%
MS1	2022	100.00%	36.00%	5.74%	5.75%	12.20%	0%	4.48%	6.79%
MS2	2012	0%	5.88%	7.40%	7.55%	0%	N/A	15.98%	9.41%
MS2	2013	0%	5.88%	6.49%	4.71%	0%	N/A	9.71%	6.42%
MS2	2014	33.33%	7.14%	6.80%	4.15%	0%	N/A	9.74%	6.48%
MS2	2015	16.67%	0.00%	3.86%	2.02%	9.09%	N/A	10.59%	4.73%
MS2	2016	33.33%	7.69%	5.31%	1.89%	20.00%	N/A	13.42%	6.14%
MS2	2017	N/A	11.76%	4.72%	4.02%	22.22%	0%	12.68%	6.08%
MS2	2018	33.33%	10.53%	6.17%	2.51%	5.26%	0%	12.77%	5.53%
MS2	2019	33.33%	9.09%	8.41%	9.38%	17.95%	0%	19.25%	11.25%
MS2	2020	20%	0%	10.50%	8.96%	12.50%	N/A	15.82%	10.46%
MS2	2021	0%	0%	9.42%	9.21%	8.16%	N/A	11.84%	9.46%
MS2	2022	0%	0%	7.61%	7.18%	14.58%	N/A	10.83%	7.99%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%									

Equitable Representation = Between +5% and -5% of the Average Enrollment Percent

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Equitable chorus course enrollment percentages for ethnicity are presented in Table 83 and Table 84. MS1 has the following average equitable enrollment percentages for all 11 years: 12.5% American Indian/Alaska Native, 45.45% Asian, 100% Black or African American, 100% Hispanic/Latino, 72.73% Multiracial, 0% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled during 3 years in MS1 and the Native Hawaiian/Other Pacific Islander group was not enrolled in school during 7 years in MS1. MS2 has the following equitable enrollment percentages: 30% American Indian/Alaska Native, 63.64% Asian, 100% Black or African American, 100% Hispanic/Latino, 45.45% Multiracial, 0% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled during 1 year in MS2 and the Native Hawaiian/Other Pacific Islander group was not enrolled in school during 7 years in MS2.

**Table 83**

*Ethnicity Chorus Equitable Enrollment Percentage*

<u>All Years Equity Percentage**</u>		22.22%	54.55%	100%	100%	59.09%	0%	100%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	0	1	1	0	N/A	1
MS1	2013	N/A	0	1	1	0	N/A	1
MS1	2014	0	0	1	1	1	N/A	1
MS1	2015	1	0	1	1	0	N/A	1
MS1	2016	0	0	1	1	1	0	1
MS1	2017	0	1	1	1	1	0	1

MS1	2018	N/A	1	1	1	1	0	1
MS1	2019	0	1	1	1	1	N/A	1
MS1	2020	0	1	1	1	1	N/A	1
MS1	2021	0	0	1	1	1	N/A	1
MS1	2022	0	1	1	1	1	0	1
MS2	2012	0	1	1	1	0	N/A	1
MS2	2013	0	1	1	1	0	N/A	1
MS2	2014	0	1	1	1	0	N/A	1
MS2	2015	0	1	1	1	0	N/A	1
MS2	2016	0	1	1	1	1	N/A	1
MS2	2017	N/A	1	1	1	0	0	1
MS2	2018	1	1	1	1	0	0	1
MS2	2019	1	0	1	1	1	0	1
MS2	2020	1	0	1	1	1	0	1
MS2	2021	0	0	1	1	1	N/A	1
MS2	2022	0	0	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 84**

*Ethnicity Chorus Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	2.94%	9.65%	7.46%	0%	N/A	7.93%	7.99%
MS1	2013	N/A	0%	4.93%	3.59%	0%	N/A	3.16%	3.63%
MS1	2014	0%	2.56%	9.88%	9.17%	14.29%	N/A	12.24%	9.91%
MS1	2015	20%	12.12%	16.95%	18.85%	9.09%	N/A	25.00%	19.65%
MS1	2016	0%	12%	21.81%	18.90%	33.33%	0%	23.28%	20.73%
MS1	2017	0%	9.09%	6.76%	10.62%	22.22%	0%	13.53%	10.56%
MS1	2018	N/A	10%	3.65%	6.89%	5.56%	0%	6.84%	6.13%
MS1	2019	0%	9.09%	10.14%	8.85%	12.00%	N/A	10.05%	9.50%

MS1	2020	0%	12%	12.62%	9.29%	17.95%	N/A	12.78%	11.09%
MS1	2021	0%	0%	14.15%	10.52%	18.42%	N/A	11.11%	11.53%
MS1	2022	0%	4%	7.66%	8.83%	12.20%	0%	9.70%	8.69%
MS2	2012	0%	35.29%	16.71%	11.01%	0.00%	N/A	20.09%	15.78%
MS2	2013	0%	23.53%	13.27%	13.30%	0.00%	N/A	24.76%	15.85%
MS2	2014	0%	28.57%	15.38%	15.13%	0.00%	N/A	16.92%	15.64%
MS2	2015	0%	35.71%	13.68%	13.80%	9.09%	N/A	24.71%	16.35%
MS2	2016	0%	46.15%	9.39%	7.20%	10.00%	N/A	21.48%	11.84%
MS2	2017	N/A	17.65%	5.12%	9.80%	0.00%	0%	19.72%	10.10%
MS2	2018	66.67%	15.79%	8.81%	6.83%	5.26%	0%	26.24%	10.94%
MS2	2019	66.67%	4.55%	12.15%	11.98%	25.64%	0%	19.88%	13.91%
MS2	2020	20%	5.56%	12.50%	8.58%	20.83%	0%	20.25%	11.90%
MS2	2021	0%	6.67%	19.37%	14.10%	20.41%	N/A	21.71%	16.58%
MS2	2022	0%	0%	15.23%	14.00%	18.75%	N/A	25.83%	15.76%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Equitable orchestra course enrollment percentages for ethnicity are presented in Table 85 and Table 86. MS1 has the following average equitable enrollment percentages for all 11 years: 37.5% American Indian/Alaska Native, 90.91% Asian, 100% Black or African American, 100% Hispanic/Latino, 45.45% Multiracial, 75% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled in orchestra during three years in MS1 and the Native Hawaiian/Other Pacific Islander group was not enrolled during seven years in MS1. MS2 has the following equitable enrollment percentages: 10% American Indian/Alaska Native, 63.64% Asian, 100% Black or African American, 100% Hispanic/Latino, 45.45%



Multiracial, 0% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled in school during one year in MS2 and the Native Hawaiian/Other Pacific Islander group was not enrolled in school during seven years in MS2.

**Table 85**

*Ethnicity Orchestra Equitable Enrollment Percentage*

<b><u>All Years Equity Percentage**</u></b>		22.22%	77.27%	100%	100%	45.45%	37.5%	100%
<b>School</b>	<b>Year</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>
MS1	2012	N/A	1	1	1	0	N/A	1
MS1	2013	N/A	1	1	1	0	N/A	1
MS1	2014	1	1	1	1	0	N/A	1
MS1	2015	1	1	1	1	1	N/A	1
MS1	2016	1	1	1	1	0	1	1
MS1	2017	0	1	1	1	0	1	1
MS1	2018	N/A	1	1	1	0	0	1
MS1	2019	0	1	1	1	1	N/A	1
MS1	2020	0	1	1	1	1	N/A	1
MS1	2021	0	0	1	1	1	N/A	1
MS1	2022	0	1	1	1	1	1	1
MS2	2012	1	1	1	1	0	N/A	1
MS2	2013	0	1	1	1	0	N/A	1
MS2	2014	0	1	1	1	0	N/A	1
MS2	2015	0	1	1	1	0	N/A	1
MS2	2016	0	0	1	1	0	N/A	1
MS2	2017	N/A	0	1	1	0	0	1
MS2	2018	0	1	1	1	1	0	1
MS2	2019	0	1	1	1	1	0	1
MS2	2020	0	1	1	1	1	0	1
MS2	2021	0	0	1	1	1	N/A	1

MS2	2022	0	0	1	1	1	N/A	1
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Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 86**

*Ethnicity Orchestra Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	23.53%	13.51%	12.85%	0%	N/A	11.72%	13.01%
MS1	2013	N/A	20%	7.62%	6.92%	0%	N/A	6.32%	7.48%
MS1	2014	33.33%	20.51%	9.88%	8.60%	0%	N/A	8.86%	9.57%
MS1	2015	20%	12.12%	7.63%	9.69%	9.09%	N/A	8.61%	9%
MS1	2016	20%	16%	4.12%	7.61%	0%	100%	6.49%	6.70%
MS1	2017	0%	13.64%	4.50%	4.20%	0%	100%	5.64%	4.96%
MS1	2018	N/A	5.00%	1.37%	2.61%	0%	0%	3.42%	2.52%
MS1	2019	0%	4.55%	2.42%	3.54%	4%	N/A	3.65%	3.35%
MS1	2020	0%	0%	2.34%	5.34%	5.13%	N/A	1.67%	3.83%
MS1	2021	0%	0%	3.77%	7.22%	5.26%	N/A	5.23%	5.82%
MS1	2022	0%	4%	5.74%	8.83%	7.32%	100%	4.48%	7.35%
MS2	2012	100%	17.65%	7.40%	6.92%	0%	N/A	5.94%	7.14%
MS2	2013	0%	17.65%	5.90%	7.20%	0%	N/A	6.31%	6.64%
MS2	2014	0%	14.29%	7.40%	7.12%	0%	N/A	4.10%	6.59%
MS2	2015	0%	7.14%	5.26%	5.39%	0%	N/A	4.71%	5.11%
MS2	2016	0%	0%	4.49%	4.55%	0%	N/A	2.68%	3.95%
MS2	2017	N/A	0%	3.54%	5.78%	0%	0%	4.93%	4.74%
MS2	2018	0%	5.26%	0.88%	2.05%	10.53%	0%	2.84%	2.12%
MS2	2019	0%	4.55%	3.27%	4.99%	15.38%	0%	4.97%	4.99%
MS2	2020	0%	5.56%	2.50%	4.48%	8.33%	0%	4.43%	4.24%
MS2	2021	0%	0%	4.71%	6.95%	4.08%	N/A	4.61%	5.84%
MS2	2022	0%	0%	6.60%	5.21%	2.08%	N/A	9.17%	5.75%
Highly Represented = Greater than 5% of the Average Enrollment Percent									

Underrepresented = Less than 5% of the Average Enrollment Percent or 0%
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Equitable general music course enrollment percentages for ethnicity are presented in Table 87 and Table 88. Any music course including general music fulfils the 0.5 unit of study requirement for grade 7–8. MS1 has the following average equitable enrollment percentages for all 11 years: 50% American Indian/Alaska Native, 9.09% Asian, 90.91% Black or African American, 90.91% Hispanic/Latino, 90.91% Multiracial, 66.67% Native Hawaiian/Other Pacific Islander, and 63.64% White. The American Indian/Alaska Native group was not enrolled during three years in MS1 and the Native Hawaiian/Other Pacific Islander group was not enrolled during eight years in MS1. MS2 has the following equitable enrollment percentages: 60% American Indian/Alaska Native, 54.55% Asian, 100% Black or African American, 90.91% Hispanic/Latino, 72.73% Multiracial, 83.33% Native Hawaiian/Other Pacific Islander, and 72.73% White. The American Indian/Alaska Native group was not enrolled during 1 year in MS2 and the Native Hawaiian/Other Pacific Islander group was not enrolled during 8 years in MS2. General music is N/A during more years than ensembles because ensembles were offered in every grade level, while general music was not. If an ethnicity was not represented at all in a particular grade level that general music was offered, the group would be represented as N/A.

**Table 87**

*Ethnicity General Music Equitable Enrollment Percentage*

<b>All Years Equity Percentage**</b>	55.56%	31.82%	95.45%	90.91%	81.82%	83.33%	72.73%
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School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	0	1	1	1	N/A	1
MS1	2013	N/A	0	1	1	1	N/A	1
MS1	2014	1	0	1	1	1	N/A	1
MS1	2015	1	0	1	1	1	N/A	0
MS1	2016	0	0	0	0	0	N/A	0
MS1	2017	1	0	1	1	1	0	0
MS1	2018	N/A	0	1	1	1	1	1
MS1	2019	0	0	1	1	1	N/A	1
MS1	2020	0	0	1	1	1	N/A	0
MS1	2021	1	0	1	1	1	N/A	1
MS1	2022	0	1	1	1	1	1	1
MS2	2012	0	1	1	1	1	N/A	1
MS2	2013	1	0	1	1	1	N/A	1
MS2	2014	1	1	1	1	1	N/A	1
MS2	2015	1	0	1	1	1	N/A	0
MS2	2016	0	0	1	1	0	N/A	1
MS2	2017	N/A	1	1	1	0	1	1
MS2	2018	1	1	1	0	1	1	1
MS2	2019	0	1	1	1	1	1	1
MS2	2020	1	0	1	1	0	N/A	1
MS2	2021	1	1	1	1	1	N/A	0
MS2	2022	0	0	1	1	1	N/A	1

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 88**

*Ethnicity General Music Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	55.88%	67.57%	62.72%	100%	N/A	63.10%	64.04%

MS1	2013	N/A	25%	50.67%	41.54%	66.67%	N/A	38.34%	42.24%
MS1	2014	66.67%	35.90%	50.62%	45.56%	42.86%	N/A	45.15%	46.47%
MS1	2015	40%	27.27%	46.19%	48.17%	72.73%	N/A	39.75%	44.90%
MS1	2016	40%	16%	52.26%	37.80%	44.44%	N/A	0%	37.79
MS1	2017	100%	45.45%	62.16%	64.20%	66.67%	0%	55.26%	60.78%
MS1	2018	N/A	35.00%	43.84%	41.81%	83.33%	100%	38.03%	42.06%
MS1	2019	0%	18.18%	38.16%	32.52%	40.00%	N/A	31.96%	33.48%
MS1	2020	0%	24.00%	33.64%	34.39%	38.46%	N/A	23.33%	32.02%
MS1	2021	50.00%	19.05%	28.77%	27.63%	23.68%	N/A	25.49%	27.22%
MS1	2022	0%	44.00%	39.71%	34.50%	48.78%	100%	42.54%	37.86%
MS2	2012	0%	64.71%	63.01%	62.26%	60%	N/A	66.21%	63.46%
MS2	2013	100%	58.82%	81.42%	81.99%	100%	N/A	81.55%	81.48%
MS2	2014	100%	85.71%	83.43%	83.68%	87.50%	N/A	89.23%	84.92%
MS2	2015	66.67%	42.86%	55.44%	51.52%	72.73%	N/A	38.24%	50.32%
MS2	2016	33.33%	46.15%	60%	59.09%	50%	N/A	55.70%	58.19%
MS2	2017	N/A	58.82%	53.94%	55.78%	44.44%	100%	52.82%	54.62%
MS2	2018	66.67%	42.11%	40.53%	31.21%	57.89%	100%	40.43%	36.35%
MS2	2019	0%	63.64%	41.12%	42.51%	56.41%	100%	44.72%	43.63%
MS2	2020	80%	38.89%	51.00%	48.51%	41.67%	N/A	53.80%	49.48%
MS2	2021	100%	66.67%	52.88%	50.38%	55.10%	N/A	38.16%	49.52%
MS2	2022	0%	0%	4.71%	6.95%	4.08%	N/A	4.61%	5.84%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

Key: \*AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Equitable Physical Education Enrollment for Ethnicity.** Physical education was consistently equitable for all ethnic groups during all schedules, except for the Multiracial group in MS2 2012 and the Asian group in MS2 2015 (Table 89). Physical education achieved a true equitable distribution (the same percentage of enrollment for all groups) at 100% for all groups in 11/22 schedules (Table 90). True equitable enrollment is uncommon in the scheduling data set.

**Table 89**

*Ethnicity Physical Education Equitable Enrollment Percentage*

<b>Equity** Percentage</b>		100.00%	95.45%	100.00%	100.00%	95.45%	100.00%	100.00%
<b>School</b>	<b>Year</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>
MS1	2012	N/A	1	1	1	1	N/A	1
MS1	2013	N/A	1	1	1	1	N/A	1
MS1	2014	1	1	1	1	1	N/A	1
MS1	2015	1	1	1	1	1	N/A	1
MS1	2016	1	1	1	1	1	N/A	1
MS1	2017	1	1	1	1	1	1	1
MS1	2018	N/A	1	1	1	1	1	1
MS1	2019	1	1	1	1	1	N/A	1
MS1	2020	1	1	1	1	1	N/A	1
MS1	2021	1	1	1	1	1	N/A	1
MS1	2022	1	1	1	1	1	1	1
MS2	2012	1	1	1	1	0	N/A	1
MS2	2013	1	1	1	1	1	N/A	1
MS2	2014	1	1	1	1	1	N/A	1
MS2	2015	1	0	1	1	1	N/A	1
MS2	2016	1	1	1	1	1	N/A	1
MS2	2017	1	1	1	1	1	1	1
MS2	2018	1	1	1	1	1	1	1

MS2	2019	1	1	1	1	1	1	1
MS2	2020	1	1	1	1	1	1	1
MS2	2021	1	1	1	1	1	N/A	1
MS2	2022	1	1	1	1	1	N/A	1

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year. \*\*1 indicates equitable or highly represented for the student group population; 0 indicates inequitable (underrepresentation) for the student group population.

**Table 90**

*Ethnicity Physical Education Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	100%	100%	100%	100%	N/A	100%	100%
MS1	2013	N/A	100%	100%	99.49%	100%	N/A	100%	99.78%
MS1	2014	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2015	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2016	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2017	100%	100%	100%	100%	100%	100%	100%	100%
MS1	2018	N/A	100%	100%	99.76%	100%	100%	100%	99.89%
MS1	2019	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2020	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2021	100%	100%	100%	100%	100%	N/A	100%	100%
MS1	2022	100%	100%	100%	100%	100%	100%	100%	100%
MS2	2012	100%	100%	84.38%	88.68%	80.00%	N/A	86.30%	86.59%
MS2	2013	100%	100%	86.43%	91.69%	100%	N/A	88.83%	89.40%
MS2	2014	100%	92.86%	86.39%	88.13%	87.50%	N/A	96.41%	89.39%
MS2	2015	100%	64.29%	77.54%	82.83%	81.82%	N/A	81.18%	80.33%
MS2	2016	100%	100%	99.59%	100.0%	100%	N/A	99.33%	99.71%
MS2	2017	100%	100%	100%	99.75%	100%	100%	100.0%	99.88%
MS2	2018	100%	100%	99.12%	98.63%	100%	100%	99.29%	98.94%
MS2	2019	100%	100%	99.53%	100%	100%	100%	100%	99.89%
MS2	2020	100%	100%	100%	100%	100%	100%	100%	100%

MS2	2021	100%	100%	100%	100%	100%	N/A	100%	100%
MS2	2022	100%	100%	99.49%	99.82%	100%	N/A	100%	99.79%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Equitable Visual Arts Enrollment for Ethnicity.** Visual Arts courses were offered in grade 6 during all implemented schedules and in grade 7 during seven implemented schedules. It was necessary to present the data by grade level for visual arts because visual arts are not offered in all grade levels during all years, and Asian American Indians/Alaska Natives and Native Hawaiians/Other Pacific Islanders are not enrolled during each year in each grade level. Table 91 includes visual arts enrollment data for all visual arts courses. Black/African American, Native Hawaiian/Other Pacific Islanders, and White students are equitably represented; American Indian/Alaska Native students are approaching equitable; Hispanic/Latino and Multiracial students are underrepresented; and Asian students are greatly underrepresented. Equitable grade 6

**Table 91**

*Ethnicity All Grades Visual Arts Equitable Enrollment Percentage*

Equity Percentage			82.05%	63.64%	90.15%	78.79%	71.21%	85.71%	87.88%
School	Year	Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	A–F 8P	N/A	66.67%	100%	100%	50%	N/A	66.67%
MS1	2013	A–F 8P	N/A	50%	100%	0%	100%	N/A	100%
MS1	2014	A–F 8P	100%	100%	100%	100%	100%	N/A	100%
MS1	2015	A–F 8P	100%	100%	100%	0%	0%	N/A	100%



MS1	2016	A–F 8P	N/A	100%	0%	100%	0%	100%	100%
MS1	2017	A–F 8P	N/A	100%	100%	100%	100%	N/A	100%
MS1	2018	A–F 8P	N/A	50%	100%	100%	100%	0%	100%
MS1	2019	A–F 8P	100%	50%	100%	100%	50%	N/A	100%
MS1	2020	A–F 8P	N/A	0%	100%	100%	50%	N/A	100%
MS1	2021	A–F 8P	50%	50%	100%	50%	50%	N/A	100%
MS1	2022	A–F 8P	N/A	50%	100%	50%	50%	100%	100%
MS2	2012	A/B 8P	100%	50%	100%	100%	50%	N/A	100%
MS2	2013	A–D 7P	100%	33.33%	100%	100%	100%	N/A	66.67%
MS2	2014	A–D 7P	100%	66.67%	33.33%	100%	66.67%	N/A	100%
MS2	2015	A–F 8P	66.67%	0%	100%	100%	66.67%	N/A	100%
MS2	2016	A–D 7P	N/A	0%	100%	100%	100%	N/A	100%
MS2	2017	A/B 8P	50%	100%	100%	50%	100%	100%	50.00%
MS2	2018	A/B 7P	100%	33.33%	100%	66.67%	66.67%	100%	33.33%
MS2	2019	A/B 7P	50%	100%	100%	66.67%	66.67%	100%	66.67%
MS2	2020	A/B 7P	50%	100%	100%	100%	100%	100%	100%
MS2	2021	Equity Plan	N/A	100%	100%	100%	100%	N/A	100%
MS2	2022	Equity Plan	100%	100%	50%	50%	100%	N/A	50%
Equitable: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

visual arts course enrollment percentages for ethnicity are presented in Table 92 and Table 93. MS1 has the following equitable average enrollment percentages for all 11 years: 100% American Indian/Alaska Native, 81.82% Asian, 90.91% Black or African American, 63.64% Hispanic/Latino, 63.64% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 90.91% White. The American Indian/Alaska Native group was not enrolled in grade 6 during seven years in MS1 and the Native Hawaiian/Other Pacific

Islander group was not enrolled during nine years in MS1. MS2 has the following equitable enrollment percentages for grade 6 visual arts: 85.81% American Indian/Alaska Native, 60% Asian, 90% Black or African American, 60% Hispanic/Latino, 90% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 100% White. The American Indian/Alaska Native group was not enrolled in grade 6 during 4 years in MS2 and the Native Hawaiian/Other Pacific Islander group was not enrolled in grade 6 during nine years in MS2.

**Table 92**

*Ethnicity Grade 6 Visual Arts Equitable Enrollment Percentage*

Equity Percentage		90.91%	71.43%	90.48%	61.90%	76.19%	100%	95.24%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	1	1	1	0	N/A	1
MS1	2013	N/A	1	1	0	1	N/A	1
MS1	2014	1	1	1	1	1	N/A	1
MS1	2015	1	1	1	0	0	N/A	1
MS1	2016	N/A	1	0	1	0	1	1
MS1	2017	N/A	1	1	1	1	N/A	1
MS1	2018	N/A	0	1	1	1	N/A	1
MS1	2019	1	1	1	1	0	N/A	1
MS1	2020	N/A	0	1	1	1	N/A	0
MS1	2021	1	1	1	0	1	N/A	1
MS1	2022	N/A	1	1	0	1	1	1
MS2	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MS2	2013	1	0	1	1	1	N/A	1
MS2	2014	1	1	0	1	1	N/A	1
MS2	2015	1	0	1	1	0	N/A	1
MS2	2016	N/A	0	1	1	1	N/A	1
MS2	2017	N/A	1	1	0	1	1	1

MS2	2018	1	0	1	0	1	1	1
MS2	2019	0	1	1	0	1	N/A	1
MS2	2020	1	1	1	1	1	N/A	1
MS2	2021	N/A	1	1	1	1	N/A	1
MS2	2022	1	1	1	0	1	N/A	1

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Table 93**

*Ethnicity Grade 6 Visual Arts Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	100%	96.10%	95.45%	50%	N/A	95.35%	96%
MS1	2013	N/A	85.71%	86.05%	76.03%	100%	N/A	84.81%	81.79%
MS1	2014	100%	100%	97.67%	92.59%	100%	N/A	97.37%	96%
MS1	2015	100%	90%	90.48%	79.71%	50%	N/A	95.40%	87%
MS1	2016	N/A	100%	81.11%	90.30%	66.67%	100%	95.15%	89%
MS1	2017	N/A	100%	100%	100%	100%	N/A	98.80%	100%
MS1	2018	N/A	66.67%	88.71%	76.77%	100%	N/A	80.65%	80.73%
MS1	2019	100%	83.33%	78.87%	74.05%	71.43%	N/A	83.33%	77%
MS1	2020	N/A	50%	77.63%	73.30%	86.67%	N/A	68.18%	74%
MS1	2021	100%	85.71%	89.19%	77.06%	100%	N/A	84.44%	82%
MS1	2022	N/A	90.91%	94.92%	81.48%	88.24%	100%	90.74%	87%
MS2	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MS2	2013	100%	85.71%	99.09%	96.36%	100%	N/A	98.39%	97.61%
MS2	2014	100%	100%	77.32%	84.81%	100%	N/A	92.19%	84.08%
MS2	2015	100%	80%	94.12%	84.62%	60%	N/A	91.84%	88.94%
MS2	2016	N/A	60%	83.33%	82.28%	100%	N/A	95.35%	85.33%
MS2	2017	N/A	100%	81.58%	71.94%	100%	100%	94.87%	78.93%
MS2	2018	100%	40%	77.33%	55.33%	64.29%	100%	79.25%	65.47%
MS2	2019	0%	100%	77.59%	70.86%	84.21%	N/A	85.94%	76.23%
MS2	2020	100%	100%	98.55%	100%	100%	N/A	100%	100%

MS2	2021	N/A	100%	100%	97.25%	100%	N/A	100%	98%
MS2	2022	100%	100%	98.31%	84.44%	94.44%	N/A	97.22%	89.60%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Visual Arts courses were offered in grade 7 during seven implemented schedules, one year in MS1 and six years in MS2. Grade level was analyzed for visual arts because visual arts, unlike other areas, are not offered in all grade levels. American Indians/Alaska Natives and Native Hawaiians/Other Pacific Islanders are not enrolled in school during each year in each grade level. Equitable grade 7 visual arts course enrollment percentages for ethnicity are presented in Table 94 and Table 95. MS1 has the following equitable average enrollment percentages for 1 year: N/A (not applicable) American Indian/Alaska Native, 100% Asian, 100% Black or African American, 100% Hispanic/Latino, 100% Multiracial, N/A (not applicable) Native Hawaiian/Other Pacific Islander, and 100% White. N/A indicates that the group was not enrolled in the particular grade level at all, so they are excluded. The American Indian/Alaska Native group and the Native Hawaiian/Other Pacific Islander group were not enrolled in grade 7 during the year that visual arts were offered in MS1. MS2 has the following equitable enrollment percentages for grade 7 visual arts during all six years: 100% American Indian/Alaska Native, 50% Asian, 100% Black or African American, 100% Hispanic/Latino, 50% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 83.33% White. The American Indian/Alaska Native group was not enrolled in visual arts grade 7 during 3/6

years in MS2 and the Native Hawaiian/Other Pacific Islander group was not enrolled in grade 7 during 5/6 years in MS2.

**Table 94**

*Ethnicity Grade 7 Visual Arts Equitable Enrollment Percentage*

Equity Percentage		100%	57.14%	100%	100%	57.14%	100%	85.71%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	1	1	1	1	N/A	1
MS2	2012	N/A	1	1	1	1	N/A	1
MS2	2013	N/A	1	1	1	1	N/A	1
MS2	2014	1	0	1	1	0	N/A	1
MS2	2015	1	0	1	1	1	N/A	1
MS2	2018	N/A	0	1	1	0	N/A	0
MS2	2019	1	1	1	1	0	1	1

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Table 95**

*Ethnicity Grade 7 Visual Arts Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	100%	93.06%	94.93%	100%	N/A	93.88%	94.38%
MS2	2012	N/A	100%	97.48%	92.38%	100%	N/A	98.72%	96.13%
MS2	2013	N/A	100%	92.66%	96.15%	100%	N/A	95.45%	94.89%
MS2	2014	100%	83.33%	88.98%	85.60%	75%	N/A	95.31%	88.69%
MS2	2015	50%	0%	56.48%	56.47%	100%	N/A	50%	54.79%
MS2	2018	N/A	25%	54.05%	35.25%	0%	N/A	33.33%	39.92%
MS2	2019	100%	54.55%	56.94%	54.55%	50%	100%	68.52%	57.76%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Visual arts courses were offered in Grade 8 during seventeen implemented schedules, 7/11 years in MS1 and 10/11 years in MS2. Presenting the data by grade level was necessary for visual arts because visual arts were not offered in all grade levels during all years, and American Indians/Alaska Natives and Native Hawaiians/Other Pacific Islanders were not enrolled during each year in each grade level. Equitable Grade 8 visual arts course enrollment percentages for ethnicity are presented in Table 96 and Table 97. MS1 has the following equitable average enrollment percentages: 0% American Indian/Alaska Native, 14.29% Asian, 100% Black or African American, 85.71% Hispanic/Latino, 50% Multiracial, 50% Native Hawaiian/Other Pacific Islander, and 85.71% White. MS2 has the following equitable enrollment percentages for Grade 8 visual arts: 60% American Indian/Alaska Native, 70% Asian, 88.24% Black or African American, 100% Hispanic/Latino, 75% Multiracial, 100% Native Hawaiian/Other Pacific Islander, and 50% White.

**Table 96**

*Ethnicity Grade 8 Visual Arts Equitable Enrollment Percentage*

Equity Percentage		50%	47.06%	88.24%	94.12%	75%	66.67%	64.71%
School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*
MS1	2012	N/A	0	1	1	N/A	N/A	0
MS1	2013	N/A	0	1	0	1	N/A	1
MS1	2018	N/A	1	1	1	1	0	1
MS1	2019	N/A	0	1	1	1	1	1
MS1	2020	N/A	0	1	1	0	N/A	1
MS1	2021	0	0	1	1	0	N/A	1

MS1	2022	N/A	0	1	1	0	N/A	1
MS2	2012	1	0	1	1	0	N/A	1
MS2	2013	N/A	0	1	1	1	N/A	0
MS2	2014	N/A	1	0	1	1	N/A	1
MS2	2015	0	0	1	1	1	N/A	1
MS2	2017	1	1	1	1	1	N/A	0
MS2	2018	N/A	1	1	1	1	N/A	0
MS2	2019	N/A	1	1	1	1	N/A	0
MS2	2020	0	1	1	1	1	1	1
MS2	2021	N/A	1	1	1	1	N/A	1
MS2	2022	1	1	0	1	1	N/A	0

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Table 97**

*Ethnicity Grade 8 Visual Arts Enrollment All Schedules*

School	Year	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
MS1	2012	N/A	50%	64%	66%	N/A	N/A	53%	61%
MS1	2013	N/A	40%	49%	44.12%	100%	N/A	57%	49.17%
MS1	2018	N/A	60%	53%	56.59%	67%	0%	60%	56.69%
MS1	2019	N/A	50%	76%	66%	100%	N/A	69%	69%
MS1	2020	N/A	67%	86%	85%	60%	N/A	91%	85%
MS1	2021	0%	33%	51%	52%	46%	N/A	61%	53%
MS1	2022	N/A	29%	49%	46%	36%	N/A	46%	46%
MS2	2012	100%	83%	93.02%	99.08%	50.00%	N/A	95.89%	95.31%
MS2	2013	N/A	40%	95.00%	94.17%	100%	N/A	85.90%	91.74%
MS2	2014	N/A	83.33%	77.19%	87.22%	100.00%	N/A	80.60%	82.35%
MS2	2015	0%	28.57%	36.19%	34.13%	50.00%	N/A	30.51%	34.11%
MS2	2017	100%	100%	96%	91.20%	100%	N/A	86.8%	92.47%
MS2	2018	N/A	80%	86.84%	78.32%	100%	N/A	56.25%	77.09%
MS2	2019	N/A	75%	65.85%	68%	100%	N/A	46%	64.56%

MS2	2020	50%	100%	93%	79%	94%	100%	84%	84%
MS2	2021	N/A	100%	97%	100%	94%	N/A	100%	99%
MS2	2022	100%	80%	73.44%	85.41%	83%	N/A	73%	81.21%
Highly Represented = Greater than 5% of the Average Enrollment Percent									
Underrepresented = Less than 5% of the Average Enrollment Percent									
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

## Research Question 2

How equitable are the implemented schedule frameworks for health, music, physical education, and visual arts course enrollment for English as a New Language (ENL) students, students with disabilities (SWDs), gender, and ethnicity?

### Strategy 2 Equitable Enrollment Percentage by Schedule Framework

Strategy 2 analyzes and determines if student enrollment in health, music, physical education, and visual arts are equitable for specific student groups by averaging and aggregating schedule data by framework. The schedule frameworks identified in this study were five variations of traditional alternating day schedules: Traditional 6 Day Rotation A–F 8 Periods (A–F 8P); Traditional 4 Day Rotation A–D 7 Periods (A–D 7P); Traditional 3 Day Rotation A–C (The Equity Plan [see Chapter 3 for more information]); Traditional 2 Day Rotation A/B 8 Periods (A/B 8P); and Traditional 2 Day Rotation A/B 7 Periods (A/B 7P). Variables were student groupings: English as a new language (ENL), students with disabilities (SWDs), gender, and ethnicity. The literature does not define equitable-course enrollment, but there is one identified study that specifies a near equitable distribution range. deGregory and Sommer (2019) wrote that a “near equitable distribution of access to accelerated coursework for each student group” (p. 48) ranged



from 48%–68% in 2019 and 56%–73% in 2020 for ethnicity (deGregory and Sommer, 2019, p. 48). This range is a difference of 20% in 2019 and 17% in 2020. The literature does not define equitable course enrollment. A true equitable distribution would have no difference in group enrollment percentages. With consideration of deGregory and Sommer’s “near equitable distribution” range of 17%–20%, and accounting for random schedule variation, equitable course enrollment is being defined in the current study as no more than a 5% difference in course enrollment between student groups. If there are two variables (such as students with and without disabilities) equitable course enrollment is defined as no more than a difference of 5% in enrollment between the groups. If there are multiple variables (such as ethnicity) a student group is considered to have equitable enrollment in a particular course if the difference in enrollment representation is no less than 5% for the group than the total population during a particular year. If the difference is less than 5% and one group has 0% representation, this is not considered equitable.

Student groups (four variables) and health, music, physical education, and visual arts courses are analyzed to determine if schedule framework data has equitable course enrollment for each of the 22 schedules, organized by two schools. Each course enrollment percentage is compared for each of the four variables: ENL, SWDs, gender, and ethnicity. Grade level is considered when courses are only offered in specific grade levels in particular schedules. Strategy 2 aggregates the enrollment data tables from Strategy 1, which includes each schedule by year individually. Strategy 2 groups all schedules by the five identified schedule frameworks and provides averages enrollments. Table 98 identifies schools and years, and categorizes each by schedule framework. This study includes 12 implemented Traditional A–F 8P, 3 implemented A–D 7P, 2

implemented Equity Plan Schedules, 2 implemented A/B 8P, and 3 implemented A/B 7P, for a total of 22 schedules analyzed.

**Table 98**

*Schedule Frameworks Grouped by School & Year*

Schools/Years	Schedule Framework	Day Rotation	Instructional Periods
<b>MS 1:</b> All Years <b>MS2:</b> 14–15	Traditional Alternating-Day	6 (A–F)	8
<b>MS2:</b> 12–13, 13–14, 15–16,	Traditional Alternating-Day	4 (A–D)	7
<b>MS 2:</b> 20–21, 21–22	Traditional Alternating Day (The Equity Plan)	3 (A/B/C)	7
<b>MS2:</b> 11–12, 16–17	Traditional Alternating-Day	2 (A/B)	8
<b>MS2:</b> 17–18, 18–19, 19–20	Traditional Alternating-Day	2 (A/B)	7

In Strategy 1, each time a group has equitable course enrollment, the school schedule for the particular year is awarded a score of 1. Each time a group does not have equitable course enrollment the school schedule for a particular year is assigned a score of 0. The scores are averaged to determine an equity percentage for each school schedule, course, and group during each year. Schedules receive an equity score percentage based on whether or not each group has equitable course enrollment information. This analysis reveals how equitable (or not) each schedule is based on the 5% difference equitable enrollment standard for each group and course subject. The higher the score, the more equitable a schedule is during a particular year. Strategy 2 utilizes the data in Strategy 1 and groups and averages the data by framework.

Table 99 includes a summary of the complete equity enrollment rating analysis percentages for all student groups/four variables (English as a new language, students with disabilities, gender, and ethnicity) and all implemented schedules by framework for

a health, music, physical education and visual arts course enrollment. This table serves as a broad summary for the entire study because it includes all aggregated data and sorts the data by implemented schedule frameworks. This table includes aggregated data from all equity enrollment rating tables (Tables with 0's and 1's) presented in Strategy 1. It should be noted that Table 99 refers to all music courses at large, and does not consider which music courses/ensembles students are enrolled. An equitably included rating is considered to be 85% or above for a student group. An approaching equitable rating is 80%–84.99. An underrepresented equitable rating is 70%–79.99%, and a greatly underrepresented equitable rating is below 70%. The ratings are underlined to clearly indicate that an equity rating is being referenced.

Table 99 indicates that all five schedule frameworks have an equitably included rating for ethnicity. The A–F 8P schedule had an underrepresented average rating for all student groups, greatly underrepresented rating for English as a new language (ENL) and students with disabilities (SWDs), approaching equitable rating for gender, and equitably included for ethnicity. The A–D 7P and A/B 8P schedules have greatly underrepresented equity rating for the All Student Group, ENL, SWD, and gender, while having an equitable rating for ethnicity. The Equity Plan is the only schedule framework that has an average equitably included rating for all four student groups for all courses. The A/B 7P schedule has greatly underrepresented equity ratings for the All Student Group, ENL, and gender, while having an approaching equitable rating for SWD and has an equitably included rating for ethnicity.

**Table 99**

*Equity Score by Framework for Health, Music, PE, & Arts All Groups*

Schedule Framework	Schedule Framework Count	All Student Groups	ENL	SWD	Gender	Ethnicity
Traditional A-F: 8 Periods	12	73.30%	62.50%	62.50%	81.25%	86.97%
Traditional A-D: 7 Periods	3	59.81%	41.67%	50.00%	58.33%	89.25%
Traditional A-C (Equity Plan): 7 Periods	2	94.01%	100.00%	100.00%	87.50%	88.54%
Traditional A/B: 8 Periods	2	62.40%	50.00%	50.00%	62.50%	87.10%
Traditional A/B: 7 Periods	3	69.89%	41.67%	83.33%	66.67%	87.88%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)						
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)						
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)						
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)						

### *ENL Course Enrollment by Schedule Framework*

Table 100 includes English as a New Language (ENL) school enrollment averages by schedule framework. Non-ENL enrollment averages by framework are: 90.45% A–F 8P, 90.67% A–D 7P, 78.51% Equity Plan, 87.32% A/B 8P, and 77.97% A/B 7P. ENL enrollment averages by framework are: 9.55% A–F 8P, 9.33% A–D 7P, 21.5% Equity Plan, 12.69% A/B 8P, and 22.03% A/B 7P. The Equity Plan and A/B 7P both have approximately double the amount of ENL students on average than the other schedules.

**Table 100**

### *ENL School Enrollment Averages by Schedule Framework*

Schedule Framework	Non-ENL Average Enrollment Percent	ENL Average Enrollment Percent	Non-ENL Average Enrollment Count	ENL Average Enrollment Count	Total Average Enrollment
Traditional A-F: 8 Periods	90.45%	9.55%	824	87	910

Traditional A-D: 7 Periods	90.67%	9.33%	762	76	838
Traditional A-C (Equity Plan): 7 Periods	78.51%	21.50%	738	202	940
Traditional A/B: 8 Periods	87.32%	12.69%	765	109	874
Traditional A/B: 7 Periods	77.97%	22.03%	717	203	919

Table 101 includes a summary of the complete equity enrollment rating percentages for ENL students and all implemented schedules by year for a health, music, physical education and visual arts course enrollment. This table refers to the ENL enrollment difference data presented in Strategy 1 in the Equitable Course Enrollment Percentage for ENL Student Section. Each time a schedule framework is equitable for ENL students (no more than a 5% difference) or highly represented (ENL students having larger representation than 5%, compared with non-ENL students) the schedule receives a score of 1. If ENL students are underrepresented (more than a 5% lower than non-ENL students in average enrollment) the schedule receives a score of 0. In Table 102 all of the figures are average equity enrollment ratings by schedule framework. Physical education

**Table 101**

*ENL Equity Score All Years Health, Music, PE, Visual Arts*

School	Year	Schedule Framework	Equity Score	Health	Music	PE	Art
MS1	2012	A-F 8P*	75.00%	1	0	1	1
MS1	2013	A-F 8P	50.00%	1	0	1	0
MS1	2014	A-F 8P	50.00%	0	0	1	1
MS1	2015	A-F 8P	50.00%	1	0	1	0
MS1	2016	A-F 8P	75.00%	1	0	1	1
MS1	2017	A-F 8P	75.00%	0	1	1	1
MS1	2018	A-F 8P	75.00%	1	1	1	0
MS1	2019	A-F 8P	50.00%	1	0	1	0

MS1	2020	A-F 8P	75.00%	0	1	1	1
MS1	2021	A-F 8P	50.00%	1	0	1	0
MS1	2022	A-F 8P	50.00%	1	0	1	0
MS2	2015	A-F 8P	75.00%	0	1	1	1
MS2	2013	A-D 7P	50.00%	1	0	1	0
MS2	2014	A-D 7P	50.00%	1	0	1	0
MS2	2016	A-D 7P	25.00%	0	0	1	0
MS2	2012	A/B 8P	50.00%	1	0	1	0
MS2	2017	A/B 8P	50.00%	1	0	1	0
MS2	2018	A/B 7P	50.00%	1	0	1	0
MS2	2019	A/B 7P	25.00%	0	0	1	0
MS2	2020	A/B 7P	50.00%	0	0	1	1
MS2	2021	Equity Plan	100.00%	1	1	1	1
MS2	2022	Equity Plan	100.00%	1	1	1	1

\*Key: 1 indicates equitable or highly represented for the ENL student population; 0 indicates inequitable (underrepresentation) for the ENL student population; A-F 6 Day Rotation; A-D 4 Day Rotation, A/B 2 Day Rotation; P Period

is equitable or highly represented for ENL students in all schedule frameworks. Visual arts, music, and health are greatly underrepresented in the A-F 8P, A-D 7P, and A/B 7P schedules. The A/B 8P schedule is equitable for health, and ENL students are greatly underrepresented in music and visual arts. The Equity Plan is the only framework that has equitable/ highly represented ENL enrollment for health, music, physical education, and visual arts courses. Music course enrollment in the A-D 7P, A/B 7P, and A/B 8P schedules were always greatly underrepresented for language learners in every schedule implementation. The same is true for visual arts in the A-D 7P and A/B 8P schedules.

**Table 102**

*ENL Equity Score by Framework for Health, Music, PE, & Visual Arts*

Schedule Framework	Schedule Framework Count	Average: Four Courses	Health	Music	PE	Art
Traditional A-F: 8 Periods	12	62.5%	66.67%	33.33%	100%	50%

Traditional A-D: 7 Periods	3	50%	66.67%	0%	100%	0%
Traditional A-C (Equity Plan): 7 Periods	2	100%	100.00%	100%	100%	100%
Traditional A/B: 8 Periods	2	50%	100.00%	0%	100%	0%
Traditional A/B: 7 Periods	3	41.67%	33.33%	0%	100%	33.33%
Equitable: 85% or Above						
Approaching Equitable: 80%-84.99%						
Underrepresented: 70%–79.99%						
Greatly Underrepresented: Below 70%						

***SWD Course Enrollment by Schedule Framework***

Table 103 includes students with disabilities (SWDs) school enrollment averages by schedule framework. Students without disabilities are referred to as non-SWSs. Non-SWD enrollment averages by framework are: 84.79% A–F 8P, 80.99% A–D 7P, 83.24% Equity Plan, 82.82% A/B 8P, and 85.13% A/B 7P. SWD enrollment averages by framework are: 15.21% A–F 8P, 19.01% A–D 7P, 16.76% Equity Plan, 17.18% A/B 8P, and 14.87% A/B 7P. The representation of SWDs were similar in all schedule frameworks.

**Table 103**

***SWD School Enrollment Averages by Schedule Framework***

Schedule Framework	Non-SWD Average Enrollment Percent	SWD Average Enrollment Percent	Non-SWD Average Enrollment Count	SWD Average Enrollment Count	Total Average Enrollment
Traditional A-F: 8 Periods	84.79%	15.21%	772	138	910
Traditional A-D: 7 Periods	80.99%	19.01%	681	156	838
Traditional A-C (Equity Plan): 7 Periods	83.24%	16.76%	783	158	940
Traditional A/B: 8 Periods	82.82%	17.18%	725	149	874

Traditional A/B: 7 Periods	85.13%	14.87%	783	136	919
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Table 104 indicates equity score percentages for each year and framework for students with disabilities (SWDs). Table 105 provides an equity score data table for SWDs sorted by schedule framework. Each time a group has equitable course enrollment, the school schedule for the particular year is awarded a score of 1. Equitable course enrollment for SWDs is defined as no more than a 5% difference in group enrollment from SWDs to non-SWDs, or if SWDs are highly included at greater than 5%. Each time a group does not have equitable course enrollment the school schedule for a particular year is assigned a score of 0. A schedule is considered not equitable for SWDs if SWD enrollment is more than 5% lower than non-SWDs. The 0's and 1's are averaged to determine an equity score for each school schedule, course, and group during each year. This analysis reveals how equitable (or not) each schedule was based on the 5% difference equitable enrollment standard for each group and course subject. Strategy 2 utilizes the enrollment difference data tables provided in Strategy 1 to assign the scores of 1's and 0's.

**Table 104**

*SWD Equity Score All Years Health, Music, PE, & Visual Arts*

School	Year	Schedule Framework	Equity Score	Health	Music	Phys. Ed.	Art
MS1	2012	A-F 8P	50%	1	0	1	0
MS1	2013	A-F 8P	50%	1	0	1	0
MS1	2014	A-F 8P	25%	0	0	1	0
MS1	2015	A-F 8P	50%	1	0	1	0
MS1	2016	A-F 8P	50%	1	0	1	0
MS1	2017	A-F 8P	75%	0	1	1	1
MS1	2018	A-F 8P	50%	1	0	1	0



MS1	2019	A-F 8P	100%	1	1	1	1
MS1	2020	A-F 8P	100%	1	1	1	1
MS1	2021	A-F 8P	75%	1	0	1	1
MS1	2022	A-F 8P	50%	1	0	1	0
MS2	2015	A-F 8P	75%	0	1	1	1
MS2	2013	A-D 7P	25%	0	0	1	0
MS2	2014	A-D 7P	75%	0	1	1	1
MS2	2016	A-D 7P	50%	1	0	1	0
MS2	2012	A/B 8P	50%	1	0	1	0
MS2	2017	A/B 8P	50%	0	0	1	1
MS2	2018	A/B 7P	75%	1	0	1	1
MS2	2019	A/B 7P	75%	1	0	1	1
MS2	2020	A/B 7P	100%	1	1	1	1
MS2	2021	Equity Plan	100%	1	1	1	1
MS2	2022	Equity Plan	100%	1	1	1	1

\*Key: 1 indicates equitable or highly represented for the SWD student population; 0 indicates inequitable (underrepresentation) for the SWD student population; A-F 6 Day Rotation; A-D 4 Day Rotation, A/B 2 Day Rotation; P Period.

Table 105 includes a summary of the complete equity enrollment rating percentages for SWDs and all implemented schedules by framework for a health, music, physical education and visual arts course enrollment. This table refers to the SWD enrollment difference data presented in Strategy 1 in the Equitable Course Enrollment Percentage for SWD Student Section. Each time a schedule framework is equitable for SWDs (no more than a 5% difference) or highly represented (SWD students having larger representation than 5%, compared with non-SWD students) the schedule receives a score of 1. If SWDs are underrepresented (more than a 5% lower than non-SWD students in average enrollment) the schedule receives a score of 0. All of the 0's and 1's are averaged and this percentage is the equity enrollment rating. Physical education is equitable or highly represented for SWD students in all schedule frameworks. Visual arts, music, and health are greatly underrepresented in the A-F 8P, A-D 7P, and A/B 7P

schedules, except for Health enrollment for –F 8P, which is underrepresented. The A/B 7P schedule is equitable for health, physical education, and visual arts; however A/B 7P is greatly underrepresented for SWDs in music. The Equity plan is the only framework that has equitable/ highly represented SWD enrollment for health, music, physical education, and visual arts courses. Music course enrollment in the 4/5 schedules were greatly underrepresented for SWDs. The traditional A/B 8P had greatly underrepresented enrollment for SWDs during all schedule implementation years.

**Table 105**

*SWD Equity Score by Schedule Framework for Health, Music, PE, & Arts*

Schedule Framework	Schedule Framework Count	All Student Groups	SWD Health Enrollment	SWD Music Enrollment	SWD PE Enrollment	SWD Art
Traditional A-F: 8 Periods	12	62.5%	75%	33.33%	100%	41.67%
Traditional A-D: 7 Periods	3	50%	33.33%	33.33%	100%	33.33%
Traditional A-C (Equity Plan): 7 Periods	2	100%	100%	100%	100%	100%
Traditional A/B: 8 Periods	2	50%	50.00%	0%	100%	50.00%
Traditional A/B: 7 Periods	3	83.33%	100%	33.33%	100%	100%
Equitable: 85% or Above						
Approaching Equitable: 80%-84.99%						
Underrepresented: 70%–79.99%						
Greatly Underrepresented: Below 70%						

***Gender Course Enrollment by Schedule Framework***

Table 106 includes gender school enrollment averages by schedule framework. The data set includes female and male for gender. Female to male enrollment averages by framework are: **A–F 8P**: Female 47.85%, Male 52.15%; **A–D 7P** Female 50.23%, Male 49.77%; **Equity Plan**: Female 45.8%, Male 54.2%; **A/B 8P**: Female 47.88%, Male

52.12%; and **A/B 7P**: Female 45.97%, Male 54.03%. The representation of gender averages is similar in all schedule frameworks.

**Table 106**

*Gender School Enrollment Averages by Schedule Framework*

Schedule Framework	Female Average Enrollment Percent	Male Average Enrollment Percent	Female Average Enrollment Count	Male Average Enrollment Count	Total Enrollment
Traditional A-F: 8 Periods	47.85%	52.15%	435	475	910
Traditional A-D: 7 Periods	50.23%	49.77%	423	415	838
Traditional A-C ( <b>Equity Plan</b> ): 7 Periods	45.80%	54.20%	431	510	940
Traditional A/B: 8 Periods	47.88%	52.12%	419	455	874
Traditional A/B: 7 Periods	45.97%	54.03%	422	497	919

Table 107 indicates equity score percentages for each year and framework for gender. Table 108 provides an equity score data table for gender sorted by schedule framework. Each time a group has equitable course enrollment, the school schedule for the particular year is awarded a score of 1. Equitable course enrollment for gender is defined as no more than a 5% difference in group enrollment for females to males. Each time a group does not have equitable course enrollment the school schedule for a particular year is assigned a score of 0. A schedule is considered not equitable for gender if the difference in enrollment for males and females are greater than 5%. The 0's and 1's are averaged to determine an equity score for each school schedule, course, and group during each year. This analysis reveals how equitable (or not) each schedule is based on the 5% difference equitable enrollment standard for each group and course subject.

Strategy 2 utilizes the enrollment difference data tables provided in Strategy 1 to assign the scores of 1's and 0's.

**Table 107**

*Gender Equity Score All Years Health, Music, PE, & Visual Arts*

School	Year	Schedule Framework	Equity Score	Health	Music	Phys. Ed.	Art
MS1	2012	A-F 8P	100.00%	1	1	1	1
MS1	2013	A-F 8P	100.00%	1	1	1	1
MS1	2014	A-F 8P	75.00%	1	0	1	1
MS1	2015	A-F 8P	75.00%	1	0	1	1
MS1	2016	A-F 8P	75.00%	1	0	1	1
MS1	2017	A-F 8P	100.00%	1	1	1	1
MS1	2018	A-F 8P	75.00%	1	0	1	1
MS1	2019	A-F 8P	100.00%	1	1	1	1
MS1	2020	A-F 8P	100.00%	1	1	1	1
MS1	2021	A-F 8P	50.00%	1	0	1	0
MS1	2022	A-F 8P	75.00%	1	0	1	1
MS2	2015	A-F 8P	50.00%	1	0	0	1
MS2	2013	A-D 7P	50.00%	1	0	0	1
MS2	2014	A-D 7P	75.00%	1	1	0	1
MS2	2016	A-D 7P	50.00%	1	0	1	0
MS2	2012	A/B 8P	50.00%	1	0	0	1
MS2	2017	A/B 8P	75.00%	0	1	1	1
MS2	2018	A/B 7P	50.00%	1	0	1	0
MS2	2019	A/B 7P	75.00%	1	0	1	1

MS2	2020	A/B 7P	75.00%	1	0	1	1
MS2	2021	Equity Plan	100.00%	1	1	1	1
MS2	2022	Equity Plan	75.00%	1	0	1	1

\*Key: 1 indicates equitable for gender; 0 indicates inequitable (underrepresentation/overrepresentation) for gender; A–F 6 Day Rotation; A–D 4 Day Rotation, A/B 2 Day Rotation; P Period

Table 108 includes aggregated equity scores by schedule framework from Table 107. Physical education is equitable for gender in A–F 8P, The Equity Plan, and A/B 7P, and greatly underrepresented in A–D 7P and A/B 8P. Visual arts is equitable in A–F 8P, The Equity Plan, and A/B 8P, and greatly underrepresented in A–D 7P and A/B 7P. Music is greatly underrepresented on average in all schedule frameworks. Health is equitable in all frameworks, except A/B 8P, which has a greatly underrepresented rating. The Equity Plan has the highest overall four course average equity score for gender, despite not having equitable enrollment for music. The gender equity score rank when averaging health, music, physical education, and visual arts is the Equity Plan (Rank 1 equitable at 87.5%), A–F 8P (Rank 2 approaching equitable at 81.25%), A/B 7P (Rank 3 greatly underrepresented at 66.67%), A/B 8P (Rank 4 greatly underrepresented at 62.5%), and A–D 7P (Rank 5 greatly underrepresented at 57.14%).

**Table 108**

*Gender Equity Score by Framework for Health, Music, PE, & Visual Arts*

Schedule Framework	Schedule Framework Count	Four Course Average	Health	Music	PE	Arts
Traditional A-F: 8 Periods	12	81.25%	100%	41.67%	91.67%	91.67%
Traditional A-D: 7 Periods	3	57.14%	100%	33.33%	33.33%	66.67%
Traditional A-C (Equity Plan): 7	2	87.50%	100%	50%	100%	100%

<b>Periods</b>						
<b>Traditional A/B: 8 Periods</b>	2	62.50%	50%	50%	50%	100%
<b>Traditional A/B: 7 Periods</b>	3	66.67%	100%	0%	100%	66.67%
Equitable: 85% or Above						
Approaching Equitable: 80%-84.99%						
Underrepresented: 70%–79.99%						
Greatly Underrepresented: Below 70%						

### *Ethnicity Course Enrollment by Schedule Framework*

Table 109 includes ethnicity school enrollment averages by schedule framework. Ethnicities included are American Indian/Alaska Native (AIAN), Asian (A), Black, (B), Hispanic/Latino (HL), Multiracial (M), Native Hawaiian/Other Pacific Islander (NHPI), and White (W). N/A indicates that a particular ethnicity was not enrolled in particular schedules. Ethnicity school enrollment trends are similar in all schedules. The top three represented ethnicities in all frameworks are HL (Rank 1), B (Rank 2), and W (Rank 3) in all frameworks respectively. AIAN and NHPI are either not represented, or represent less than 1% of each population. The ethnicity A ranges from 1.49%–2.92% and M represents 0.82%–5.16%.

**Table 109**

### *Ethnicity School Enrollment Average Percentages by Schedule Framework*

<b>Schedule Framework</b>	<b>AIAN*</b>	<b>A*</b>	<b>B*</b>	<b>HL*</b>	<b>M*</b>	<b>NHPI*</b>	<b>W*</b>
Traditional A-F: 8 Periods	0%	2.92%	25.52%	45.17%	1.96%	0.11%	24.14%
Traditional A-D: 7 Periods	0.29%	1.76%	36.63%	38.30%	1.14%	N/A	21.88%
Traditional A-C ( <b>Equity Plan</b> ): 7 Periods	0.32%	1.49%	20.64%	57.93%	5.16%	N/A	14.47%
Traditional A/B: 8 Periods	0.11%	1.95%	35.18%	41.40%	0.82%	0.12%	20.48%
Traditional A/B: 7 Periods	0.40%	2.14%	23.38%	53.44%	3.78%	0.18%	16.68%

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Table 110 includes a summary of the complete equity enrollment rating percentages for student ethnicity and all implemented schedules by year for health, music, physical education, and visual arts course enrollment. This table refers to the ethnicity enrollment difference data presented in Strategy 1 in the Equitable Course Enrollment Percentage for Ethnicity Section. Each time a schedule framework is equitable for an ethnicity (no more than a 5% difference than the group average) or highly represented (ethnicity having larger representation than 5%, compared with the group average) the schedule receives a score of 1. If ethnic groups are underrepresented (more than a 5% lower than the group in average enrollment) the schedule receives a score of 0. Each percentage in Table 110 is an average percentage of the 1's and 0's presented in Strategy 1 for each of the implemented frameworks. Each of the four subject areas account for 25% for each ethnic group.

In rank order, the equity score for ethnicity for all groups and courses are: Rank 1) Traditional A–D (89.81%); Rank 2) The Equity Plan (87.85%); Rank 3) Traditional A/B 8P (87.5%); Rank 4) Traditional A/B 7P (87.45%); and Rank 5) Traditional A–F 8P (86.82%). The range for all schedules for all ethnic groups and courses is 2.99%. Asians are included the least. Asians are greatly underrepresented in Traditional A–D 7P and are underrepresented in A–F 8P Traditional and the Equity Plan. On average American Indian/Alaska Native and Asian students are equitably included in two schedules; Multiracial and Native Hawaiian/Other Pacific Islander in three schedules; Black/African

American and White students in four schedules, and Hispanic/Latino students in all five schedules.

**Table 110**

*Ethnicity Equity Score for Health, Music, PE, & Visual Arts by Framework*

Schedule Framework	Sch. Count	All Groups	AIAN*	A*	B*	HL*	M*	NHPI*	W*
Traditional A-F: 8 Periods	12	86.82%	79.63%	72.22%	97.92%	89.58%	80.56%	91.67%	96.18%
Traditional A-D: 7 Periods	3	89.81%	100%	66.67%	94.44%	100%	88.89%	N/A	88.89%
Traditional A-C (Equity Plan): 7 Periods	2	87.85%	83.33%	75%	93.75%	93.75%	100%	N/A	81.25%
Traditional A/B: 8 Periods	2	87.50%	75%	93.75%	87.50%	93.75%	68.75%	100%	93.75%
Traditional A/B: 7 Periods	3	87.45%	85.76%	87.50%	77.78%	91.67%	86.11%	94.44%	88.89%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular schedule.

In Table 111, the all-group averages have an average equitably included rating in health, except for A–D 8P, which is approaching equitable. The Equity Plan and A/B 8P have the equitably included rating for all ethnicities. On average all schedules have an average equitably included rating for all groups, except for A–D. A–D has the lowest equity average for all ethnic groups at 83.33% (approaching equitable). Asians have the lowest representation out of all ethnic groups. Asians are underrepresented in A–F and



A/B 8P, while being greatly underrepresented in A–D. B, M, and White are highly represented in all, but one implemented framework, in which they are greatly underrepresented. HL and NHPI are equitably included in all schedules for health. It should be noted that NHPI were excluded in three schedules because they were either not enrolled during at all in school during specific years, or in specific grade levels when health courses were offered. AIAN were equitably included in three frameworks, approaching equitable in one framework, and were excluded due to enrollment in one framework.

**Table 111**

*Ethnicity Equity Score for Health by Framework*

Schedule Framework	Sch. Count	All Groups	AIAN*	A*	B*	HL*	M*	NHPI*	W*
Traditional A-F: 8 Periods	12	92.92%	80%	79.17%	100%	100%	95.45%	100%	95.83%
Traditional A-D: 7 Periods	3	83.33%	100%	66.67%	100%	100%	66.67%	N/A	66.67%
Traditional A-C (Equity Plan): 7 Periods	2	100%	100%	100%	100%	100%	100%	N/A	100%
Traditional A/B: 8 Periods	2	100%	N/A	100%	100%	100%	100%	N/A	100%
Traditional A/B: 7 Periods	3	89.72%	86.36%	75%	66.67%	100%	100%	100%	100%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Table 112 indicates equity scores by ethnicity for music courses by schedule framework. The average of all ethnic groups were overall equitably included in A–F and

A–D, approaching equitable in Traditional A/B 8P, underrepresented in Traditional A/B 7P, and greatly underrepresented in the Equity Plan. Asian students have the lowest inclusion in music with underrepresentation in A–F and great underrepresentation in A–D, the Equity Plan, and Traditional A/B 7P. American Indian/Alaska Native students have the second lowest inclusion out of the ethnic groups. American Indian/Alaska Native students are underrepresented in A–F, while they are greatly underrepresented in Equity Plan and Traditional A/B 8P. Black/African American students are equitably included in three schedule frameworks, and are greatly underrepresented in two schedules. Multiracial students are approaching equitable in one schedule and are underrepresented in one schedule. Hispanic/Latino and White students are equitably included on average in four schedule frameworks. Equitable enrollment is different when music ensemble and general music data is separated.

**Table 112**

*Ethnicity Equity Score for Music by Framework*

Schedule Framework	Sch. Count	All Groups	AIAN*	A*	B*	HL*	M*	NHPI*	W*
Traditional A-F: 8 Periods	12	89.09%	77.78%	75.00%	100%	91.67%	87.50%	100%	91.67%
Traditional A-D: 7 Periods	3	94%	100%	66.67%	100%	100%	100%	N/A	100%
Traditional A-C (Equity Plan): 7 Periods	2	67%	50%	0%	100%	100%	100%	N/A	50%
Traditional A/B: 8 Periods	2	82.14%	50%	100%	50%	100%	75%	100%	100%
Traditional A/B: 7 Periods	3	79%	100%	66.67%	66.67%	66.67%	83.33%	66.67%	100%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

According to band enrollment information all five schedule frameworks equitably include Black/African American, Hispanic/ Latino, and White students. AIANs are highly represented in A/B 7P, equitably represented in A–F 8P, and are underrepresented in A–D 7P, the Equity Plan, and A/B 7P. NHPI never participated in band during any implemented schedule in which they were enrolled in school. Multiracial are underrepresented in A–F 8P, A–D 7P, and A/B 8P, and are highly represented in the Equity Plan and A/B 7P (Table 113). Chorus equitable enrollment has the same representation for all groups as band, except for American Indian/Alaska Native in A–F 8P, where the students have underrepresented enrollment in chorus (Table 114).

**Table 113**

*Ethnicity Band Enrollment Average Percentage by Framework*

Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
Traditional A-F: 8 Periods	77.78%	100%	91.67%	100%	41.67%	0%	100%	73.02%
Traditional A-D: 7 Periods	66.67%	100%	100%	100%	33.33%	N/A	100%	83.33%
Traditional A-C (Equity Plan): 7 Periods	0%	0%	100%	100%	100%	N/A	100%	66.67%
Traditional A/B: 8 Periods	0%	100%	100%	100%	50%	0%	100%	64.29%
Traditional A/B: 7 Periods	100%	66.67%	100%	100%	100%	0%	100%	80.95%
Highly Represented = Greater than 5% of the Average Enrollment Percent								
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%								
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent								

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

**Table 114***Ethnicity Chorus Enrollment Average Percentage by Framework*

Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
Traditional A-F: 8 Periods	11.11%	50%	100%	100%	66.67%	0%	100%	61.11%
Traditional A-D: 7 Periods	0%	100%	100%	100%	33.33%	N/A	100%	72.22%
Traditional A-C (Equity Plan): 7 Periods	0%	0%	100%	100%	100.00%	N/A	100%	66.67%
Traditional A/B: 8 Periods	0%	100%	100%	100%	0.00%	0%	100%	57.14%
Traditional A/B: 7 Periods	100%	33.33%	100%	100%	66.67%	0%	100%	71.43%
Highly Represented = Greater than 5% of the Average Enrollment Percent								
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%								
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent								

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Orchestra has the same highly represented trend for Black/African American, Hispanic/Latino, and White as band and chorus. AIANs are underrepresented in all schedules in orchestra except for high representation in A/B 8P. Asians are highly represented in A–F 8P and A/B 7P and are underrepresented in A–D 7P, the Equity Plan, and A/B 8P. Multiracial students are underrepresented in A–F 8P, A–D 7P, and A/B 8P, while being highly represented in the Equity Plan and A/B 7P. NHPI students were equitably represented in A–F 8P, and underrepresented in A/B 7P and A/B 8P (Table 115).

**Table 115***Ethnicity Orchestra Enrollment Average Percentage by Framework*

Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
Traditional A-F: 8 Periods	33.33%	91.67%	100%	100%	41.67%	75%	100%	77.38%

Traditional A-D: 7 Periods	0%	66.67%	100%	100%	0%	N/A	100%	61.11%
Traditional A-C (Equity Plan): 7 Periods	0%	0%	100%	100%	100%	N/A	100%	66.67%
Traditional A/B: 8 Periods	100%	50%	100%	100%	0%	0%	100%	64.29%
Traditional A/B: 7 Periods	0%	100%	100%	100%	100%	0%	100%	71.43%
Highly Represented = Greater than 5% of the Average Enrollment Percent								
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%								
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent								

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

AIANs are underrepresented on average in all schedule frameworks in general music. Asians are underrepresented in all schedule framework averages except for A/B 8P, where they are highly represented. Black/African American students are the only group that are highly represented on average in all schedule frameworks in general music. Hispanic/Latino students are highly represented in general music in all frameworks except for A/B 7P, where they are underrepresented. Multiracial students are highly represented in A–F 8P and the Equity Plan, while they are underrepresented in A–D 7P, A/B 7P and A/B 8P. NHPI students are underrepresented in A–F, while they are highly represented in A/B 7P and A/B 8P. White students are underrepresented in A– F and the Equity Plan, and they are highly represented in A–D 7P, A/B 7P and A/B 8P (Table 116).

**Table 116**

*Ethnicity General Music Enrollment Average Percentage by Framework*

Schedule Framework	AIAN*	A*	B*	HL*	M*	NHPI*	W*	Avg. Percent
Traditional A-F: 8 Periods	55.56%	8.33%	91.67%	91.67%	91.67%	66.67%	58.33%	66.27%
Traditional A-D: 7 Periods	66.67%	33.33%	100%	100%	66.67%	N/A	100%	77.78%
Traditional A-C	50%	50%	100%	100%	100%	N/A	50%	75%

(Equity Plan): 7 Periods								
Traditional A/B: 8 Periods	0%	100%	100%	100%	50%	100%	100%	78.57%
Traditional A/B: 7 Periods	66.67%	66.67%	100%	66.67%	66.67%	100.00%	100.00%	80.95%
Highly Represented = Greater than 5% of the Average Enrollment Percent								
Underrepresented = Less than 5% of the Average Enrollment Percent or 0%								
Equitable Representation = Between +5% and -5% of the Average Enrollment Percent								

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Table 117 indicates equity scores by ethnicity for physical education courses by schedule framework. All schedule frameworks have an equitably included average for all groups. The A–D, Equity Plan, and A/B 8P schedules have equitably included ratings with 100% of all ethnicities having equitable enrollment (except NHPI when they are not applicable). The A–F schedule has unrepresented enrollment for AIAN and A, and approaching equitable enrollment for M. Traditional A/B 8P has greatly underrepresented enrollment for M.

**Table 117**

*Ethnicity Equity Score for Physical Education by Framework*

Schedule Framework	Sch. Count	All Groups	AIAN*	A*	B*	HL*	M*	NHPI*	W*
Traditional A-F: 8 Periods	12	89.68%	77.78%	75%	100%	91.67%	83.33%	100%	100%
Traditional A-D: 7 Periods	3	100%	100%	100%	100%	100%	100%	N/A	100%
Traditional A-C (Equity Plan): 7 Periods	2	100%	100%	100%	100%	100%	100%	N/A	100%
Traditional A/B: 8 Periods	2	92.86%	100%	100%	100%	100%	50%	100%	100%
Traditional A/B: 7 Periods	3	100%	100%	100%	100%	100%	100%	100%	100%

Equitably Included: 85% or Above (Courses within the 5% Equity Standard)
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.

Table 118 indicates equity scores by ethnicity for visual arts courses by schedule framework. Visual arts for the all-group average overall is underrepresented in A–F; approaching equitable in A–D, A/B 8P and A/B 7P; and equitably included in the Equity Plan. American Indian/Alaska Native students were underrepresented in one schedule, approaching equitable in two schedules, and equitably included in two schedules. Asian students were greatly underrepresented in three schedules, underrepresented in one schedule, and were equitably included in one schedule. Black/African American and Hispanic/Latino students were underrepresented in three schedules and were equitably represented in two schedules. Multiracial students were greatly underrepresented in one schedule, underrepresented in two schedules, and were equitably represented in two schedules. Native Hawaiian/Other Pacific Islander students were greatly underrepresented in one schedule, underrepresented in one schedule, equitably represented in one schedule, and not applicable in two schedules. White students were underrepresented in two schedules and were equitably represented in three schedules.

**Table 118**

*Ethnicity Equity Score for Visual Arts by Framework*

Schedule Framework	Sch. Count	All Groups	AIAN*	A*	B*	HL*	M*	NHPI*	W*
Traditional A-F: 8 Periods	12	76.19%	83.33%	59.72%	91.67%	75%	59.72%	66.67%	97.22%

<b>Traditional A-D: 7 Periods</b>	3	81.48%	100%	33.33%	77.78%	100%	88.89%	N/A	88.89%
<b>Traditional A-C (Equity Plan): 7 Periods</b>	2	87.5%	100%	100%	75%	75%	100%	N/A	75%
<b>Traditional A/B: 8 Periods</b>	2	82.14%	75%	75%	100%	75%	75%	100%	75%
<b>Traditional A/B: 7 Periods</b>	3	82.94%	80.56%	66.67%	77.78%	100%	77.78%	77.78%	100%
Equitably Included: 85% or Above (Courses within the 5% Equity Standard)									
Approaching Equitable: 80%-84.99% (Courses within the 5% Equity Standard)									
Underrepresented: 70%–79.99% (Courses within the 5% Equity Standard)									
Greatly Underrepresented: Below 70% (Courses within the 5% Equity Standard)									

\*Key: AIAN: American Indian/Alaska Native; A: Asian; B: Black; HL: Hispanic/Latino; M: Multiracial; NHPI: Native Hawaiian/Other Pacific Islander; W: White; N/A: A particular race was not enrolled in school during a particular year.



## CHAPTER 5

### DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to determine how equitably student groups were scheduled in health, music, physical education, and visual arts courses across four variables in five implemented schedule frameworks during 11 academic years in two public middle schools in New York State from the same school district. The four student-group variables analyzed were English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity. The large data set includes complete scheduling data with 255,365 rows and 13 columns for a total of 3,319,745 cells in Google Sheets. Additional variables in the data set includes grade level, coded student identification numbers, course identification number, course number, course name, course department, course terms, school end year, coded school names, and schedule frameworks. The schedule frameworks in this study include Traditional 6 Day Rotation (A–F Day) 8 Instructional Periods daily, Traditional 4 Day Rotation (A–D Day) 7 Instructional Periods daily, The Equity Plan Traditional 3 Day Rotation (A–C Day) 7 Instructional Periods daily, Traditional 2 Day Rotation (A/B Day) 8 Instructional Periods daily, and Traditional 2 Day Rotation (A/B Day) 7 Instructional Periods daily. The instructional periods do not include lunch. deGregory and Sommer (2019) defined a nearly equitable distribution in their study as “near equitable distribution of access to accelerated coursework for each student group” ranged from 48%–68% in 2019 and 56%–73% in 2020 for ethnicity (a difference of 17%–20%) (p.48). The literature does not define equitable course enrollment. Equitable course enrollment is defined in the current study as no more than a 5% difference in course enrollment between student groups. This

number was selected to account for expected schedule variation that occurs according to interest and need in a school schedule. The author realizes that 5% is a high standard for equitable course inclusion.

The 5% equity standard is applied to compare equitable enrollment of English as a new language (ENL) students with non-ENL students (students who do not have English as a second language), SWDs with non-SWDs (students without disabilities), females with males (there were only two represented genders in the data set), and ethnic groups included: American Indian/Alaska Native, Asian, Black or African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White. If there are two variables (such as ENL students and non-ENL students) equitable course enrollment is defined as no more than a difference of 5% in enrollment between the two groups. If there are multiple variables (such as ethnicity), a student group is considered to have equitable enrollment in a particular course if the difference in enrollment representation is no less than 5% for the group than the enrollment of the total population during a particular year. For example, if the enrollment in music for all students is 80% in a particular schedule, then an ethnic group would be considered equitable if the group is within 5% of the all-student percentage. If the difference is less than 5% and one group has 0% representation, this will not be considered equitable. Additionally summary descriptors are used for the percentage of overall courses that are equitable. An equitably included rating is considered to be 85% or above courses being equitable using the 5% standard for a student group. An approaching equitable rating is 80%–84.99. An underrepresented equitable rating is 70%–79.99%, and a greatly underrepresented equitable rating is below 70%. These descriptors were selected because each course

department for health, music, physical education, and visual arts accounts for 25% of the equity score. If 75% of any group is equitable, this indicates that one out of the four courses are not equitable, making the classification underrepresented appropriate for 70%–79.99%. Equitably included is 85% and above because to achieve this high of an equitable percentage, three out of four courses would have to be equitable with a fourth course approaching equitable. Below 70% is considered greatly underrepresented because at least one course would not be equitable with a second course, at best, would be approaching equitable.

Two strategies were utilized using descriptive statics to interpret this large data set combined from eleven years of scheduling for two middle schools. Strategy 1 analyzes individual school schedules by year and determines if student enrollment in health, music, physical education, and visual arts were equitable for specific student groups to answer Research Question 1: How equitable is each implemented schedule framework for health, music, physical education, and visual arts course enrollment for the following student groups: English as a New Language (ENL), students with disabilities (SWDs), gender, and ethnicity? Strategy 2 organizes and aggregates the equitable enrollment data from each school schedule in Strategy 1 and groups the data by schedule frameworks (i.e. A–F 8P, the Equity Plan, etc.) and student groups (ENL, SWD, gender, and ethnicity) to answer Question 2: How equitable are the implemented schedule frameworks for health, music, physical education, and visual arts course enrollment for English as a New Language (ENL) students, students with disabilities (SWDs), gender, and ethnicity? These analyses permitted the researcher to determine if there are patterns in equitable

enrollment among the implemented Equity Plan schedule framework and traditional alternating day schedule frameworks. There are five implemented schedules:

1. Traditional 6 Day Rotation A–F 8 Periods (A–F 8P);
2. Traditional 4 Day Rotation A–D 7 Periods (A–D 7P);
3. Traditional 3 Day Rotation A–C (The Equity Plan [see p. 95 for more information]);
4. Traditional 2 Day Rotation A/B 8 Periods (A/B 8P);
5. Traditional 2 Day Rotation A/B 7 Periods (A/B 7P).

The Equity Plan is a new schedule framework designed and implemented by the researcher of the current study with the belief that this plan is more equitable for students to be included in health, music, and visual arts. The following elements were required to be considered an Equity Plan schedule: an intentional administrative strategy focusing on equitable course enrollment; a Three-Day rotation; and a bell schedule that permits 0.5 units of study (3,240 minutes) to be earned by a student scheduled for a course once every three days throughout the school year (see the The purpose of this study was to determine how equitably student groups were scheduled in health, music, physical education, and visual arts courses across four variables in five implemented schedule frameworks during 11 academic years in two public middle schools in New York State from the same school district. The four student-group variables analyzed were English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity.

Development of the Equity Plan Concept section for more specific information, p. 95).

English as a new language (ENL) students were consistently not equitably included in health, music, and visual arts compared with non-ENL (native English speakers). Out of all student groups, ENL students had the lowest equitable participation in health, music, and visual arts at 59.09% (Table 44, p. 141). Equitable enrollment percentages for ENL students were 68.18% for health, 27.27% for music, 100% for physical education, and 40.91% for visual arts (Table 46, p. 143). All four courses are required, yet ENL students tend to not be equitably represented, especially in music and visual arts. When the data are organized and averaged by schedule framework, the Equity Plan schedule is the only schedule that has equitable course enrollment for ENL students in health, music, physical education, and visual arts (Table 102, p. 219).

Students with disabilities (SWDs) have a similar trend to ENL students. SWDs were consistently not equitably included in health, music, and visual arts compared with non-SWDs (students without disabilities). SWDs had the second lowest equitable enrollment percentages in health, music, and visual arts at 65.91% (Table 44, p. 141). Equitable enrollment percentages for SWDs were 72.73% for health, 36.36% for music, 100% for physical education, and 54.55% for visual arts (Table 55 p. 156). SWDs and ENL have the same trend extremely low equitable representation in music and visual arts, low representation in health, and equitable representation in physical education. Music is the only course that is required for 0.5 units of study and has general music as well as elective ensemble offerings. When the data were organized and averaged by schedule framework, the Equity Plan schedule was the only schedule that had equitable course enrollment for SWDs in health, music, physical education, and visual arts (Table 105, p. 223).

Students grouped by gender overall had the second highest equitable enrollment rating percentage by group at 75% (Table 44, p. 141). Students grouped by gender on average had equitable representation in all schedules in health 95.45% of schedules, music 36.36% of schedules, physical education 81.82% of schedule, and visual arts 81.82% of schedules (Table 64, p. 168). Health enrollment favored females during one year and males during one year (Table 65, p. 169). Music enrollment favored females during 11 years and males during one year (Table 66, p. 171). Physical education favored males by a large margin of 19.47%–35% during four years consecutively in Middle School 2 (MS2) (Table 69, p. 176). Visual arts favored females during two years and males during two years (Table 70, p. 177). When the data were organized by and averaged by schedule framework the Equity Plan had the highest four course average equity score; yet, music is greatly underrepresented for students grouped by gender in all schedule frameworks including the Equity Plan (Table 108, p. 226). This is likely due to the large elective enrollment of females in chorus during 21/22 schedules (Table 67, p. 173) and orchestra during 19/22 schedules (Table 68, p. 175). The Equity Plan was designed to permit flexibility in course enrollment and the schedule was not designed to force equitable enrollment in courses that are not mandatory. Counselors were provided explicit scheduling decision rules to provide opportunities for elective course enrollment for all students (p. 119). Males in the Equity Plan likely did not request to be scheduled in chorus and orchestra at the same rates that females did.

Ethnicity had the highest overall group equitable enrollment for health, music, physical education, and visual arts (Table 44, p. 141). The seven ethnic groups included in this study are American Indian/Alaska Native, Asian, Black/African American,

Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander, and White. Ethnicity overall was 87.56% equitable, yet there were specific ethnic groups being excluded from courses. For health, Asians were included in 77.27% of the time for all schedules labeling Asians as underrepresented in health (Table 74, p. 185). Music has underrepresented enrollment averages for American Indian/Alaska Natives (78.95%) and Asians (72.73%) (Table 79, p. 190). Physical education has equitable representation for all seven ethnic groups (Table 89, p. 203). Visual Arts have an equitable enrollment average for Black/African American (90.15%), Native Hawaiian/Other Pacific Islander (85.71%) and White (87.88%) students; approaching equitable average for American Indian/Alaska Native (82.05%); underrepresented average for Hispanic/Latino (78.79%) and Multiracial (71.21%); and greatly underrepresented average for Asian (63.64%) students (Table 91, p. 205). All schedules have an overall equitably included average. No framework on average had an equitably included rating for all ethnic groups (Table 110, p. 229).

### **Implications of Equitable Enrollment for All Schedules**

Trends of student equitable enrollment become apparent after reviewing all aggregate demographic and enrollment data for 22 schedules in two public middle schools across five different types of schedules for 11 years. Course enrollment averages for English as a new language (ENL) students, students with disabilities (SWDs), gender, and ethnicity for health, music, physical education, and visual arts revealed that certain groups of students are frequently being excluded from courses. Aggregate schedule data for health, music, and visual arts indicated that ENL and SWDs were not being consistently equitably enrolled. Gender tended to have underrepresentation in music, and

is approaching equitable for physical education and visual arts. Ethnicity overall tends to be equitable; although, ethnic groups with low overall school enrollment (Native American/Alaska Native, Asian, Multiracial, and Native Hawaiian/Other Pacific Islander) have equitable enrollment issues in health, music, and visual arts. This section discusses student groups by course, and implications for equitable enrollment.

According to the New York State Education Department Culturally Responsive-Sustaining (CR-S) Education Framework is grounded in four principals: 1) Welcoming and Affirming Environment; 2) High Expectations and Rigorous Instruction; 3) Inclusive Curriculum and Assessment; and 4) Ongoing Professional Learning (New York State Education Department, 2019j). A possible explanation for low music course enrollment despite ensemble elective offerings is that there are deficiencies in two of the principles: Welcoming and Affirming Environment and Inclusive Curriculum and Assessment. In the CR-S Framework a Welcoming and Affirming Environment should include a “collective responsibility to learn about student cultures and communities” and include “materials that represent and affirm student identities.” (New York State Education Department, n.d.-c, p. 12). Although this study does not investigate recruitment strategies, curriculum, course materials, and student cultures; music course offerings and demographics may provide some insight regarding music enrollment preferences. Health, physical education, and visual arts should not be impacted by student preference at all in the implemented schedules because they are all required courses, and there are no elective course offerings in these subject areas.

### ***Implications of Equitable Enrollment for ENL Students***



Aggregate data from 22 middle school schedules and health, music, physical education, visual arts courses indicated that English as a new language (ENL) students tend to be greatly underrepresented on average for all four course areas and schedules (Table 44, p.141). Physical education is an outlier because the data indicates physical education on average has an equitably included rating for ENL students in 100% of schedules (Table 46, p. 143). The high enrollment in physical education cannot be explained away by saying physical education is required because health, music, physical education, and visual arts are all required courses (New York State Education Department, 2012; 2019b). Physical education is required every other day in grades 6–8, while visual arts, health, and music require 0.5 units of study each between grades 7–8. Based on the requirements students should have had visual arts, music, and health at least one time in middle school. ENL students are greatly underrepresented in health, music, and visual arts in 68.18%, 27.27%, and 40.91 of schedules using the 5% equity standard respectively (Table 46, p. 143). Underrepresentation in music course offerings for ENL students is consistent with findings by Elpus (2014). The data suggest that there are students who never enrolled in music, health, and visual arts courses at all. This is concerning because ENL students, a population requiring the most support with language acquisition, are being excluded the most from courses that might potentially help them develop new English skills. ENL students have unique course requirements that native English speakers do not have including an additional English as a new language course and an English co-integrated course (p. 15). The additional course requirements likely resulted in counselors and schedulers to remove students from mandated courses that they believed were less important than others. If an ENL student required an additional

English course that does not fit in the schedule a decision must be made to eliminate something. Music or visual arts were likely the first course to go! If music and visual arts were perceived to be more important, perhaps there would be higher equitable enrollment in music and visual arts with lower equitable enrollment in physical education. There were years in which ENL students are intermittently highly included (having 5% greater enrollment than non-ENL students). This appears to occur by random chance, although this can occur if courses are selected according to need to fill gaps in a group of student schedules when no other course is available. For example, MS1 2019 highly includes ENL students in health by 13.48% more than non-ENL (native English speakers) students (Table 48, p. 146). If an entire class or group of ENL students could not enroll in a required music class due to schedule conflicts (which is a likely scenario considering music has the lowest equitable course enrollment), a master scheduler may decide to place an entire ENL group of students into a health class if the health teacher happens to be available.

Music is the only course out of the four subjects, which offers elective courses, such as ensembles. One may expect that music would have more opportunities to participate because this is the only subject with elective offerings; however, music has the lowest equitable course enrollment out of the four courses at only 36.36% of implemented schedules. Music courses include general music, band, chorus, and orchestra. A possible explanation of the discrepancy is additional English course mandates for ENL students (New York State Education Department, 2015a). This does not account for the equitably included enrollment for physical education and greatly underrepresented enrollment for music. Why is there such a large disparity between

equitable inclusion in music and physical education if music and physical education are both required courses and music has so many possibilities for enrollment? One likely factor in this disparity appears to be that the principals/school schedulers believe that physical education is important, so physical education enrollment for all students was seemingly and consistently a non-negotiable by the principals/school schedulers. It appears that physical education enrollment was a non-negotiable in most schedules because almost all students were enrolled in physical education (except in MS2 during 4 consecutive years). The levels of equitable enrollment were so low for ENL students it would have extremely unlikely for all ENL students to have enrolled in music (a required course) at least once in grade 6–8. In other words, it is likely that there are ENL students who never received their required music instruction. ENL students are underrepresented in band during 16/22 schedules, chorus during 16/22, schedules (Table 51, p. 150), orchestra during 7/22 schedules, and general music during 10/22 schedules (Table 52, p. 151). ENL students may be equitably represented the most in orchestra because of personal preference or a supportive or encouraging teacher to do so. According to Neel (2017), 69% of Latino students in the United States identify as being Mexican and identify with mariachi folk music (p. 210). ENL students in this study were mostly Hispanic/Latino, and may have elected to join orchestra because there is similar instrumentation to mariachi ensembles. Equitable course enrollment patterns are drastically different when grouped by implemented schedule framework. The Equity Plan schedule framework tends to have more equitable enrollment overall.

The five implemented schedule frameworks in this study included Traditional 8 (instructional) Period 6 Day Rotation (A–F 8P) schedules; Traditional 7 Period 4 Day

Rotation (A–D 7P) schedules; Traditional 7 Period 3 Day Rotation (Equity Plan) schedules; Traditional 8 Period 2 Day Rotation (A/B 8P) schedules; and Traditional 7 Period 2 Day Rotation (A/B 7P) schedules. There are noticeable trends in equitable enrollment when data are aggregated according to implemented frameworks. All five schedule frameworks equitably include ENL students in physical education (Table 102, p. 219). The Equity Plan schedule was the only schedule that equitably included ENL students in all four course subjects: health, music, physical education, and visual arts. ENL students were greatly underrepresented on average in music, visual arts, and health in A–F 8P, A–D 7P, and A/B 7P. A/B 8P has greatly underrepresented enrollment on average for music and visual arts, and equitable enrollment for health (Table 102, p. 219). Although the Equity Plan has equitable representation for ENL music enrollment overall; ENL students were generally not equitably represented in band and chorus, while they tended to be equitably included in orchestra.

The Equity Plan schedules were implemented in Middle School 2 (MS2) during 2021 and 2022. ENL students were underrepresented in MS2 2021 and 2022 Equity Plan schedules in band and chorus (Table 50, p. 148). In MS2 2021 ENL students were underrepresented in orchestra and were highly represented in general music. MS2 2022 ENL students were highly represented in orchestra and were equitably included in general music (Table 51, p. 150). The Equity Plan was designed to provide students access to courses if they were interested in enrolling; however, if students were not encouraged or interested in participating in ensembles they would not be enrolled. During implementation of the Equity Plan in MS2 during both years there was no targeted recruitment for any student group to participate in ensembles. There was an open house

indicating music course availability for incoming 6<sup>th</sup> grade students, which had limited attendance. There may have been an increase in ensemble enrollment had there been targeted recruitment for ENL student participation in ensembles. Language was also likely a factor in enrollment. There are no requirements for certificated ENL teachers to support general music and ensembles, so a music ensemble in a second language may not have been promoted by school counselors when enrolling students. Ensembles at this middle school required pre-requisite knowledge from elementary instruction to allow participation in instrumental music, and therefore is possible that ENL students did not have a background in instrumental music, so they could not join a music ensemble. Not having a background in instrumental music would be a barrier for ENL student enrollment in addition to mandated language courses unique to ENL students. The author of this study recommends that beginner level ensembles are an option for secondary students in middle and high school to remove barriers for student groups to participate in instrumental music courses. Although the Equity Plan did not provide equitable ensemble enrollment, the Equity Plan is the only schedule that achieved equitable course enrollment overall in health, music, physical, and visual arts courses.

The researcher does not believe that the Equity Plan is the only possible framework that can achieve equitable course enrollment; however, there are specific features of this framework that make equitable course enrollment for ENL students easier to achieve. The Equity Plan utilizes a specific bell schedule (Table 30, p. **Error! Bookmark not defined.**), a three day rotation (Table 12, p. 57), and an intentional administrative strategy focusing on equity (p. 107) to equitably include ENL students in mandated English courses as well as health, music, physical education, and visual arts.

ENL students would most likely not have been equitably included by chance had the administrative team not utilized an intentional administrative strategy focusing on equity for ENL students. The 20/22 schedules that were not the Equity Plan did not appear to have an intentional administrative strategy because they did not equitably include ENL students in all four courses. ENL equitable enrollment would have likely increased in any of the implemented schedules, had there been an administrative strategy to do so.

### ***Implications of Equitable Enrollment for Students with Disabilities***

Aggregate data from all 22 middle school schedules for five implemented frameworks and all four course areas (health, music, physical education, and visual arts) indicate that students with disabilities (SWDs) on average tend to be greatly underrepresented (Table 44, p.141). SWDs rank three out of four for course inclusion at 65.91% of courses and schedules (Table 44, p.141). SWDs are greatly underrepresented in music, as they are equitably included in 36.36% of schedules using the 5% equity standard. Underrepresentation in music course offerings for SWDs is consistent with previous findings for high school students. Eplus (2014) examined National Assessment of Educational Progress (NAEP) data from student cohorts during the period 1982–2009. Eplus found that student participation in high school music courses declined for English language learners and students with disabilities since the enactment of No Child Left Behind (NCLB) through 2009. SWDs are also greatly underrepresented in visual arts in 54.55% of schedules. SWDs are underrepresented in health course enrollment in 72.73% of schedules. Health, music, physical education, and visual arts are all required courses (New York State Education Department, 2012; 2019b); however, physical education is the only course that tends to have an equitably included rating for SWDs in 100% of

schedules (Table 55, p. 156). Physical education is required every other day during all three years, while visual arts, health, and music require 0.5 units of study. Based on the requirements students should have had health, music, and visual arts at least once in middle school. The data suggests that there were SWDs who never enrolled in required courses. It is concerning because SWDs who require the most support are being excluded from courses disproportionately from non-SWDs (students without disabilities). Findings in this study were consistent with the American Psychological Association's (2010) statement that "people with disabilities remain overrepresented among America's poor and undereducated." SWDs in this study were "undereducated" because they did not have equitable access to health, music, and visual arts courses. The New York State Education Department (2013) should advocate for including SWDs in all courses; however, the focus is on English, math, science, and social studies in the Continuum of Special Education Services for School-Age Students with Disabilities-Questions and Answers.

Music courses include general music, band, chorus, and orchestra. Music is the only course out of the four subjects, which offers elective courses. One may expect that music would have higher equitable course enrollment for SWDs because this is the only course with elective offerings. Despite elective course offerings music has the lowest equitable course enrollment when compared with health, physical education, and visual arts for SWDs (Table 55, p. 156). A possible explanation of the discrepancy are additional mandated services for SWDs (New York State Education Department, 2013) that create a schedule conflict with courses. This does not account for the equitably included enrollment for physical education, greatly underrepresented enrollment for music and visual arts, and underrepresented enrollment in health. Why is there such a

large disparity in equitable inclusion in courses if they are all required? One likely factor in this disparity appears to be that the principals/school schedulers prioritized physical education enrollment for all students and this was consistently a non-negotiable. This conclusion is drawn solely from the number of SWDs enrolled in physical education classes and not health, music, and visual arts. School counselors likely had to make decisions to remove students from courses to schedule students for mandated services, and the counselors selected health, music, physical education and/or visual arts. The levels of equitable enrollment were so low for SWDs in music (a required course) that there is a high probability that students never received music at least once in grade 6–8. SWDs are underrepresented in band during 12/22 schedules, chorus during 16/22, schedules (Table 59, p. 161), orchestra during 7/22 schedules, and general music during 1/22 schedules (Table 60, p. 162). Equitable orchestra representation for SWDs may be attributed to low overall course enrollment in orchestra compared with other ensembles. Non-disabled student population enrollment averages for all schedules in band, chorus and orchestra are 9.52%, 13.82%, and 6.63% respectively. The disabled student population enrollment averages for all schedules in band, chorus, and orchestra are 2.81%, 5.52%, and 2.24% respectively. Had the non-disabled students enrolled in orchestra at the same rates they enrolled in band, students with disabilities would not be considered equitable. SWDs had similar enrollment average percentages for band and orchestra at 2.81% and 2.24%. SWDs may be equitably represented the most in general music because of schedule conflicts making it impossible to enroll in ensembles, personal preferences, or a lack of recruitment to include SWDs. Equitable course enrollment is drastically different when grouped by implemented schedule framework.



The five schedule frameworks in this study include 12 implemented Traditional 8 (instructional) Period 6 Day Rotation (A–F 8P) schedules, 3 implemented Traditional 7 Period 4 Day Rotation (A–D 7P) schedules, 2 implemented Traditional 7 Period 3 Day Rotation (Equity Plan) schedules, 2 implemented Traditional 8 Period 2 Day Rotation (A/B 8P) schedules, and 3 implemented Traditional 7 Period 2 Day Rotation (A/B 7P) schedules. There are noticeable trends in equitable enrollment when data is aggregated according to implemented frameworks. All five schedule frameworks equitably include SWDs students in physical education (Table 105, p. 223). The Equity Plan schedule is the only schedule that equitably includes SWDs in all four courses: health, music, physical education, and visual arts. SWDs are greatly underrepresented on average in music, visual arts, and health in A–D 7P, and A/B 8P. A–F 8P has greatly underrepresented enrollment in music and visual arts, while having underrepresented enrollment in health for SWDs. A/B 7P has greatly underrepresented enrollment on average for music and visual arts, and equitable enrollment for health (Table 105, p. 223). Although the Equity Plan has equitable representation for SWD music enrollment overall; SWDs are not equitably represented in all ensembles.

The Equity Plan schedules were implemented in Middle School 2 (MS2) during 2021 and 2022. In MS2 2021, SWDs are equitably represented in band and chorus (Table 59, p. 161), are equitably represented in orchestra, and are highly represented in general music (Table 60, p. 162). In MS2 2022, SWDs are underrepresented in band and chorus (Table 59, p. 161), highly represented in orchestra, and equitably represented in general music (Table 60, p. 162). The Equity Plan was designed to provide students access to courses if they are interested in enrolling; however, if students are not encouraged or

interested in participating in ensembles they would not be enrolled. There was no targeted recruitment for any student group to participate in ensembles during implementation of the Equity Plan in MS2 during both years. There was an open house indicating music course availability for incoming 6<sup>th</sup> grade students, which had limited attendance. There may have been an increase in ensemble enrollment had there been targeted recruitment for SWDs to participation in ensembles. Ensembles participation in Middle School 1 and Middle School 2 required pre-requisite knowledge to participate in instrumental music, and it is possible that SWDs did not have a background in instrumental music from their elementary schools. Having supplementary mandated special education services may contribute to a student not being encouraged to learn an instrument in elementary school. If a student is pulled out of class for speech or resource-room services, they may be less likely to be encouraged to participate in instrumental music because they would need to be pulled out of class again. Not having a background in instrumental music would be a barrier for student enrollment at the secondary level. The author recommends that beginner-level ensembles are offered as an option for secondary students in middle and high school to remove barriers for all students to participate in instrumental music. With targeted recruitment and beginning ensemble availability there may be equitable ensemble enrollment in the future for SWDs. Although the Equity Plan did not provide equitable ensemble enrollment most of the time for SWDs, the Equity Plan is the only schedule that achieved equitable course enrollment overall in health, music, physical, and visual arts courses.

The researcher does not believe that the Equity Plan is the only possible framework that can achieve equitable course enrollment; however, there are specific

features of the framework that make equitable course enrollment for SWDs easier to achieve. The Equity Plan utilizes a specific bell schedule (Table 30, p. 105), a three day rotation (Table 12, p. 57), and an intentional administrative strategy focusing on equity (p. 107) to equitably include SWDs in mandated courses/services as well as health, music, physical education, and visual arts. There does not appear to have been an intentional strategy focusing on equity in a majority of schedules because of the low equitable enrollment for SWDs.

### ***Implications of Equitable Enrollment for Gender***

Aggregate data from 22 middle school schedules for health, music, physical education, visual arts courses indicate that gender tends to be underrepresented on average for all four courses and schedules (Table 44, p.141). Gender enrollment had equitably included enrollment for health and visual arts, approaching equitable enrollment for physical education, and greatly underrepresented enrollment for music. Physical education for gender has the lowest equitable representation out of all groups including English as a new language (ENL) students, students with disabilities (SWDs), and ethnicity. MS1 has equitable representation for physical education during all years for gender. Females were greatly underrepresented between 2021–2015 in MS2. This issue appears to have been addressed in 2016 because all other years have equitable representation for physical education (Table 69, p. 176). Out of all four courses music has the largest inequitable course enrollment challenges between females and males.

In music courses overall, males are underrepresented in more than 59.09% of schedules (Table 66, p. 171). Band courses have consistent equitable representation for gender during 20/22 implemented schedules. According to a 140 year history of women's

bands in the United States from the 1880s “women wanted their own bands because they weren’t allowed to play in men’s bands” (Sullivan, 2016, pp. 1–2). Although this study cannot be generalized to the entire United States, this schedule enrollment study is evidence of progress because females and males from 2011–2022 are equitably included in coeducational band in two New York State public middle schools. Despite equitable band enrollment chorus and orchestra are inequitably represented for students grouped by gender. Males are consistently underrepresented in chorus when compared with females during 21/22 schedules (Table 67, p. 173). Males are also underrepresented in orchestra during 19/22 years (Table 68, p.175). Females are underrepresented in 8/22 schedules for general music (Table 68, p.175), which is likely due to the fact that for these two middle schools, females tend to select ensembles instead of general music. “Missing males” is an identified issue in music education research for vocal music (Freer, 2010; Koza, 1993), and this study adds to the body of literature indicating that this phenomenon is present in MS1 and MS2. More research into recruitment strategies, curriculum, course materials, and student cultures are required to understand this trend further. It is possible that school efforts focusing on a Welcoming and Affirming Environment and Inclusive Curriculum and Assessment may increase male participation in orchestra and chorus.

### ***Implications of Equitable Enrollment for Ethnicity***

This study includes aggregate data from 22 middle school schedules and health, music, physical education, visual arts courses for ethnicity. The ethnic groups in this study are American Indian/Alaska Native (AIAN), Asian, Black/African American, Hispanic/Latino, Multiracial, Native Hawaiian/Other Pacific Islander (NHPI), and White. After averaging equitable inclusion using the 5% equitable enrollment standard for all

four courses and school schedules Black/African American, Hispanic/Latino, Native Hawaiian Other Pacific Islander, and White students are equitably represented; American Indian/Alaska Native and Multiracial students are approaching equitable; and Asian students are underrepresented (Table 73, p. 183). Four ethnic groups represent less than 6% of the two school populations. The following are the enrollment: AIAN 0.32%, Asian 2.44%, Multiracial 2.28%, and NHPI 0.14%. The majority of the population includes Black/African American 27.18%, Hispanic/Latino (46.18%), and White 21.6% (Table 72, p. 180). Ethnic groups with low enrollment overall can change equity ratings with a small number of students being enrolled (or not enrolled) in a particular course. For example, in Middle School 1 (MS1) there are 3 AIAN students enrolled in the entire school in 2014 (Table 71, p. 179). A single AIAN student accounts for 33.33% of the entire population. The difference one student enrolling in a course or not can determine whether or not the ethnic group has equitable representation. MS1 2017 A–F 8P is the only schedule with a 100% equitably included rating for all four courses and all seven ethnic groups. This likely occurred because the majority of students in this schedule received mandated health, music, physical education, and visual arts courses consistently during specific grade levels. Despite being equitable for all ethnic groups, MS1 2017 was not equitable for English as a new language (ENL) students and students with disabilities (SWDs) in health.

Health enrollment for all schedules on average equitably include AIAN, Black/African American, Hispanic/Latino, Multiracial, NHPI, and White. Asians are the only underrepresented ethnicity at 77.27% for health (Table 74, p. 185). Due to the small enrollment from 13 students to 40 students in any given year, the data reveal that Asians

were either disproportionately excluded from health by chance, or there may have been other intersectionality interactions that are beyond the scope of this study. English as a new language (ENL) students tend to be excluded from health courses at a higher rate than non-ENL (native English speakers) students. One factor could be that having Asian students, who are ENL students could contribute to being scheduled for ENL courses instead of health. When the data is organized by the five schedule frameworks, the only group that is always equitably included in health is Hispanic/Latino. AIANs are approaching equitable in the Traditional A–F 8 Instructional Period Schedule (A–F 8P), Asians are underrepresented in (A–F 8P) and Traditional A/B 7 Instructional Period Schedule (A/B 7P), while Asians are greatly underrepresented in the Traditional A–D 7 Instructional Period Schedule (A–D 8P). Black/African American are greatly underrepresented in A/B 7P. The Traditional A–C 7 Instructional Period Schedule (Equity Plan) and Traditional A/B 8 Instructional Period Schedule (A/B 8P) both equitably include all represented ethnicities during all implemented schedules (Table 111, p. 230). Asian students appear to have a pattern of being excluded while the other ethnicities appear to be excluded by chance in other schedule frameworks because there were no explicit guidelines to schedule differently according to ethnicity. Although all ethnic groups are equitably included in the Equity Plan, this happened by chance, not with an intentional administrative strategy focusing on Equity. The researcher provided explicit instructions to school counselors, none of which included any schedule decision rules based on ethnicity or equity enrollment expectations. The Equity Plan focused on including ENL students, students with disabilities (SWDs), and elective course flexibility.

Music enrollment for all schedules on average equitably includes Black/African American, Hispanic/Latino, Multiracial, NHPI, and White. Asians and AIAN are both underrepresented in music enrollment (Table 79, p. 190). Both Asians and AIAN have small representation in the school populations during each year. The lack of equitable course enrollment for Asians and AIANS may be due to chance, intersectionality interactions between disability/gender/language learner status or conflicts with honors courses. Different trends are revealed when viewing the data by specific music course and schedule framework.

Black/African American, Hispanic/Latino, and White students are consistently highly represented in band, chorus, and orchestra in all schedule frameworks (Table 113, p. 232; Table 114, p. 233; Table 115, p. 233). AIAN, Asian, Multiracial, and NHPI appear to be randomly equitably represented, highly represented, and underrepresented by schedule framework averages. Low overall school enrollment by these ethnicities is likely contributing to this random representation in ensembles. AIAN and NHPI school enrollment averages by schedule framework are either not represented at all, or represent less than 1% of each population. Asian enrollment ranges from 1.49%–2.92% and Multiracial enrollment represents 0.82%–5.16% (Table 109, p. 227). A few students interested or disinterested in an ensemble class will greatly impact the data. For example, a student population that is 0.29% for AIAN in A–D 7P, may equate to 2 or 3 students in the entire school. Targeted recruitment may be an opportunity to increase participation for small populations.

Physical education has the highest equitable enrollment percentage when compared with health, music, and visual arts. Physical education was consistently

equitable; however, AIANs, Asians, and Multiracial students were excluded from physical education disproportionately in some schedule frameworks. Physical education is an outlier because the data indicates physical education on average has an equitably included rating for all ethnicities when all schedules are averaged (Table 89, p. 203). Averages by schedule framework reveal disparities in equitable enrollment. A–D 7P, the Equity Plan, and A/B 7P equitably include all ethnicities in physical education (Table 117, p. 235). A–F 8P has underrepresented enrollment for AIAN and Asians, and is approaching equitable for Multiracial students. A/B 8P has greatly underrepresented enrollment for multiracial students. An intentional administrative strategy focusing on equity such as a schedule audit may have lead to all student groups being equitably included in physical education in all schedule frameworks.

Visual arts average enrollments for all schedules are consistent with health, music, and physical education. Black/African American, Hispanic/Latino, and White students are equitably included on average in visual arts courses. AIAN, Multiracial, and NHPI students are approaching equitable and Asians are underrepresented (Table 91, p. 205). When grouped by schedule framework there does not appear to be consistent trends in visual arts equitable enrollment at all for any race (Table 118, p. 236). The all group average ethnicity rating for A–F 8P is underrepresented, A–D 7P greatly underrepresented, the Equity Plan equitably included, and A/B 8P and A/B 7P are approaching equitable (Table 118, p. 236). Although the Equity Plan has an overall average equitably included rating for visual arts ethnicity enrollment, Black/African American, Hispanic/Latino, and White are underrepresented. Had there been an apparent



equitable enrollment strategy for ethnicity, visual arts enrollment may have had higher equitable participation.

### **Limitations**

This study is limited to 22 implemented schedules (5 different frameworks) in two public middle schools in New York for a total of 11 schedules at each school. More studies of this nature should be conducted to determine trends in equitable course enrollment in other public, private, and charter schools in New York and in other states. This study did not include teacher schedule information. Teacher schedules could have indicated how many teachers are offering courses, and average class sizes, which can impact enrollment. Be cautious about generalizing findings in this study with other schools. Each school will have unique demographics, enrollment numbers, and course offerings. The researcher believes that English as a new language (ENL) students and students with disabilities (SWDs) are disproportionately excluded from health, music, and visual arts courses due to additional mandated services for these groups. The data in this study includes only 2 years of implemented Equity Plan schedules. This schedule should be utilized in other schools to determine if these schools are able to achieve high levels of equitable course enrollment with this schedule framework. The original data request included the variables McKinney Vento (homeless) and Free/Reduced Lunch classification. This request was denied because of the confidential and sensitive nature of these vulnerable groups.

### **Conclusion, Future Research, and Practice**

This study compares equitable student enrollment in implemented Equity Plan schedules and four variations of traditional alternating day schedules for English as a new

language (ENL) students, students with disabilities (SWDs), gender, and ethnicity in health, music, physical education, and visual arts courses. The Equitable Course Enrollment Standard devised for the current study was determined to be no more than a 5% difference in student group enrollment to be considered equitable (p. 32). Data in this study includes two middle schools in New York State during 11 years for a total of 22 implemented schedules. The data set includes 255,365 rows and 13 columns for a total of 3,319,745 cells of data. The data column headings include student identification (ID) numbers, school name, course identification number, course number, course name, course department, course terms, school end year, grade level, gender, ethnicity, English as a new language (ENL) status, student with disability (SWD) status, and no status. No status for example would be non-SWDs (students without disabilities). The schedule frameworks in this study include 5 different frameworks which were implemented: Traditional 8 (instructional) Period 6 Day Rotation (A–F 8P) schedules, Traditional 7 Period 4 Day Rotation (A–D 7P) schedules, Traditional 7 Period 3 Day Rotation (Equity Plan) schedules, Traditional 8 Period 2 Day Rotation (A/B 8P) schedules, and Traditional 7 Period 2 Day Rotation (A/B 7P) schedules.

The two implemented Equity Plan schedules are the only schedules with equitable course enrollment on average for ENL students (Table 102, p. 219) and SWDs (Table 105, p. 223) in mandated health, music, physical education, and visual arts courses. Throughout all implemented schedules American Indian/Alaska Natives, Asians, Multiracial students, and Native Hawaiian/Other Pacific Islanders being intermittently excluded disproportionately in mandated middle school health, music, and physical education courses. This apparently random trend could be a result of random chance for

these ethnic groups due to their small overall representation. Each of these groups individually represent anywhere from less than 1% up to 5% of the entire school population. The difference of one or two student enrollments in a course may be the difference between achieving the equitable enrollment standard or not. The data also indicate what appears to be random high representation for student groups in certain courses. This can be random chance, a schedule design issue, or a lack of staffing. If a schedule is designed well, ENL students for example, would have sufficient course availability so they all are placed in course without a conflict. Unexpected enrollment changes can lead to instances in which a schedule cannot go as initially planned. An unexpected enrollment of a class of ENL students for example may require music during a particular period. What if there is only one music teacher teaching and this individual is already teaching different group of students during that period. This can result in ENL students being scheduled for visual arts instead, and never receiving music at all. This scenario would result in ENL students being highly represented in visual arts, and underrepresented in music. This same scenario can occur if there are staffing issues due to teacher shortages or budgetary challenges.

According to NYSUT, “Big city and rural districts are reporting severe teacher shortages in many subject areas. Districts with high child poverty rates and racially diverse students are much more likely to face challenges in recruiting and retaining qualified teachers.” (2022). Both schools are extremely diverse schools with high poverty rates, and experience teacher shortages. The most thought out school schedule can have unanticipated adjustments if a school cannot fill a teacher position. This is a factor in equitable representation. As the researcher collaborated with the MS2 scheduling team

there were many evident teacher vacancies and unfilled positions throughout the implementation of the Equity Plan schedules during the 2020–2021 and 2021–2022 academic years. With missing staff members difficult decisions need to be made. Considerations include: Which teacher will teach out of their certification areas based on their strengths to meet student needs? How should available teacher assignments be allocated for student groups? Which courses will/will not be offered, and for whom? Throughout implementation of the Equity Plan it was challenging to navigate teacher vacancies; however, equitable scheduling was possible for students with the Equity Plan schedule, which includes intentional strategy focusing on equitable course enrollment. Budgetary limitations can impact staffing and scheduling.

“The Great Recession caused many school districts across the country to make numerous cuts in their annual budget models. As a result of these austerity measures, administrators often reduced arts education offering” (Hedgecoth & Major, 2019). Due to high inflation education budget cuts may be forthcoming. The August 2022, 12-month percentage change for cost of food, energy, and all items (less food and energy) increased by 11.4%, 23.8%, and 6.3% respectively (U.S Bureau of Labor Statistics, n.d.).

Advocating for Arts programming is important because there is a possibility that we will see cuts nationwide again with current inflation. Hedgecoth and Major (2019) found that advocating for music programming in three large diverse school districts on the West Coast, Midwest, and Southeast contributed to administrators re-envisioning comprehensive music programs that can reach a greater amount of students (pp. 199–200). Having arts advocates as administrators may support more opportunities to reduce the impact of budgetary limitations and cuts. As an educational administrator for a decade

with a background in music learning and teaching, 99.99% of my work is not related to music and the arts; however, the opportunity to impact music and the arts the other 0.01% of the time often has a major impact. We need assistant principals, principals, assistant superintendents, superintendents, college deans, university presidents, and politicians with Arts backgrounds or at minimum Arts advocates. There is a difference between suggesting a change to an individual in a position of power than being the administrator with the ability to implement the change today.

The Equity Plan had the highest overall equity score percentage on average for students grouped by gender (Table 108, p. 226). For students grouped by ethnicity, no schedule on average stood out as more equitable than another other because the range of all ethnic group averages for health, music, physical education, and visual arts were within 2.99% of each other (a range of 86.82%–89.81%), making all schedules equitably included (Table 110, p. 229). It should be noted that no schedule framework on average had equitable course enrollment for all ethnic groups (Table 110, p. 229). Had a schedule audit with an equity analysis been conducted, any of the schedules may have achieved equitable course enrollment averages for all students. The Equity Plan is not the only pathway to equitable course enrollment for student groups. There are four implemented individual schedules that have an overall equitably included rating indicating that 85% of health, music, physical education, and visual arts courses have equitable course enrollment using the 5% Equity Standard. The schedules are Middle School (MS1) 2017 A–F 8P (87.5% equity rating), MS1 2020 (90.83% equity rating), Middle School 2 (MS2) 2021 Equity Plan (98.21% equity rating), and MS2 2022 Equity Plan (90.1% equity rating) (Table 44, p. 141). During 2017 MS1 appears to have an administrative strategy

focusing on equitable course enrollment for gender and ethnicity, while MS1 in 2020 appears to have an administrative strategy focusing on equity for SWDs, gender, and ethnicity.

There is a major silence in the research regarding equitable course enrollment for student group variables. Hopefully researchers will be inspired to investigate equitable course enrollment for student groups now that this research defined the Equitable Course Enrollment Standard (p. 32). This study focused on descriptive schedule data for two middle schools across 11 years; however most principals and schedulers would not have an opportunity to utilize such a large data set. The researcher recommends similar studies, particularly action research that may be smaller in scope to increase the feasibility of additional studies. The goal of the studies should be to share trends in different schools to ensure that we are increasing equitable course enrollment throughout the United States. A school principal, scheduler, or school district administrator can easily conduct an equity analysis using an Equitable Course Enrollment Standard with any student groups for the current or upcoming school year. This knowledge can equip building and district leaders to make adjustments to their master schedules to ensure that students are receiving mandated courses. This opportunity to determine if groups are being disproportionately excluded from specific courses will permit administrators to make intentional administrative decisions to include student populations that are being consistently excluded due to schedule conflicts, or by random chance.

This study focused on health, music, physical education, and visual arts enrollment. There are opportunities to analyze other secondary courses including mandated courses, honors, college level, academic intervention services, English as a

new language (ENL) services, services for students with disabilities (SWD), and elective courses. If a scheduler's implemented schedule framework does not permit equitable course enrollment, develop a new strategy focusing on equity that can augment the current schedule, or consider how the Equity Plan schedule framework may be a solution in your school. The Equity Plan was not tested in a high school, but in theory the framework can achieve equitable course enrollment opportunities in high school with proper implementation (pp. 95–121). The Equity Plan can achieve more credits (10.5 credits) in the same amount of time as a Traditional Alternating Day 8 instructional period schedule (8 credits). Removing schedule conflict barriers through the Equity Plan may increase access without increasing actually improving inclusion in targeted courses.

Based on the findings in this study music has the lowest equitable course representation for student groups out of health, music, physical education, and visual arts. Middle School 1 and Middle School 2 could not achieve the New York State Education Department's goal for "Artistic Literacy for All Students in New York State" (2017b, p. 4). School schedules in this study were repeatedly excluding student groups from music. School districts should determine if their schedules are also excluding student groups from courses and implement the Equity Plan or another administrative scheduling strategy focusing on equitable course enrollment to reduce this issue. In the case of elective music course offerings, band, chorus, and orchestra were accessible by all student groups, yet there were still student groups underrepresented. In this study of implemented schedules for example, the Equity Plan achieved equitable enrollment for mandatory health, music, and visual arts courses for English as a new language (ENL) students and students with disabilities (SWDs), while the other implemented schedules

did not achieve this. Yet, chorus and orchestra are consistently overrepresented by females, regardless of the schedule framework implemented. Band and orchestra required pre-requisite knowledge to join; however, chorus did not have a prerequisite requirement to enroll. American Indian/Alaska Native, Asian, Multiracial, Native Hawaiian/Other Pacific Islander, male, SWDs, and ENL students did not tend to enroll in chorus despite opportunities to do so. Lack of representation by multiple groups suggests that a schedule by itself can provide enrollment opportunities; however, students groups who prefer not to enroll in elective courses, may be less likely to be represented. Targeted recruitment and culturally responsive curriculum may increase student interest and enrollment. A scheduler can decide to force students into elective courses to artificially create equitable course enrollment, but this is not recommended. If the issue is student interest, we should make the courses more appealing to more student groups or consider what the courses are offered against in the schedule. The Equity Plan schedule was designed to increase equitable enrollment opportunities for English as a new language (ENL) students and students with disabilities (SWDs) for mandated middle school health, music, physical education, and visual arts courses. The Equity Plan implementation was successful for ENL and SWDs in mandated courses. Although, an analysis revealed that there are still student groups not being equitably included in courses intermittently for gender and ethnic groups in the Equity Plan. There are also noticeable equitable enrollment discrepancies for all groups in elective music ensembles. Advocacy for ensembles in scheduling committees is a strategy to improve scheduling opportunities for students (Thomson, 2006).



What are next steps if an implemented schedule provides enrollment opportunities and students are still not enrolling in courses? Two principles from the New York State Education Department Culturally Responsive-Sustaining (CR-S) Education Framework are relevant to this point: Welcoming and Affirming Environment, and Inclusive Curriculum and Assessment (New York State Education Department, 2019j). Tough questions should be asked. Does the curriculum meet the needs and interests of the population being served? Are traditional school ensembles such as band, chorus, and orchestra (or any collection of elective courses in a particular school) culturally responsive to the community in which the school serves? Smith’s music experience in high school was very different than music outside of school. In school he played pop arrangements and classical music, while he really loved playing mariachi music. His high school director would often say “I just don’t know what to do with you, Michael. You’re into this music that I don’t know much about. All I can do is teach you what I know, and that’s it” (Schmidt & Smith, 2017 p. 62). Smith decided to continue to pursue music, but how many students would feel welcome and affirmed without inclusive curriculum? How many people would stick with any program that does not value what is important to them? As educators we need to meet the needs and interests of our students, instead of doing what is comfortable for us. You can see “students to be taught about music” or *“human beings with musical lives and musical interests of their own”* (Stauffer, 2016, p. 74).

One major opportunity to identify if your program is culturally responsive is by utilizing the Culturally Responsive Curriculum Scorecards. Using this tool alongside curriculum development may lead to a more culturally responsive curriculum, and

interest student groups in participating in elective courses that are demonstrating low enrollment from particular groups. This two-fold strategy of creating culturally responsive curriculum and utilizing a schedule framework with an administrative strategy focusing on equitable enrollment opportunities has the potential to increase participation of student groups. This important research would take years to determine if a shift towards culturally responsive curriculum and an intentional strategy focusing on equitable course enrollment has a relationship with actual student enrollment for student groups. “The Culturally Responsive Curriculum Scorecards were developed collaboratively by NYC [New York City] parents, students, educators and researchers, as a tool to help determine the extent to which English Language Art, Science, Technology, Engineering, Arts, and Mathematics (STEAM) curricula are (or are not) culturally responsive.” (Metropolitan Center for Research on Equity and the Transformation of Schools, 2022, May 10). The STEAM scorecard provides stakeholders in English and Spanish an opportunity to evaluate the diversity of characters, authors, representation, social justice orientation, teacher’s materials, and materials/resources. The score ranges in each category will fall into one of the following descriptors: culturally destructive, culturally insufficient, emerging awareness, culturally aware, and culturally responsive (Metropolitan Center for Research on Equity and the Transformation of Schools, 2019, pp. 11–21).

## **Epilogue**

Had I not been a career music educator who transitioned to administration, I may not have ever developed the Equity Plan or noticed ensemble discrepancies. As an administrator the majority of my responsibilities have nothing to do with music or arts,

however there are moments when an administrative decision can have major impacts on health, music, physical education, and visual arts course programming. When developing and implementing the Equity Plan with an administrative team I was not willing to sacrifice health, music, physical education, or visual arts courses for other mandated programming. Innovative school scheduling and advocacy for health, music, physical education, and visual arts are critical to ensure that all students have a rich educational experience and a rigorous overall academic program. Educators from all subject areas should seek administrative roles to create building protocols and practice that advances education and music learning opportunities at large. Teachers have opportunities to speak with administrators and join school scheduling committees; however, if health, music, physical, and visual arts teachers become administrators, they will be empowered to create programming that supports both goals and provides equitable access to all courses. I encourage all subject area teachers to join schedule committees to suggest changes and advocate for specific student programming, but think of the changes you can make as an administrator yourself. We need individuals with music and other backgrounds to become building leaders. A school district Director of Fine & Performing Arts or Mathematics would have suggestion powers over a school schedule, while a principal/master scheduler has authority over the schedule, and the ability to address scheduling issues as they arise. Directors, Assistant Superintendents, and Superintendents can analyze data and set the vision, but ultimately it is the principals and schedulers who must realize the vision.

I challenge the reader to take action and advocate for an analysis in your school community using the Equitable Course Enrollment Standard. Are there groups being disproportionately excluded from courses in your community? Building principals,

schedulers, and school district leaders have the ability to do this analysis today, and make important decisions based on findings. The findings in this study are deeply concerning to me. English as a new language (ENL) students and students with disabilities (SWDs) have been consistently excluded from mandatory health, music, and visual arts courses over the course of 11 years in two middle schools under four schedule frameworks. This means there are cases in which particular students never received instruction in these subjects. My experience working with school based data has taught me that if there is a noticeable pattern in data sets, this pattern likely persists elsewhere. Consistent with findings in this study, are ENL students and SWDs being disproportionately excluded from courses in your school community? Are males not registering for chorus and orchestra at the same rates as females? Are American Indian/Alaska Natives, Asians, Multiracial students, and Native Hawaiian/Other Pacific Islanders being intermittently excluded disproportionately in mandated middle school health, music, and physical education courses? Has anyone even checked? The time has come to conduct an Equitable Course Enrollment Analysis in your school community and address equitable course enrollment issues that you find. This is your moment to be a change agent in your school community for the benefit of students.

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APPENDIX A

REDACTED IRB DETERMINATION: NOT REQUIRED



NOT HUMAN SUBJECTS RESEARCH DETERMINATION

Jill Sullivan  
MDT: Music  
480/965-7369  
Jill.Sullivan@asu.edu

Dear Jill Sullivan:

On 4/14/2022 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Comparing the Effects of the Equity Plan Schedule and Traditional Schedule on Music Course Enrollment for Diverse Students in a Public Middle School: A Thirteen Year Investigation
Investigator:	Jill Sullivan
IRB ID:	STUDY00013907
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"><li>• [REDACTED].pdf, Category: Other;</li><li>• 4.13.22 Fully Executed Data Use Agreement Email with [REDACTED].pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);</li><li>• [REDACTED].pdf, Category: Other;</li><li>• Fully Executed Data Use Agreement, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);</li><li>• VBrancato Equity Plan IRB Updated 12.7.21, Category: IRB Protocol;</li></ul>

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by Arizona State University is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether the activities would change the determination, contact the IRB at [research.integrity@asu.edu](mailto:research.integrity@asu.edu) to determine the next steps.

Sincerely,

IRB Administrator

cc: Vincent Brancato

Jill Sullivan  
Vincent Brancato

APPENDIX B

REDACTED NEGOTIATED DATA USE AGREEMENT

Negotiated Data Transfer and Use Agreement ("Agreement")	
Provider: [REDACTED]	Recipient: The Arizona Board of Regents for and on behalf of Arizona State University
Provider Scientist Name: [REDACTED] Email: [REDACTED]	Recipient Scientist Name: Jill Sullivan Email: Jill.Sullivan@asu.edu
Agreement Term Start Date: Date of last signature below End Date: Five (5) Years after the Start Date	Project Title: Effects of the Equity Plan Schedule on Music Enrollment Attachment 2 Type: De-identified Data about Human Subjects
<b>Terms and Conditions</b>	
<ol style="list-style-type: none"> <li>1) Provider shall provide the data set described in Attachment 1 (the "Data") to Recipient for the research purpose set forth in Attachment 1 (the "Project"). Provider shall retain ownership of any rights it may have in the Data, and Recipient does not obtain any rights in the Data other than as set forth herein.</li> <li>2) If applicable, reimbursement of any costs associated with the preparation, compilation, and transfer of the Data to the Recipient will be addressed in Attachment 1.</li> <li>3) Recipient shall not use the Data except as authorized under this Agreement. The Data will be used solely to conduct the Project and solely by Recipient Scientist and Recipient's faculty, employees, fellows, students, and agents ("Recipient Personnel") and Collaborator Personnel (as defined in Attachment 3), if any, that have a need to use, or provide a service in respect of, the Data in connection with the Project and whose obligations of use are consistent with the terms of this Agreement (collectively, "Authorized Persons").</li> <li>4) Except as authorized under this Agreement or otherwise required by law, Recipient agrees to retain control over the Data and shall not disclose, release, sell, rent, lease, loan, or otherwise grant access to the Data to any third party, except Authorized Persons, without the prior written consent of Provider. Recipient agrees to establish appropriate administrative, technical, and physical safeguards to prevent unauthorized use of or access to the Data and comply with any other special requirements relating to safeguarding of the Data as may be set forth in Attachment 2.</li> <li>5) Recipient agrees to use the Data in compliance with all applicable laws, rules, and regulations, as well as all professional standards applicable to such research.</li> <li>6) Recipient is encouraged to make publicly available the results of the Project. Before Recipient submits a paper or abstract for publication or otherwise intends to publicly disclose information about the results of the Project, the Provider will have forty-five (45) days from receipt to review proposed manuscripts and ten (10) days from receipt to review proposed abstracts to ensure that the Data is appropriately protected. In no event will Recipient delay publication for more than forty-five (45) days from date of submittal of manuscript for Provider review.</li> <li>7) Unless terminated earlier in accordance with this section or extended via a modification in accordance with Section 13, this Agreement shall expire as of the End Date set forth above. Either party may terminate this Agreement with sixty (60) days written notice to the other party's Authorized Official as set forth below. Upon expiration or early termination of this Agreement, Recipient shall follow the disposition instructions provided in Attachment 1, provided, however,</li> </ol>	

that Recipient may retain one (1) copy of the Data to the extent necessary to comply with the records retention requirements under any law, and for the purposes of research integrity and verification.

- 8) Except as provided below or prohibited by law, any Data delivered pursuant to this Agreement is understood to be provided "AS IS." PROVIDER MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE USE OF THE DATA WILL NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS. Notwithstanding, Provider, to the best of its knowledge and belief, has the right and authority to provide the Data to Recipient for use in the Project.
- 9) Except to the extent prohibited by law, the Recipient assumes all liability for damages which may arise from its use, storage, disclosure, or disposal of the Data. The Provider will not be liable to the Recipient for any loss, claim, or demand made by the Recipient, or made against the Recipient by any other party, due to or arising from the use of the Data by the Recipient. No indemnification for any loss, claim, damage, or liability is intended or provided by either party under this Agreement.
- 10) Neither party shall use the other party's name, trademarks, or other logos in any publicity, advertising, or news release without the prior written approval of an authorized representative of that party. The parties agree that each party may disclose factual information regarding the existence and purpose of the relationship that is the subject of this Agreement for other purposes without written permission from the other party provided that any such statement shall accurately and appropriately describe the relationship of the parties and shall not in any manner imply endorsement by the other party whose name is being used.
- 11) Unless otherwise specified, this Agreement and the below listed Attachments embody the entire understanding between Provider and Recipient regarding the transfer of the Data to Recipient for the Project:
  - I. Attachment 1: Project Specific Information
  - II. Attachment 2: Data-specific Terms and Conditions
  - III. Attachment 3: Identification of Permitted Collaborators (if any)
- 12) No modification or waiver of this Agreement shall be valid unless in writing and executed by duly-authorized representatives of both parties.

\*\*\* Signature page to follow \*\*\*

13) The undersigned Authorized Officials of Provider and Recipient expressly represent and affirm that the contents of any statements made herein are truthful and accurate and that they are duly authorized to sign this Agreement on behalf of their institution.

By an Authorized Official of Provider:

Name:

Title:

Contact Information for Formal Notices:

Name:

Address:

Email:

Phone:

By an Authorized Official of Recipient:

Name: Nancy Henderson

Title: Assistant Director

Contact Information for Formal Notices:

Name: ORSPA, KE

Address: PO Box 876011, Tempe, AZ  
85287-6011

Email: ASU.awards@asu.edu

Phone:

*Nancy Henderson* 4/13/2022  
Date



**Attachment 1**  
**Data Transfer and Use Agreement**  
**Project Specific Information**

1. Description of Data:

The requested data includes approximately 800-900 students per academic year, and approximately 80-90 teachers per academic year from two public middle schools. The datasets in the study will include 13 academic years of scheduling data. Each year the student population changes by approximately 300 students per school when accounting for new enrollment, transfers and students transitioning to high school. It is estimated that data from 4,500 students and 11,700 student schedules will be included from the 09-10 academic year through the 21-22 academic year for each school. Accounting for teacher attrition it is estimated that approximately 10% of the teaching staff change each year due to retirement, resignation, etc. It is expected that the data will include approximately 200 teachers and 1,100 teacher schedules for each school.

Total student population, bell schedules, instructional period count, period length, student schedules, teacher schedules, participation rates in music courses and participation rates in courses overall will be analyzed and compared for student groups. The student groups to be analyzed include grade level, English language learners, bilingual, , race, gender, and students with disabilities.

All data is de-identified and no student identifying information will be shared. Additionally, the name of the school district and specific school will remain confidential. The information collected for the study will be aggregated by student group, protecting all individuals from being identified.

2. Description of Project:

The aim of this research is to determine how an intentional administrative scheduling strategy focusing on equity in public middle schools within New York State, and a newly developed school schedule framework (the Equity Plan) will impact music course enrollment for the total student population and student groups. Bell schedules, instructional period count, period length, student schedules, teacherschedules, participation rates in music courses and participation rates in courses overall will be analyzed and compared for student groups. The student groups to be analyzed include grade level, English language learners, bilingual, , race, gender, and students with disabilities.

3. Provider Support and Data Transmission:

Provider shall transmit the Data to Recipient: (select one)  electronically or  by mail to:

Name:	Jill Sullivan
Address:	
Email:	Jill.Sullivan@asu.edu
Phone:	

Upon execution of this Agreement, Provider shall send any specific instructions necessary to complete the transfer of the Data to the contact person listed above.

4. Reimbursement of Costs:

- None
- As governed by a separate written agreement between the parties  
Reimbursement Agreement Reference # (if required):  
\_\_\_\_\_
- As set forth herein:

5. Disposition Requirements upon the termination or expiration of the Agreement: The Data will be stored on an encrypted external hard drive and will be destroyed after five (5) years.

Agreement ID: DUA0000918

**Attachment 2**  
**Data Transfer and Use Agreement**  
**Data-specific Terms and Conditions:**  
**De-identified Data about Human Subjects**

**Additional Terms and Conditions:**

1. The Data will not include personally identifiable information as defined in NIST Special Publication 800-122. If the Data being provided is coded, the Provider will not release, and the Recipient will not request, the key to the code.
2. If Provider is a Covered Entity, the Data will be de-identified data, as defined by the Health Insurance Portability and Accountability Act of 1996 ("HIPAA").
3. Recipient will not use the Data, either alone or in concert with any other information, to make any effort to identify or contact individuals who are or may be the sources of Data without specific prior written approval from Provider and appropriate Institutional Review Board (IRB) approval, if required pursuant to 45 CFR 46. Should Recipient inadvertently receive identifiable information or otherwise identify a subject, Recipient shall promptly notify Provider and follow Provider's reasonable written instructions, which may include return or destruction of the identifiable information.
4. By signing this Agreement, Recipient provides assurance that relevant institutional policies and applicable federal, state, or local laws and regulations (if any) have been followed, including the completion of any IRB or ethics review or approval that may be required.
5. Recipient shall promptly report to the Provider any use or disclosure of the Data not provided for by this Agreement of which it becomes aware.

**Attachment 3**  
Data Transfer and Use Agreement  
Identification of Permitted Collaborators (if any)

For all purposes of this Agreement, the definition of "Collaborator Personnel" checked below will pertain:

"Collaborator Personnel" means: None. No collaborators are permitted on the Project.

-OR-

"Collaborator Personnel" means as set forth below and agreed upon between the Parties: