THE EFFECTIVENESS OF TEACHER COURSE RECOMMENDATIONS IN PREDICTING STUDENT OUTCOMES

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Dedication

I would like to dedicate this work to the following people who have carried me along this path. To the love of my life, my wife, Kathryn, who carried our family and my heart with her efforts and love throughout these three years. You encouraged me to pursue this degree and shepherded our kids away from the office to give me uninterrupted time. I would not have been able to accomplish this work without your support and encouragement.

To my three children, Monika, Josephine, and Clark. Monika, at the time of this study you were in fifth grade and growing into an adolescent right before my eyes. You have a mind for creativity, music, performance, and are a natural leader. You are a great big sister and have a heart as big as all outdoors. Josephine, you are in third grade and have a heart for those with special needs and a mind for education. Your will is strong and you know what you want in life. Clark, you are in Kindergarten and have a strength of both body and character. You are driven by your values and will be a gentle giant. The three of you have been a driving force for me because I want to be a dad whose life serves as an example to you. I dedicate this degree to you as a testament to the value of discipline and hard work. Anything is possible when you dedicate your time and talents to the task and surround yourself with people who challenge and love you. I look forward to being able to spend more time with you now that this task is complete.

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example of Jesus. My mother and stepfather, Elaine and Sam Miller, who were always in my corner and believed in me at every turn. My father and stepmother, Scott and Diane Lesnett, who taught me to always have a vision of future goals to guide the purpose of hard work today.

A life is ultimately defined by the legacy it leaves. I pray that through this work and the other works of my life, I am able to leave a legacy that inspires the belief that people are able to change themselves, those they influence, and the world around them through hard work and dedication to certain moral principles. People become who they are believed to be with the right supports and role models. Teachers can improve their craft and inspire students to become whatever they work to be. The future will be shaped by the quality of education students receive today. We must never give up on that vision and must invest in every student with a fresh perspective on the hope in their potential untethered by prior labels.

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Abstract

According to Robert Marzano, author of the archetypal work, "Classroom Instruction That Works", good instruction can take any student and make them better. The Peters Township School District's mission and vision statements align with Marzano's beliefs. However, the current system employed by the District by which students are placed into honors and academic level classes is in conflict with that mission and vision. During the transition from middle school to high school, access to honors classes requires a student's prior teacher's recommendation. Their only option to take an honors class without a recommendation is to file an official appeal to the high school administration and counselors. This current process is creating barriers for many students to experience the higher rigor honors classes and the opportunities of trajectory they create. This study seeks to inspect the current recommendation and placement process as well as to analyze the impact it is having on student outcomes. As a mixed-methods study, it is driven by three research questions that ask for the quantitative data associated with the overall student population final grade outcomes as well as the outcomes for students who appealed to get into each of the courses. It also contains an analysis of the qualitative data associated with teacher's opinions about the course recommendation and placement process. This study shows the current process arbitrarily and unnecessarily limits students and makes recommendations for its modification to better support the mission and vision of the District.

CHAPTER 1

Introduction

Background

At the time of this study, I was in my 13th year as an assistant high school principal and in my 11th year in the Peters Township School District. Peters Township is located approximately 15 miles south of Pittsburgh in the northeastern corner of Washington County. A professional bedroom community of Pittsburgh, this 19.5 square mile township maintains a rich sense of tradition in its transition from a rural, farm community to a suburban area with a main commercial district along Route 19. The District serves a population of more than 21,400 with over 7,500 households (Peters Township School District, 2021). Peters Township School District has a 99% graduation rate and sends between 90% and 94% of its graduating class each year to four-year universities (U.S. News & World Report, 2021). Academic achievement is highly valued by the community where encouraging students to take rigorous courses is a common practice, especially since so many of the students are headed to colleges and universities.

In 2015, the District partnered with the National Math and Science Institute (NMSI) and focused on expanding access to AP classes for all students. The District sought to encourage more students to participate in AP classes based on the data NMSI provided showing the correlation between taking at least one AP course in high school and academic success in first year college classes (National Math and Science Initiative, 2015). Part of that expansion included the identification of trigger courses that put students on the pathway to take AP classes, encouraging exposure to more honors classes early on in high school to increase access to AP course pathways in subsequent years. In the transition from middle school to high school, students need their 8th grade teachers'

recommendations to get into honors classes. Through working with NMSI and intentionally finding and breaking down barriers to AP pathways, the impact of teacher course recommendations from 8th to 9th grade became quite apparent.

Each February, teachers are asked to complete recommendations for their present students to help them select the course they will take the following year. This recommendation guides them toward either the honors level or academic level for each of their core classes. Based on the time of year for the scheduling process, the recommendations are typically based on quarter one and quarter two grades from the 8th grade classes. Without a recommendation for an honors class, the students are prevented from registering for the honors class and only have the option to register for the academic version of that class. In this way, it is likely the teacher recommendation process as it currently exists in the Peters Township School District is a gate-keeping procedure for honors and thus AP classes in the high school years.

Focus of Study

The courses students take in ninth grade place them on a trajectory that has implications on student self-perception, final grade outcomes, future courses taken in sequence, college admissions, career pathways and potential earnings. So much comes from a decision made with such little consideration of these implications. It is my purpose to shed light not only on the data and perceptions around the course recommendation process, but to help our students, teachers, and parents understand how significant a decision selecting 9th grade courses is and to help frame that decision in a full understanding of all that is at stake. In doing so, the course placement decisions can be made with more intention and awareness. Students and their teachers can then engage

with the courses and one another in a more purposeful way while having greater focus on the trajectory and its implications.

In order to conduct a study that may yield actionable information to better inform the course selection and placement process it was important to identify data that could be analyzed to inform outcomes. The research questions below were selected to govern the research process and to maintain focus throughout the study.

Research Questions

1. How do students perform in rigorous courses their teachers recommended they take?
2. How do students perform in rigorous courses who did not receive a teacher's recommendation but gained entry on appeal?
3. What are teacher perceptions of the role of teacher recommendations in student course selection?

As a result of these guiding questions, three data sets were garnered for use in this study. The data sets include overall student final grades in the most commonly appealed courses of English 9, Biology, and Geometry, final grades and course trajectories from students who appealed those courses, and the perception data from surveys of the teachers who recommend the course as well as the teachers who teach those courses. This provided comparison data between the two groups of students, those who were recommended and those who were placed through the appeal process. Garnering the perceptions of the eighth-grade teachers who recommend students for the ninth-grade honors or academic classes in addition to the perceptions of the ninth-grade teachers who

receive those students was selected to help frame the student final grade data and the perceived effectiveness of the District's recommendation process.

Hypothesized Outcomes

At the onset of this study it was hypothesized that the system of teacher recommendations as a requisite for course entrance may be a barrier to students taking higher rigor level courses. If in fact it was, then it would be the recommendation of the researcher to adjust or abandon the system for one that better opened the gates to the students wishing to engage with higher rigor honors classes. If students are willing to put in the work and take a more challenging level of course, they may be restricted from doing so as a result of the current teacher recommendation and course placement process. It was also hypothesized that there were students who should and would benefit from more rigorous classes who are prevented from doing so as a result of this process based on the graduation rate and high percentage of college and university attendance. It was also hypothesized that students may have been too afraid to appeal their teacher's recommendation and took a lower rigor course as a result. It was worth knowing if the data supports the current process or does not, especially since it directly impacts the trajectories on which students are set.

Financial Impact of Study

The present system of course selection is done using the PowerSchool student information system which has an annually renewed subscription cost of $27,500.00 with a 3% annual increase rate (Peters Township School District, 2021). The scheduling and course recommendation portals are included in the overall subscription cost as part of the package. If the District continues to utilize these features in their present capacity it will have no financial impact on the school District's current budget. However, if as a result

of this study they determine to purchase some other scheduling program, that would have an undefined and indirect financial impact.

This study is a review of readily available student grades and teacher survey data which incurred no cost as it was gathered using software and data systems already present in the Peters Township School District. While there are neither current direct costs to the present practice of course selection nor are there any direct costs associated with conducting this study, there may be a chance a cost may be incurred should Peters Township School District determine to employ a different system by which course placement decisions are made.

Summary

Ultimately, this study was conducted to assist the students in the Peters Township School District in maximizing their opportunities to take rigorous honors courses, and in doing so, to have greater access to the opportunities in life after high school that are afforded to students who take and succeed in higher rigor course pathways. Furthermore, this study was conducted in the name of the growth mindset both for teachers and students. It was the hope of this researcher at the time of this study to identify any barriers to honors classes that were based on a fixed mindset. This researcher and this study are admittedly biased in the wholehearted belief in the power and potential of the growth mindset and the restrictive nature of the fixed mindset. In the next chapter, the Review of Literature, the existing body of research resoundingly supports this belief in the growth mindset arguing that opportunities for students and teachers to grow should not be limited by perceptions based on bias.

CHAPTER 2

Review of Literature

The History of Ability Grouping

The idea of sorting students into groups is widespread in the American educational landscape and has evolved throughout its history. Students taking courses with different labels that denote ability groupings like "honors" or "advanced" is so ubiquitous today that we rarely question it. There has been a great deal of research on the topic of ability grouping. This literature review will attempt to present some of this research to help frame the overall concept of ability grouping. Through this review, I hope to offer insight into ability grouping's origins and context in American education, discuss its merits and challenges, and identify its impacts on both students and teachers. This will also serve to frame my analysis of similar practices in the Peters Township School District as students transition from middle school to high school.

One-Room Schoolhouses

To understand ability grouping today, it is important to understand how it developed. The early American educational landscape was characterized by the iconic one-room schoolhouse. Due to the demographics and cultural norms at the time, the one-room schoolhouses served a population of students who were primarily homogenous in their demographic makeup. They were of the same race, ethnicity, and socioeconomic status (Baker, 2008). The curriculum in these schoolhouses was often focused on classical education via instruction and assessment focused on spelling, grammar, arithmetic, essay writing, and often centered on religious content in reading, writing, and songs. Outside of the schoolhouses, the parents were considered the primary instructors of domestic and agricultural skills. The teacher was often someone who had only

completed a handful of years of school themselves (Baker, 2008). One room schoolhouses were indicative of an era with less immigration and more racial hierarchy in a society and focused on general education for the middle class (Biafora & Ansalone, 2008).

Shifting Demographics

As the population of school aged and school eligible children grew, the one-room schoolhouses faded. Baker (2008) explained that within early one-room schools, there was a lack of diversity, both economically and by race, gender, and ethnicity. Their small size and homogenous population allowed for more generalized instruction. Very few children attended school in the eighteenth and nineteenth centuries. By 1900, less than 25% of all school-age children attended any years of school with only around ten percent of high school aged children attending high schools. This was due to the role children played within their families. Children were often considered assets to the family's farm. Older children were capable of doing more work and assisting their parents as an additional adult laborer. As a result, very few attended high school. Even as industrialization proliferated, children were often assisting their family members in the factory work. This prevented working class families from being able to afford the time and expense to send their children to school. As a result, most schools were socio-economically homogenous and catered to the children of wealthier families (Baker, 2008).

Following the Civil War our country went through a massive urbanization trend and saw migration patterns that consisted of freed slaves migrating to northern cities from the south and a huge influx of immigrants from Eastern and Southern Europe (Biafora &

Ansalone, 2008). As the increase in the population of school age children due to immigration, students no longer came from the same language and cultural groupings (Ellison & Hallinan, 2004). This brought diversity of both race and ethnic background into American schools (Biafora & Ansalone, 2008). Ability grouping, or the practice of sorting students into groups that received different levels of instruction based on perceived initial student ability, was a product of our nation's transitioning economy and societal makeup due to increases in immigration following the Civil War. This became a common practice in our schools to the point where most school districts engage in the practice today (Baker, 2008). This increase in population as well as heterogeneity of the cultural makeup required a more diverse approach to education that the one-room schoolhouse could offer. This is when one-room schoolhouses faded and more consolidated schools emerged (Ellison & Hallinan, 2004).

IQ Testing

As the demographic makeup of schools shifted along racial, ethnic, and socio-economic lines, American schools became stratified through ability grouping. Schools looked less like one room schoolhouses and more like factories with layers of grade levels and ability groups. Students were placed into tracks based on their measured abilities. To divide students into ability groupings, schools needed a metric by which to justify that sorting. The Intelligence Quotient (IQ) exam offered a numerical indicator of intelligence by which students could be sorted. The use of the IQ exam further justified academic ability tracking by adding a numeric indicator of someone's ability to learn (Ellison & Hallinan, 2004).

It is important to consider how IQ tests are used to sort students. For example, IQ test results must be considered within the ethnic or racial group relative to others within that same group, as some researchers have shown that there is a difference between the average performance of different racial and ethnic groups (Jung, 2013). There is a gap between the average IQ score of White Americans and Black Americans. White Americans average IQ score is higher than Black Americans' average IQ score (Zigerell, 2021). However, there is current disagreement about the origin of this difference in average score between ethnic and racial groups. There are current long term studies taking place now that will hopefully shed some light on the likely sources of these different scores (Jung, 2013). Whether or not the IQ test is a genuine measure of pure intelligence does not change the fact it was used to justify ability grouping in American schools. Additionally, it has aided in showing unequal amounts of each ethnic and racial group within these ability groups.

Ability grouping increased with the creation and widespread use of the IQ test. The IQ examination was originally developed by a Parisian Frenchman named Alfred Binet working to improve the French public schools. He vehemently believed that all students could learn if given the right instruction, mentors, and support. He referred to sorting students based on predetermined potential as a brutal pessimism. Instead, he believed that a person's IQ score was just a starting point by which a school and teachers should determine the appropriate instruction and support to get them to a higher intelligence (Dweck, 2008). Ironically, Binet's creation would eventually become the chief method used to segregate students by ability. It would be used to sort students into

leveled courses and determine who was college bound and who was vocationally tracked (Ellison & Hallinan, 2004).

Academic Sorting by Race and Ethnicity

For much of America history, schools were segregated by race. Prior to desegregation being codified in law, there were seventeen states who mandated segregated schools for black and white children. At that time all black students in the southern states attended separate schools from their white peers (Street, 2005). In fact, for a time, segregation of schools was supported by the Supreme Court Decision, *Plessy v. Ferguson*, which stated that separate schools were permissible if they were equal (*Plessy v. Ferguson*, 1896). It would require legal action to undo the legal action of *Plessy v. Ferguson (1896)* and the separation of school children based on race. The Supreme Court decisions of *Brown v. Board of Education I and II* changed this status quo and further increased the heterogeneity of the population of school aged children. *Brown v. Board of Education I* determined that separate was not equal and that segregation of schools by race was not Constitutional (*Brown v. Board of Education*, 1954). Recognizing schools were not integrating as a result of the first decision, the US Supreme Court decided that integration would be required to meet the spirit of the first decision (*Brown v. Board of Education II*, 1955). These two decisions brought racial heterogeneity to public schools adding to the socio-economic and ethnic heterogeneity that was already present. In the years immediately after *Brown v. Board of Education II* schools focused on desegregation through bussing, integration of schools, and an emphasis on equality (Oakes, 1985). As schools were ordered to integrate, this brought white and black students together in schools across the country. This increased the use of course pathways

to separate groups of students along ability lines (Street, 2005). In this way, academic tracking from ability grouping was a form of resegregation after schools were desegregated. Soon after desegregation occurred, it was undone through defacto means by resegregating within the school based on race (Oakes, 1985). African American and Immigrant students scored lower on achievement tests than whites and were thus placed into more vocational tracks while whites were more frequently placed into college bound and more academically rigorous tracks (Oakes, 1985).

Vocation vs College-Bound Grouping

From the end of the nineteenth century and into the twentieth century, differentiated academic tracks served as career pathways (Ellison & Hallinan, 2004). High schools divided students into the ability groupings of vocation-bound or college-bound. Students in a vocational track experienced a significantly less rigor and informative class expectation during this time frame. Students in the college pathway received a more rigorous and thorough classroom experience. One could say the vocationally tracked students were not the priority as the vocations were seen to need less academic preparation (Oakes, 1985). "Assignment to one of these tracks determined the trajectory of a student's future career prospects". These tracks were inflexible, and schools played the role of determining what career a student would have (Ellison & Hallinan, 2004). The purpose of schools shifted as well to Americanize immigrants and to educate those destined for labor through vocational capacity education (Biafora & Ansalone, 2008). They were mainly determined by IQ testing (Ellison & Hallinan, 2004). With lower average IQ scores, immigrants and black people were treated as those with lower intellectual capability. Other students were tracked for vocation and their schedules

reflected this determinism. Courses reflected less academic rigor and more exposure to trades-oriented curriculum (Barnes & Slate, 2013). This world of college or vocation has more recently shifted dramatically toward the college-bound side of the dichotomy.

The determinism within schools began to shift in the 1950's when the more modern image of high school came about (Ellison & Hallinan, 2004). Following the World Wars, students were tracked less based on honors and academic classes and more on whether they were college bound or vocation bound. Over the years, schools continued to shift away from the vocational/college bound tracks and place a higher premium and focus on college attendance. This resulted in less vocational tracking and a further subdivision of the college-bound academic track which was layered into rigor levels with titles like honors and academic. These ability-based tracks were divided by rigor, and by curricular depth, pace, and volume (Oakes, 1985). Attending a four-year college or university became more the norm for middle class students. This formerly elite realm reserved for the white and wealthy opened and became the plan for many more American students. High schools offered students greater variety of courses in the elective realms as well as established levels of academic rigor within the core areas of math, English, social studies, and science. As the numbers of college-bound students increased, the students needed more academic rigor in their coursework to prepare them while less students were placed in more vocational tracks requiring exposure to trade skills rather than academically rigorous curriculum. This further shaped the landscape of tracks into more of what we see in schools today (Ellison & Hallinan, 2004).

As more and more students began to apply to four-year college and universities, the emphasis on taking higher level academic tracked courses through high school

increased as well. College level courses are faster paced than high school courses due to less course meetings and a semester length timeframe rather than a full school year. As a result, college admissions offices look at students' high school transcripts to guide them in offering acceptance to a freshman class that will most likely be successful in graduating from their university. Admissions offices place a high premium on more rigorously labeled classes that indicate a higher academic track. There is research that supports students are more successful in college when they take more challenging courses in high school (Conley, 2007). With this further subdivision of courses bearing the name of their rigor level, schools saw the rise of the AP classes and the ability-based pathways that led to them.

AP Courses and Pathways

American schools operated for many years with students being tracked in their course work toward college or vocation. The difference between these two pathways was very clear on a student's schedule. Their lineup of courses was either full of classes that moved them in the direction of more classically academic rigor in their core classes of math, English, science, and social studies. These students were encouraged to take ever more increasingly challenging courses to prepare them for the rigors of academia. There were several factors that caused the expansion of schools to push more and more students onto the college-bound track. This was the rise of the politicized term, "college-readiness." Once the Space Race was initiated in the 1950's, the push for students to excel and gain preparedness in math and science content became a greater focus. College-Readiness became a term used to describe the level of attainment and achievement students had in more collegiate coursework through middle and high school (Barnes &

Slate, 2013). This tipped the balance toward the college-bound tracks in schools and away from vocational tracks. It further became the norm to push students toward more collegiate academics when the Federal Government increased its engagement in state-based educational systems through the increase in funding with strings attached. After the book, "Nation at Risk" was used by the Reagan administration to promote a crisis in the country's schools for political gain, student performance on standardized tests became a political focus. This precedent was perpetuated by the Bush administration with the installment of the No Child Left Behind Act (NCLB) which tied the federal funding for schools to their students' performance on standardized assessments. Under NCLB, Schools placed a much greater emphasis on standardized assessment performance and had to make growth year after year or face the consequences of loss of funding. (No Child Left Behind [NCLB] Act, 2001). As a result, schools across the country placed an increased emphasis on the data points of standardized assessments, graduation rates, and college-readiness. This caused schools to push ever more students into the college-bound tracks (Barnes & Slate, 2013).

As more students shifted into the college-bound pathways through high school, the admissions sought ways to discern which students were more worthy for acceptance. Many admissions panels at colleges and universities became more reliant upon the rigor levels of the courses students had on their transcripts. Taking more honors and AP labeled courses added to a student's appeal. AP courses and exams became indicators of student ability. High school students nationwide have enrolled in increased AP courses each year to remain competitive (Conger et al., 2021).

However, this trend has not been equal across all demographics. According to the National Center for Education Statistics (NCES), the rise in the percentage of high school seniors attending college after graduation rose among white students but has lagged for black students. Higher income students attend college nearly twenty percentage points higher than lower socio-economic groups (U.S. Department of Education, 2010).

There has been almost no empirical work to support the theory that AP courses disproportionately endow high school students with greater human capital than the other courses available to them. Many students, educators, and parents have also complained that the rigor of the AP program causes students to lose confidence, gain stress, and perform poorly in other courses. While beneficial to their college admissions and preparation, studies have shown that it can take a toll on student mental health when they are enrolled in multiple AP courses. Furthermore, as the number of students taking AP classes has increased, the number of AP exam scores qualifying for college credit has decreased. As more students are taking them, the colleges and universities are valuing them less (Conger et al., 2021). In other words, it is becoming less elite of a program as more students are taking these courses.

This trend of taking more AP classes and increasing college admissions has not been equally felt by all racial groups. Even since *Brown v. Board of Education* (1954) and school integration, opportunities have been unequally dispensed to white students (Street, 2005).

Ability Grouping and Subsequent Academic Tracking

Academic Tracking

Ability Grouping and Academic Tracking are different phenomena; one leads to the other and the two are often reviewed together in research. Some researchers refer to the two terms interchangeably while others refer to tracking as the result of ability grouping. For clarity in this review, I will refer to ability grouping as the initial sorting of students based on some form of established and common measurement. I will refer to tracking or academic tracking as the resulting effect ability grouping has on course placement and course rigor pathway trajectory. Academic tracking is the course pathways students are placed in as a result of their identified abilities. These course pathways often flow from one to the next with oftentimes limited opportunities to change pathways. These opportunities are most often in the form of dropping a level of academic track because of deficient performance. Research has identified that students are often locked into the tracks once placed and if they move, it is often down a level. It is exceedingly rare to have a student move up a level from a lower one. This is due to a gap in readiness created by the lower academic track, which will be explored later (Bernhardt, 2014).

In most schools, students are first grouped and sorted based on ability whenever curriculum divides into levels. The resultant courses that house these students of different abilities become academic tracks. Once a student is identified or labeled as being of a certain ability group, they are then tracked into the classes that fit their label. These classes are labeled most often as advanced or honors and academic or remedial in their course title. Examples of these labeled names include Honors English 9 vs Academic English 9, Geometry Honors vs Geometry Academic, or Honors Biology vs Academic

Biology. Often, the academic track is indicated in the course name like the above examples. Typically, these academic tracks are referred to as tracks because they tend to begin with ability grouping, but then become pathways where students tend from one year to the next in the same level of academic track. The first-year course feeds into the next year's course within the same track. Students in different tracks move from year to year in the same track once placed with rigid continuity (Bernhardt, 2014).

Supporters of tracking say students will be met where they are, and that instruction can be customized to their ability level. Theoretically, students in higher and lower tracks should be able to grow at the same rate since the track allows for more targeted instruction. In other words, students will thrive because their teacher can focus on an entire group that has similar needs and abilities. However, a remarkably similar argument was lobbied on the other side of the *Brown v. Board of Education* (1954) decision. Proponents of racial segregation in schools made similar arguments. The reality is best stated in the decision *Brown v. Board of Education* (1954) when the Supreme Court ruled that separation is not equal. Researchers think that at least 85% of schools still use academic tracking. Many researchers warn of the ills of tracking based on ability. Yet it persists as a norm in American schools. The original intent of tracking continues to play out, namely, to separate student groups along racial, ethnic, and socioeconomic lines (Biafora & Ansalone, 2008). Many researchers are perplexed by how tracking still maintains such a foothold in our society when it is known to not work. In one study on two counties in New York state, researchers surveyed over 800 school principals about their perceptions of academic tracking within their schools and districts. They were seeking their impression of what was occurring as well as whether they found it to be

beneficial to their students and faculty. What they found was an overwhelming opinion approaching consensus that the different academic tracks in their schools were primarily a means to serve the honors students and have a place to put everyone else in lower-level academic classes. One of the principals they interviewed said, "We try to educate the best and maintain the rest" (Biafora & Ansalone, 2008).

Two school systems in California who tracked students and were given court orders to desegregate within their school. Community groups challenged the districts' implementation of *Brown v. Board of Education* (1954) by saying they were using academic tracks to segregate within the school. The racial makeup of the higher and lower tracks was out of balance with the larger racial percentages of the school. There were more minority students in the lower academic level tracks than in the larger population and fewer minority students than in the larger population in the honors and AP classes. Furthermore, students with similar abilities, but who were a minority, were more likely to be placed by their teachers into the lower tracked classes than their white peers with similar academic merits. Supporters of ability tracking would argue that students should be separated to place them in classes by ability to facilitate their learning alongside peers of the same academic ilk to create greater homogeneity of instructional need. This should, as those supporters would argue, result in more targeted instruction due to the students being so alike in their academic skills and needs. However, researchers found quite the opposite when those students were reviewed. Instead of being more alike, they were found to be very heterogeneous in their measured abilities based on IQ scores, prior performances, and needs (Oakes, 1995).

Academic Tracking Merits

One can assume there are merits to the process of academic course tracking. If it were not so, it would not be so widely used practice in American schools. Those who argue that tracking has merits state that students should be placed in the level of course that has a pace and curriculum best meant to support the level of their ability and prior understanding. This allows a teacher to focus more on a homogenous group of students who have similar needs in ability and content. When teachers are interviewed, research has shown that they are often the biggest supporters of academic tracking (Ireson et al., 1999). They argue that academic tracking creates efficiency of teacher effort in lesson planning and delivery while allowing instruction to be customized to the growth of students from their current levels. However, there is little to no research on the merits of academic tracking. In fact, the body of research resounds with consensus on the ill-effects of academic tracking. There is much research that identifies that academic tracking only benefits students in the higher tracks. Those students are given priority when it comes to the best teachers and resources. The psychology of being on the higher tracks also gives those students a significant advantage (Oakes et al., 1992). This topic is explored later in this review of literature. A resounding body of research that identifies academic tracking as having negative impacts on lower tracked students populated by students of minority and lower socio-economic demographics seems to indicate this practice should be stopped or changed to open course registration up to students. Yet, it persists as a primary means of sorting students into course levels in high school (Bernhardt, 2014). The idea that teachers will be able to focus their efforts toward a more homogeneous group of students with similar needs is a myth. In fact, when one examines groups established

according to a measure of general ability such as IQ, there are often wide gaps in student achievement, IQ, and prior performance in tracked classes. The research of Jeannie Oakes identified that teachers often assume everyone in an honors class will be of similar intelligence, but that is not really the case. There is a wide margin between the IQ levels of students in honors classes. Lower tracked classes are often defended by saying they have the merit of providing more targeted instruction that focuses on meeting students with greater needs where they are to grow them from there. Much research has been done to show the opposite of this is true. Students in lower tracks typically receive lower quality instruction and are stuck in those tracks once there without hopes of getting to a higher track without considerable assistance (Oakes, 1985).

Academic Tracking Methods

There are multiple ways that schools typically identify students for specific academic tracks. There are meritocratic and non-meritocratic means of course selection. Meritocratic means consist of making course placement decisions based on criteria like grades and test scores in prior course placement. Non-meritocratic means of course placement is determined by perceived skills, ability, or background (Race, ethnicity, socioeconomics, etc.) in addition to other factors like parental choice or student choice. While some schools employ these means of course selection to varying degrees, others have policies that leave course selection up to unfettered student choice. This practice is often referred to as open registration. Proponents of open registration typically cite much of the research already included in this literature review that identifies the ills of ability grouping and academic tracking of courses. They argue that students should be perceived

through a growth mindset lens and given the opportunity to take the courses that they desire as long as they are willing to put in the work (Bernhardt, 2014).

However, as has previously been established, most American schools use some mechanism to sort students by ability beyond simple student desire. As a result, most schools argue against open registration for courses. They argue that if there is no prerequisite to taking more rigorous classes and they are wide open for students to choose, it can be a negative experience for stronger students. There is research that supports this argument for the protection of the higher-level learners from being bogged down by the time teachers spend with their lower peers. Teachers forced to deal with a diverse set of learners with varying readiness for the class may have to slow curriculum delivery down. In fact, the College Board has encouraged high schools to encourage students to take more AP courses in high school. They push the idea of open enrollment for anyone who wants to take an AP course. However, when schools adopt this model, some students may not be ready for the content and rigor of the course. This may create discouragement on their part as well as have impacts on the teaching for those who were ready for the course (Conger et al., 2021).

Catholic schools in the 1960's and 1970's employed a more constructivist model of ability grouping. There was a greater emphasis placed on their entire population to pursue post-secondary schooling in colleges and universities after high school. They used ability grouping to adjust the pace and supportiveness of the curriculum. They employed the use of diagnostic skill assessments to determine which students needed the most support and arranged their courses by these identified ability groups. However, different from their public-school peers, Catholic schools placed greater efforts and supports on

getting the lower academic groups to eventually perform at the same level as the higher ability groups. In other words, they employed a belief that students should not forever remain in the lower groups, but believed that with the right amount of supports and rigor, they could elevate student abilities (Ellison & Hallinan, 2004).

Readiness and Tracking

Since the 1920's, schools have been instituting ability tracks in elementary schools (Oakes, 1995). The impact of this elementary ability grouping plays out throughout the rest of students' school years and later into their lives. As students rise between levels in school from elementary to middle school to high school, the placements they have been given based on ability grouping create a position within the distribution of their peers that prevents later track changes. Students, once placed on an academic track, are likely to remain in their position through to graduation. Part of this is due to readiness. Readiness is defined as the level of preparation needed as a requisite for success in a subsequent course of the same content. Typically, readiness will determine the likely success a student will have in a following course of the same content. It is often based on prior content exposure and attainment and any skill proficiency needed to engage fully with the content of the next course in the sequence (Conley, 2007).

Readiness as a subject of research is most often referred to in predictor courses through high school that can be used to determine success in college courses of the same content. However, it is a worthy term to define the course pathways through middle school and high school as well. Courses tend to build on one another within the same academic track. Readiness can determine course selection based on academic tracking. It is a term often used as the main argument in support of ability-based tracking in schools.

Ability grouping leads to tracking and tracking becomes locked in based on a gap in students' readiness. After years of taking lower-level academic classes, students lack the skillset to advance beyond their current track in subsequent years. For example, in many high schools, a student is ability grouped in mathematics in the later years of elementary school. They are then given tracked courses that continue to advance their math abilities through middle school and the early years of high school. By the time they are a senior in high school, they may be multiple years and tracked labeled courses ahead of a student who was initially ability grouped into lower tracks of math course from elementary to high school. See the examples of math course tracks in Table 1.

Table 1

Sample Math Course Track

Grades	Student A	Student B
4	Math 4	Math 4
5	Advanced Math 5	Math 5
6	Pre-Algebra	Math 6
7	Algebra 1	Pre-Algebra
8	Honors Geometry	Algebra 1
9	Honors Algebra 2	Academic Geometry
10	Honors Pre-Calculus	Academic Algebra 2
11	AP Calculus AB	Academic Algebra 3/Trigonometry
12	AP Calculus BC	Academic Pre-Calculus

As you can see in the example above, the trajectory of a student given the opportunity to be placed in the higher ability grouping in math when it first occurs in the transition between grades 4 and 5 results in a divergence course pathway that leaves the lower track placed student two years behind the higher placed student by their high school graduation (Peters Township School District, 2021). In this example, if headed

into their junior year, Student B decided they wanted to take AP Calculus by the time they graduated high school, they would not be ready to do so based on the track they were in. They would lack the skills and readiness to take AP Calculus AB without the prerequisite knowledge obtained in Precalculus. A school counselor would recommend they remain on their track to avoid potential failure based on a lack of adequate preparation. This lack of readiness in this example was created by the slower pacing and diminished curriculum associated with the lower track courses. In this example, what started as ability grouping became a locked path and course sequence. Where these students finish high school will have a further impact on the math classes they take in college. Student A, having completed two years of Calculus in high school, is more prepared to take more advanced collegiate calculus and subsequent math courses. Student B, on the other hand, will not have that same opportunity. They are more likely to have their first exposure to Calculus in college. This will undoubtedly have an impact on the majors each student chooses and therefore the career they are likely to pursue. The important thing to note is that the early life trajectory that determined their high school course exposure, college admissions, college major, and career pathway was initially decided by their fourth-grade teachers who recommended them for the fifth-grade math class. In this example and many others, teachers, especially at critical junctures like the example above, have an undeniable impact on the trajectory of a student's academic track. In the next section, we will inspect the ways teacher's perceptions can impact these critical junctures of course placement and decision making.

Teacher Bias and Perceptions of Academic Tracking

The Impact of Teacher Perceptions

Is ability fixed or can it be cultivated? This question regarding the nature of one's ability and intelligence is the central point in arguing for or against ability grouping in schools. Dweck (2008) argues that while people are born with a varying set of genetically originating skills and predispositions, they can grow and change. According to Dweck (2008), a fixed mindset is evident when there is not a desperate pursuit to elevate. In other words, maintenance of the status quo is evidence of a fixed mindset. In the fixed mindset, a teacher will only ever discover who their students were always meant to be. What they do in the classroom is just an exercise in revealing the unchanging nature of their students' abilities. However, those with a growth mindset are fixed on transformation of ability and intelligence. A teacher with a growth mindset believes people are not created equal, but all can improve. Their lessons matter. The growth mindset teacher constantly adjusts their lessons to ensure they are the best methods and activities to reach their students to inspire change in their knowledge set as it grows and changes. They seek new learning in pedagogical technique to isolate the best ways to move the needle with their students. They tend to focus on individuals rather than groups or class sections as whole (Dweck, 2008). A teacher with a growth mindset should see their student's initial ability groupings shift upward.

Marzano (2001) provides the rationale for high quality instruction in classrooms. Marzano's work has supported the training of teachers in the best pedagogical techniques to positively impact their students. What teachers do with students in classrooms has an

impact on their outcomes. Good instruction can take any student and make them better (Marzano et al., 2001).

The impact of the two mindsets, fixed and growth, can be observed in its impact, or lack thereof, on student ability. Much of this has to do with a teacher's personal beliefs about their students and their abilities. There is a correlation between teachers' beliefs about their ability to improve student ability and their actual impact on student ability. When teachers choose to believe their students can change and increase in their abilities, they see student ability more as a starting point for their work rather than a ceiling (Glenn, 2018). This is especially true in lesson planning. Teachers' beliefs about their students' underlying ability drive the lessons they plan and the curriculum goals they set. In one research study focused on the impact of teachers having a fixed mindset, teachers felt they were powerless to change what was already entrenched in their students from middle school regarding their self-perspective and ability. As a result, they stated they put less energy into their lesson planning (Oakes et al., 1995). If kids cannot change, why try right?

There is also a negative impact from the bias created from the labeled name of the courses. Many middle and high school courses bear a label that denotes their rigor level. Class names like Honors Biology or Remedial English are a few examples. Research has shown that names matter and instruction and expectations of students in lower classes are less than in higher rigor classes (Slavin, 1990). Teachers of courses with names or labels that signal lower ability like "academic" or "remedial" often have assumptions about a group of students in a lower labeled academic course. Teachers receive a bias regarding the capabilities of their students the moment they receive their course assignment

schedule and see terms like honors and remedial on the top of the roster. As a result, they tend to spend less energy identifying individual differences in ability or prior learning and instead operate more on the assumption that all the students are of the same lower level (Oakes, 1985). This bias is deeply rooted in the mindset teachers approach their lesson planning and execution for their different classes.

This impact of applying a fixed mindset to a group of students creates a biased approach to lesson planning and lesson execution, giving the students less of an individualized effort and more of an approach that targets the middle of the bell curve in each class. Dweck states, "people with a fixed mindset do not believe in putting forth effort or getting help" (Dweck, 2008). In the school setting, a student with a fixed mindset lacks a pursuit of excellence and is relegated to being no more than they were otherwise predetermined to be. A teacher with a fixed mindset recycles the same lesson plans year after year without sharpening lessons to reach their current students more (Dweck 2008). When the two perspectives combine, you see boring classes where students put forth little effort.

You often hear teachers complaining about the behaviors of their lower classes in the faculty lounges as the focus devolves to center more on behavior and compliance rather than growth. When this occurs, it is evidencing a teacher has embraced a fixed mindset with their students and symbiotically, there students are likely to have developed a fixed mindset about themselves and their potential in that teacher's class. Researchers have identified teachers who taught both academic and honors named math classes in the same school year. They examined how the math teachers instructed the honors classes and academic classes. They were looking at whether teachers' bias and unconscious

beliefs about honors and academic tracked students influenced the instruction they offered to each track. What they found was that teachers in the study offered more scaffolding and supportive instruction to the academic classes. However, more of the instruction is centered on the teacher rather than on the student in terms of talking and engagement. The teachers perceived their honors students as more studious, more motivated, and better behaved than their academic peers (Reed, 2008). This perception was not based on identifiable behaviors, disciplinary events, or observable data. The lower academic label shaped their perception of the students in that track. The researchers concluded that teachers' perceptions of students are shaped by the course label just as student self-perception is shaped by it as well. When surveyed, the teachers also carried the opinion that the academic students were not striving to take the AP classes due to their desire for ease and less work.

> What is most interesting with regards to the issue of behavior is where each participant placed the blame when an issue arose. In the regular class, the fault lay with the students while in the honors class the fault lay with the teacher for not providing challenging material. When the regular students were disruptive it was due to a lack of understanding on their parts. (Reed, 2008, p. 52)

This speaks to the bias the label creates. A big part of this was that the teachers spoke of the students as one group. They tended to put the bias driven label of a stereotypical "academic" student on the group rather than think of them as individuals with unique needs and strengths. This stereotyping resulted in a different outlook on the class from the position of the teacher. This bias shaded the teachers' perceptions of each students' current skill set, often in negative ways. The researchers concluded like many

other researchers have done; namely, that tracks should be dissolved into one track (Reed, 2008).

Adding to the impact of course labels and course tracking is the curriculum itself. When examined, many courses bearing a lower academic rigor level have a course curriculum that was not written to promote growth in ability. These courses are offered to accommodate ability rather than to grow it. Their curriculum is not supportive of leveling up and is designed to provide a home for students of that set fixed ability rather than to support them in their growth and eventual migration into more challenging courses. Students perceived to be low ability students were given courses that accommodated for their low ability rather than courses that increased that ability. The onus of who should be responsible for increasing a students' ability lied with the students rather than the school or teachers (Oakes et al., 1995).

Teacher Preference

The mindset of teachers and students has an obvious impact on how much effort is put into student ability growth. The names of courses that label rigor level and type of curriculum also have an impact on student ability growth. Behaviors of students are also impacted by the labels and names of courses and the rigor level within. Among principals and teachers, it has always been an adage that the best classroom management technique is to have challenging and engaging lessons. However, in all these elements shaped by perception on student ability, there is one that has a more substantial impact on students than any other, the role their teacher plays (Marzano et al., 2001). Teacher perception matters and research has shown that teachers prefer to teach courses that bear a higher rigor indicator in their name. Much of this is due to the level of effort required to move

lower students higher as well as the student behaviors that are more commonly experienced in lower track classes. In the faculty lounges, the social strata are often determined by who gets to teach the higher track classes. Honors classes have more prestige among fellow teachers (Biafora & Ansalone, 2008).

Teachers were found to be the most in support of ability grouping and course level tracking. This was due to their concerns about the management of a classroom that had a diverse array of abilities (Biafora & Ansalone, 2008). Teachers object to instructing lower-level groups (Slavin, 1990). A nationwide study in England in 1999 surveyed teachers regarding their perceptions of ability grouping. Many were not fans of the mixed ability grouping due to the efforts they had to make in designing differentiated instruction (Ireson et al., 1999). In most faculties, veteran teachers earn their way to teach the higher tracks while newer teachers are relegated to the lower tracks seemingly because of the classroom behavior management required (Oakes, 1995). When so much is driven by the perception that teaching lower classes is harder, requires more effort in lesson planning, and the students are more difficult to deal with, it is no wonder why teachers often support systems of ability grouping and tracking. This is commonly seen in teacher's advocacy for course recommendations that serve to direct students into one course track or another.

Course Recommendations

In most school districts in the United States, ability grouping is embraced. Courses bear names indicating their rigor level and whether they have a high or low rigor curriculum. Due to teacher perceptions and its resultant preference to keep lower students out of the higher rigor tracks, schools often employ the practice of having teachers

recommend the level of tracked course a student takes in the subsequent school year. Some districts lean on the practice of course recommendations more than others. In a study of four distinctly different high schools, they found that recommendations were awarded purely based on prior grades and assessment performance. By the time these students reached high school, their level of academic track was mostly determined through graduation (Oakes et al., 1995). With such a widespread use of teacher recommendations to determine course placement for students, it is important to understand what influences a teacher's recommendation as many studies have shown it is much more than simple academic performance, but instead reflects societal biases (Oakes et al., 1995).

Teacher course recommendations tend to reflect teacher bias associated with students' socioeconomic standing more than ability. Students from lower socioeconomic backgrounds are more likely to be advised to take lower academic tracked classes than their peers from higher socioeconomic background even if they have similar achievement in prior settings. This would indicate that receiving a teacher's recommendations is based less on merit and more on perception bias (Boone et al., 2018). Conversely, students from higher socio-economic backgrounds are more likely to get the advice to enroll in the more demanding honors tracks. Teachers tend to judge pupils' ability relative to that of other pupils in the class. Therefore, whether a student gets their teacher's recommendation is based more on which class period they are in and how their teacher perceives that class rather than on that student's individual achievement (Boone et al., 2018).

While socioeconomics is a discerning factor in influencing teacher bias, race and ethnicity are also shown to have a strong influence on teacher bias and its impact on course placement recommendations. Race and ethnicity are shown to impact teacher perceptions of student ability. Teachers often recommend students they think will be successful at the next course level. When race is a factor, it influences who gets those recommendations. In the Peters Township School District, race is rarely if ever a factor in determining whether a student gets a teacher's recommendation since our school is 99% white in its racial makeup (Peters Township School District, 2021). This is a limitation of this study. I am unable to analyze whether race is a factor in our school's course selection process. However, research has shown that it would be in a more heterogeneous environment (Guenther, 2009). Course placements impact the level and quality of the lessons and instruction students receive. These placements are shown to be based on teacher perception bias toward student ability based on race, ethnicity, socioeconomic background, and prior course placement regardless of actual ability or achievement. All these factors are further compounded by their impact on how a student perceives their own ability. Student self-perception is another significant factor that influences student achievement outcomes.

Student Self-Perception

The Role of Belief

When students experience repeated failure at something, their natural enthusiasm to continue to exert effort towards it diminishes. This is the way of the human brain. Our efforts are limited, and our brains prioritize those efforts toward areas where we find success. If students are unsuccessful at school, this will discourage effort. The less effort, the lower the performance. The lower the performance, the lower the teacher perception. The lower the teacher perception the less likely they will be to get a recommendation to the more challenging level of course. The lower the course placement, the lower the student's self-perception of their own ability and the less likely they are to have successful outcomes. This spiral continues downward through the years of school leaving students with diminished opportunities and damaged views of self. If a student has not received the support they need in the later years of elementary school and earlier years of middle school, they will not likely be recommended for high school honors classes. They will accept the label as a lower-level learner. Their schedule in high school will be filled primarily with courses titled as such; "Essentials of Math", "Academic English", and other course titles that convey "lower". This will lead to a labeled student fulfilling their labeled future outcomes (McTighe & Willis, 2019).

Students who believe they can do something are much more likely to do it. Students who do not believe they have the necessary skill set to be successful often sabotage themselves to fulfill this prophecy. Marzano (2001) identified two critical elements of student belief:

1. Not all students realize the importance of believing in effort.
2. Students can learn to change their beliefs to an emphasis on effort.

Belief and effort have a definitive impact on standardized assessments. Students with higher measured amounts of belief in their ability performed better than those that did not. He also identified the amount of student self-belief could be influenced by their teachers. Students with lower self-belief, when assigned to teachers who worked on increasing that belief, showed increases in their belief in their academic ability and that belief was observed in higher achievement scores (Marzano et al., 2001). In other words, teachers have an influence on how students perceive themselves as learners. When teachers reinforce the value of effort and exhibit the belief that with the right amount of effort, students can grow and experience academic growth evident in their achievement outcomes. Students without that make their failure a reality (Marzano et al., 2001). Students tend to live up to and fit the image of the expectations their teachers place upon them. This is the importance of the perspective teachers have on the ability of their students.

Student Self-Perception Impact

The effects of student self-perception can also be seen in how they relate to their peers. The level and label of course placement have an impact on how students build and maintain relationships. Students in higher ability groups developed stronger peer relationships than those in the lower groupings. Students placed in lower ability groupings were more likely to have more social conflict among peers (Ireson et al., 1999). Understandably, when students have elevated levels of social tension and conflict in a particular class, their focus on learning is diminished. Disruptive behaviors and

increased social conflict play a role in how successful classroom activities are in promoting learning. Opportunities for in-depth discussions and group projects are lessened due to strained relationships. This discord is identified by the teacher and diminishes their perceptions about that group's ability resulting in less instruction and lower likelihood those individuals will be perceived favorably when it comes time to give course placement recommendations for next year.

Studies have shown that students in lower tracked classes perceive themselves as lesser. Conversely, taking honors classes boosts a student's self-perception of their own abilities. In a longitudinal study of four years and multiple schools in the UK, half of the schools mixed ability groups into one set of classes while the other schools grouped their students into tracks by ability groups. They interviewed students in both types of schools. Students, like in many other research studies, perceived those in the lower ability tracks to be less capable students. This sentiment was shared by the students in the higher ability groupings as well (Boaler & Brown, 2000). Students tend to make judgements about their peers based on the types of classes they take.

> Although most adolescents held negative perceptions about students enrolled in non-honors courses, students in non-honors seemed to view the negative perceptions of their classmates as reflections of themselves as Black people and as students. In contrast, adolescents in honors courses viewed these negative perceptions as limited to students in non-honors. (Legette, 2018, p. 1311)

Students taking honors classes have a higher perception of themselves as students. In this developmental age and transition, student self-perception has a significant impact on their outcomes and performance. The track they find themselves in shapes their view

of themselves. Students in less academically rigorous course placements have expressed concern that their placement conveys to others they are intellectually challenged, slow, unable to learn, and are likely to behave poorly. Students believe track placement broadcasts their intelligence level to their peers. In one study, students were interviewed about why they thought they were placed in that level of class. One student said,

> I really don't know why they have us in these classes like they do, but I know the test we take has something to do with it. I guess if we were smarter with better scores, we would be in a different class but we not, we need more help, I guess. (Legette, 2018, p. 1318)

Students believed that they had little academic ability if they were placed in lower track classes. Additionally, students who were placed in a track did not believe they could escape that track and were going to be a student of that caliber forever. Even if their teachers told them the placement was meant to provide a more supportive environment to help them learn and grow, they did not believe it. Conversely, students in the more rigorous honors classes exhibited a higher sense of their own capabilities. In their eyes, their teachers believed in them and were telling them they had what it takes as a student to take harder and more challenging classes. They responded in turn by believing that message and putting forth the effort that matched the expectations their teachers had for them. They also had better relationships with their teachers which further perpetuated their success as they had an easier time relating and having supportive interactions with those teachers. Students discussed being afraid of failure for fear they would be placed in the lower-class next year. In this way, teachers and students used the lower classes as synonymous with lower ability and lesser social standing. When race was distinguishable

in the population demographics, race itself was associated with ability through bias (Legette, 2018).

This cycle of behaviors and diminished perception continues as students move between grade levels toward graduation. Students in lower tracked class groups are less likely to attend college. This is how initial sorting based on perceived ability, which has been identified as perpetuating bias based on race, socioeconomics, and prior placement, results in students having less opportunities as they make the transition to the adult career world (Slavin, 1990).

Tracking and Future Opportunity Impact

Course enrollment in the years surrounding the transition into high school plays a critical role in determining students' future academic pathways (Bernhardt, 2014). Tracking students into course pathways based on initial ability groupings shapes beliefs and perceptions of both teachers and students which drives their achievement and curricular exposure. Tracking in this manner perpetuates the message that ability is a fixed commodity that determines outcomes more than effort. When this paradigm is flipped, the opposite is true (Legette, 2020). Tracking students into ability groups tends to discourage lower ability groups (Oakes, 1987). Schools that combined formerly high and low classes together saw sharp increases in overall student performance on standardized assessments. Thus, dismantling course level tracking has a positive impact on students' academic outcomes (Legette, 2020).

Some who are hesitant to entirely dismantle course level tracking based on initial ability grouping argue that tracking has some merit if there are opportunities for students

to change tracks. In schools where the goal is to move students from lower tracks into higher tracks, greater emphasis is placed on supportive instruction rather than limited curricular exposure. Typically, in these schools, there is evidence of elevated resources and teacher quality in the lower tracked courses. Students in these rare settings are perceived less as a homogenous group and more as heterogeneous group of individuals with various abilities. Catholic schools have proven to be places where there is a focus on course track elevation for all students. Many spend a great deal of time with the initial evaluation and sort of students to effectively apply resources in the areas of greatest need (Ellison & Hallinan, 2004). Outside of these few Catholic schools, most schools place kids into tracks that rarely, if ever, have opportunities for course track change. Those who do offer track changes most commonly during the middle school to high school transition and are mostly permanent in that kids rarely change tracks once in them (Hallinan, 1996).

In most school districts, students are automatically scheduled in the subsequent course of the same level throughout their high school years. This alone results in very few track changes between middle and high school. Many teachers have trouble identifying any students who had moved between academic tracks due to its rarity. Most said the only students they were aware of had moved between tracks were due to a scheduling error and that they were misplaced from the start. In other words, students are locked into their tracks. As a result, most teachers hold little hope for their students to break free from their academic track once in high school due to their own perceptions and student self-perceptions. The rare changes between tracks in these grades was due to parental challenge (Oakes et al., 1995).

Appeal processes typically exist for parents and students to request an overrule by administration to a placement decision. However, these are not widely known and are typically only accessed by parents who wish to challenge the placement their child was assigned. In a previously referenced 1993 case study of two California school districts conducted by Dr. Jeannie Oakes, she found that parents had the ability to request a placement in tracked classes be overruled. This was, however, not widely publicized by the school districts and most parents were not aware they could appeal the decision of the prior teacher or district determined prerequisites (Oakes, 1995).

Students intending to go to college should enroll in higher tracked courses in the transition from middle school to high school. Their readiness for college coursework and success at that level is often predicted by their success in more demanding high school classes. The tracks students are placed in at that transition are likely to remain constant through to their graduation. Therefore, the transition from middle school to high school and the course recommendations that take place at that juncture, have lifelong implications for future success (Conley, 2007).

Summary

Initial ability grouping of students is often based on bias and perceptions. Students are often sorted along the lines of race, socioeconomics, and prior ability group placement. This sorting diminishes teacher perceptions about their students' capacity to grow in ability. Perceptions of students held by teachers are often applied to entire course sections, especially those that bear titles that denote a high or low level of curriculum and ability. Teachers are less likely to believe and operate in a growth mindset for students in lower named classes like "academic" or "remedial." When teachers operate in a fixed

mindset, they are less likely to place their focus on individual student growth and their lesson plans reflect this. With less curricular rigor, students in these lower named classes perceive themselves and their peers as having less ability to learn than those in higher named classes. After years of this playing out, by the time students reach the transition from middle school to high school, the image of who they are and what they are capable of is set. Teachers and students perpetuate the image created for them and advocate for course placements that fit the image. Their academic track is determined. Very few students change academic tracks once placed in them. This undoubtedly limits their ability, both real and perceived as they enter college and career transition. Following this trend, it is safe to say that the process of initial ability grouping creates readiness and sets most students on a life trajectory. The purpose of this study is to examine these critical junctures where a students' destiny is determined.

Chapter 3

Methodology

As was discovered in the review of literature, student ability grouping, though frequently done in the name of offering students a more homogenous set of peers and instruction supporting their present levels, frequently results in tracked levels where students receive quite disparate learning opportunities. Lower rigor course level placements have been shown to perpetuate and increase readiness gaps rather than close them. As a result of this observed trend in recent research, there is value in scrutinizing the process by which students are placed in honors and academic level classes. In the Peters Township School District, there is a need to examine the process by which students are placed in the transition between eighth and ninth-grade in the Peters Township School District to ensure it doesn't limit student potential. Through close examination the District can ensure its placement process puts students in the best position to reach their fullest potential.

This section will identify the methodology employed in this study, the setting and context of the Peters Township School District, and the course placement process currently employed for a student's transition into high school. It will describe the data collection plan including the purposes of gathering the various data used in the study and will shed light on the anticipated validity of the selected data in response to the driving research questions at the core of the study.

Purpose

This study was conducted to inspect the validity of the current course recommendation and placement processes focusing on its impact on student performance outcomes and trajectories through high school. It also focuses on the perceptions of the

teachers who both recommend course placements and those who teach them. It was hypothesized that trends would emerge in the gathered data that would parallel the findings of larger studies conducted on comparable topics. It was hypothesized that student performance data would indicate students who appealed their eighth-grade teachers' recommendations would equal their peers who were initially recommended for the honors courses. Based on the findings of prior studies in the review of literature, it was predicted that students who take honors courses would be more likely to have exposure to AP classes and would continue in the honors and AP trajectory through high school. It was also predicted that teachers would have perceptions counter to these performance data trends. This was due to previous research studies indicating teachers approach the recommendation process with more of a fixed mindset and would have opinions that the course placement process should be more restrictive making it harder for students to access honors classes. Prior research has shown that implicit bias and stereotyping have more influence over teacher recommendations than historical student performance data and ability (Boone et al., 2018).

Academic course labels have been shown to create stereotypical perceptions of the students placed in those classes. Both students in academic classes and the teachers who are assigned to teach them have been shown to have lower expectations for student performance in the class. When surveyed, teachers have had inaccurate perceptions of their students' performance history. Research has shown teachers hold inaccurate perceptions of student abilities in that they often assumed their students had more homogeneity in ability and past performance. These stereotypes showed that teachers

thought their students in lower-level classes had lower-level abilities regardless of whether or not that was true (Reed, 2008).

Students placed in academic level classes in key transition years are likely to remain in the academic track in future years. Less exposure to honors level classes result in fewer opportunities for them to take AP courses which ultimately limits opportunities that impact college admissions and success in post-secondary course work. These transitional course placements are often established through teacher course recommendations. This is the case in the Peters Township School District. The transition from middle school to high school is a key transition for students in terms of the course level tracks they will find themselves in throughout their high school careers. The body of research that supports a growth mindset when placing students in classes is currently in conflict with the present practice of using teacher recommendations to determine course level placements. The Peters Township School District limits students' access to honors level course options through the teacher recommendation process. Students can only take an honors class in ninth grade if they have received their eighth-grade teacher's recommendation or if they successfully appeal that teacher's recommendation. These recommendations are typically given only if the student has an A or B in the eighth-grade course in that content area. Based on the body of research, students should have an easier time making the choice to take honors classes when scheduling for ninth grade. In addition, the ninth-grade teachers should offer additional supports for students with less readiness for those honors classes.

Setting and Participants

The Researcher

The researcher has been an assistant principal for thirteen years, eleven of which have been served at Peters Township High School in the Peters Township School District. He started in education as a high school social studies teacher for six years prior in Newport News, Virginia. Through his roles as teacher and administrator, the researcher had many experiences where students surprised him and demonstrated academic performance results that were not initially expected of them. The researcher had the opportunity to teach both academic, honors, and AP level classes and witnessed the power of those labels on student performance. These experiences have always shaped his perspective toward giving students opportunities to meet higher expectations with the right supports. While always having a sense that a growth mindset was the better way when working with students, the researcher had only anecdotal information based on experiences of students rising to and exceeding expectations. In the researcher's role as assistant high school principal, he heard appeals from students who did not receive their eighth-grade teachers' recommendations to take honors classes. The appeal process at Peters Township High School takes place each spring and a team of high school administrators and counselors review students' prior data including grades and standardized assessment scores to determine if they have the readiness to be successful in the requested honors class. The researcher had a predisposition toward giving students the chance to take more rigorous classes. The seeds of this study were planted during those sessions reviewing student appeals and making decisions about students' academic trajectories. The researcher desired more specific data to shed light on the course

placement process based on teacher recommendations to determine whether the current course selection process was effective in determining student outcomes.

District Demographics

This study was based in the Peters Township School District which is a 19.55 square mile suburban K-12 school district southwest of Pittsburgh, Pennsylvania in northeast Washington County. As of the 2020 U.S. Census, the Township boasted a population of 22,940 people with just over 20% being school age children in over 7,500 households. The racial demographics of the Township were as follows: 94.6% White, 2.8% Asian, 1.5% Hispanic, and 1.1% Black. The average home value was $355,200.00 and the median household income was $127,837.00 and only 1.7% of persons in poverty (U.S. Census Bureau, 2020).

District History

In the early 19th century, small family one room schoolhouses emerged to teach skills to facilitate farming and character values. Through a series of consolidations, these schoolhouses became more formal structures dedicated as schools. In 1902, the District chartered its high school (Peters Township School District, 2021). As the Township grew in population it recognized the need for comprehensive education to serve students headed into a more diverse economy. In 1929, the District erected the building that served as the high school and eventually became the middle school. It looked more like schools today with a gymnasium, many classrooms, and a cafeteria. This building drew people to settle in Peters Township to receive a more modern education. As a result, the population continued to grow and building projects continued to shape the landscape of the Township from a sparse rural farming township to a suburban community with a light business sector. Today, the district is housed in five school buildings, a bus garage, and a

central office building with a K-12 enrollment of 3965. Bower Hill Elementary and Pleasant Valley Elementary Schools are each home to students in Kindergarten through third grade. McMurray Elementary School is the fourth and fifth-grade building and the Middle School houses grades six through eight. This current grade setup was recently reoriented in 2021 with sixth grade moving from McMurray Elementary to the Middle School. The new 9-12 High School building was recently constructed and welcomed students for the first time in January 2021. This facilitated the former High School building to go through a short renovation into the new 6-8 Middle School in the same year.

District Funding

The Peters Township School District receives most of its revenue from local sources. In Pennsylvania, the formula that determines the amount of state and federal funding a school district receives is based on a community's ability to support their school's budget through taxes based on income and real estate values. In a suburban community like Peters Township with high median home values and median household incomes, most of the District's revenues are garnered from local tax sources. Specifically, 75% of the District's revenues come from real estate taxes and earned income taxes while 24% comes from Pennsylvania and 1% from the Federal Government (Peters Township School District, 2021). In 2021, the Act 1 Index set by the Governor of Pennsylvania set an increase limit of 3% on the prior year's real estate tax rate. The District's millage rate in 2021 was 14.16 and for each mill the district collects $3,081,596.00 in real estate taxes. Local revenues generated $54,516,260.00 of the $72,036,640.00 District revenue in the 20-21 school year with the remaining funding supported by state and federal

sources. The typical property tax for a home worth $300,000.00 was $4,248.00 per year which is relatively low compared to districts in neighboring townships in Allegheny County which often are double that amount. In Pennsylvania, wealthy communities have more ability to fund education at a higher level than communities that are supported more by state and federal sources. As a result, Peters Township has a financial advantage over many other less privileged school districts in Pennsylvania.

District Mission and Vision

The mission statement for the District reads, "Peters Township School District will promote academic excellence, build leadership, and inspire character as a prominent Pennsylvania School District measured by state and national standards" (Peters Township School District, 2021). The District's vision statement reads, "Peters Township School District, as a public-school entity, will enable students to realize their potential to learn, live, lead and succeed" (Peters Township School District, 2021). These statements were an important motivator for the researcher conducting this study as the course selection and recommendation process the district presently utilizes was hypothesized by the researcher to be in contradiction with these mission and vision statements. Examining the current course placement process to ensure it is in alignment with the District's mission and vision is a key motivation behind this study. Furthermore, most of the District's students go on to study at four-year universities and colleges and would benefit from a course pathway through the years that provides the most academic growth and opportunity.

High School Profile

Presently in Peters Township, 85% of the graduates go on to study at four-year colleges and universities with 5% going on to two-year colleges and trade schools and the remaining 10% going on to military service or directly into the work force. (Peters Township School District, 2021). As a result of this college bound population, the high school offers twenty-one AP courses including English Language and Composition, English Literature and Composition, Calculus AB, Calculus BC, Statistics, Biology, Chemistry, Physics C Mechanics/E&M, Physics I: Algebra Based, Environmental Science, U.S. History, U.S. Government and Politics, European History, Economics, Psychology, Spanish, French, German, Music Theory, Computer Science A, and Computer Science Principles (Peters Township School District). Students in tenth, eleventh, and twelfth-grades are eligible to participate in elective credits earned from career and technical education courses through the District's partnership with the Western Area Career and Technology Center (WACTC). WACTC students can study in the following fields: Auto Mechanics, Automation Robotics Engineering Technology, Carpentry, Collision Repair Technology, Cosmetology, Culinary Arts, Electrical Occupations, Emergency Protective Services, Health Assistant, Heating, Ventilation and Air Conditioning (HVAC), Machine Shop, Masonry, Networking, and Welding. The District also offers a handful of College in High School (CHS) courses in the Business, Computers, Information and Technology department. Students taking these CHS courses have the opportunity to earn college credit through the University of Pittsburgh. The AP courses in the core content areas of Math, English, Science, and Social Studies all have prerequisites associated with having a qualifying grade and teacher recommendation from

the preceding year's honors level course. Students hoping to take these AP classes are eligible if they are in the honors course pathways which begin in ninth grade. This was a key motivator for the researcher to take a more detailed look at the process that places students in or prevents them from these course pathways that lead to AP courses.

High School Course Placement History

As discussed in the Literature Review, there are multiple transitionary junctures between grade levels where students are sorted into different ability groupings. However, one of these junctures that has particular ramifications on the academic track a student will follow through to high school graduation and beyond is the transition between eighth and ninth-grade (Hallinan, 1996; Bernhardt, 2014). This transition is typically accompanied by some form of selection process used to determine which students take honors classes and which students take the lower academic level classes. Students who take honors classes are typically on a pathway that leads to more rigorous course opportunities like AP courses. In most cases, this sorting is done using the eighth-grade teachers' recommendations. This is the case in the Peters Township School District as ninth-grade student course placements are primarily determined by eighth-grade teacher recommendations.

As shown in Table 2, there are options for rigor levels for ninth-grade core class registration for which teachers provide recommendations. Most of the eighth-grade students in the Peters Township School District are enrolled in Algebra 1 and will be recommended for Geometry at either the honors or academic levels. In English and Social Studies, students are recommended for English 9 and Global Studies at the honors or academic levels. In Science, there are three levels that students are recommended for.

They are either recommended for Biology at the honors or academic levels or for Physical Science, which is only offered at the academic level and is seen as the lowest rigor level of the three courses in science. The eighth-grade teachers only recommend students for the ninth-grade course in their content area. Math teachers only recommend for Geometry, science teachers only recommend for Biology or Physical Science, and so on. At that time in the school year when recommendations are submitted students have earned grades in quarters one and two.

Table 2

Core Class Rigor Level Options for Ninth-Grade at PTHS

Core Areas	Lower Rigor Option	Higher Rigor Option	
Math	Geometry Academic	Geometry Honors	
English	English 9 Academic	English 9 Honors	
Social Studies	Global Studies Academic	Global Studies Honors	
Science	Physical Science Academic	Biology Academic	Biology Honors

Note. There are three options for ninth-grade science at Peters Township High School.

Teachers typically base their decision about whether to recommend a student on the grades they have earned in quarters one and two. The teacher recommendations are submitted into Powerschool, the Student Information System (SIS) utilized in Peters Township. When a student goes into the portal in the SIS to register for next year's classes, they only see the courses their teachers recommended they take. If they were recommended for the honors level, they will see the academic level as a choice as well. However, if a student was recommended for the academic level, they will only see that academic option and the honors level will not be an option for them. For example, if a student was recommended for Geometry Honors, they will see the choices of Geometry

Honors and Geometry Academic. A student who was recommended for Geometry Academic will only see the choice for Geometry Academic. In this way, teacher recommendations determine the levels of courses students take in ninth-grade. There is, however, an alternative path for students to access honors courses when not recommended for them. They can complete a form and submit it to the high school counseling office to appeal the decision and request the higher class in spite of their teacher's recommendation.

In each of the past three years at Peters Township High School, approximately thirty to sixty high school students have appealed their teacher's recommendation in order to take higher tracked courses the following year. The student or their parent will reach out to their high school counselor and request the honors level of a course since they did not receive the eighth-grade teacher's recommendation. Upon request, the counselor will provide them a form to complete that asks them to identify the course decision they would like to appeal and to provide their rationale for the request. A link to this form is also provided in the high school's course description book which can be found in links on the high school counseling office's web page. A copy of this form is included in Appendix G. This completed form is then presented to the administrative team for approval. The high school principals then review each appeal in light of the students' prior year of standardized testing and final grade performance. Unless the student's prior grades and standardized testing show a readiness deficit, the appeal is typically granted and the student is given permission to take the honors course in spite of the eighth-grade teacher's recommendation. A challenge associated with the appeal process is that it is not commonly known by most families. While the form is available

publicly a few clicks into the high school counseling department's web page, it can be difficult to find assuming parents and students even know it is an option to appeal. The availability of the appeal process is something that will be further discussed in the recommendations found in Chapter 5 of this study.

Student Data

In order to gain a more precise understanding of the current course placement process based on teacher recommendations and appeals, the researcher identified three main sources of data. The first source was the list of students who appealed their course placement based on their eighth-grade teachers' recommendations. The counseling office maintained the list of appeals for all present high school students. This encompassed the past four years. Based on the review of prior research done on ability grouping, it was pertinent to include the outcomes of how that group of students did in their placements and to examine the courses they took in subsequent years. With access to the prior four years, the researcher chose to focus on the students who had completed their ninth-grade courses and gone through subsequent course selections that showed course level trajectories. This focused the study on the outcomes of students in the graduation cohort classes of 2022, 2023, and 2024 and excluded the class of 2025 who, at the time of this study, were ninth-grade students. At the time of this study, no final grades were available for present ninth-grade students.

Since this study is scrutinizing the course recommendation and placement process, it was necessary to have data to compare to the appeal group of students. Therefore, it was important to gather the final grade data from each of the most commonly appealed courses. The researcher gathered the final grade data for all students

in those graduation cohorts as well as final grade data for students who appealed their recommended placements for Geometry classes, Biology classes, and English 9 classes. The researcher also gathered the final grade data for Physical Science academic classes as that is the course students take in ninth-grade when they did not receive the recommendation for Biology Academic. The acquisition of this historical student data was reviewed and approved as part of the overall approval of this study by Dr. Jeannine French, the District's Superintendent, and Dr. Michael Fisher, the District's Assistant Superintendent, and external advisor for the researcher. All identifiers for any individual students were removed from the data set upon its gathering from the historical records of the student information system at the District. Since no identifying information was connected to any of the student data, neither parental consent nor student assent was needed. As a result, the District leadership signed off on the approval of the acquisition and use of this student data as well as the Institutional Review Board.

Teacher Perception Data

So as to provide data to help frame the quantitative outcome data, the researcher also surveyed the teachers who both recommend for and teach the classes listed above. It was important to include the teacher perceptions because this study would shed light on the process that depended on the eighth grade teachers and resulted in setting the course rosters for the 9th grade teachers. It was important to garner their opinions of this process. In the Review of Literature multiple studies were reviewed that had also gathered teacher perceptions of ability grouping and was interested to find the teachers were most in favor of limiting the access of students to honors classes and wanted to see if that was the case here in the Peters Township School District.

A survey instrument was developed to capture the perceptions of the teachers involved in either side of the course recommendation and placement process at the eighth to ninth grade transition. The survey consisted of eleven opinion statements that asked teachers to respond via a four part Likert scale with the choices of "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree". These statements were written to indicate varying degrees of representation for a fixed or growth mindset. They were also asked to provide their perspectives on the present system of course recommendations and placement in addition to ideas they may have on how it should be modified. Based on teachers' answers to these opinion questions and on their stated views of the present process this would provide data on how the current process was working and to what extent it should be adjusted. With the goal of aligning the course placement process to the District's mission and vision statements which promote a growth mindset in providing opportunities for students, this qualitative data adds a human perspective by which to frame the quantitative student grade data.

All of these data sources including the teacher surveys were submitted for consideration to the Institutional Review Board (IRB) for California University of Pennsylvania in August 2021. The IRB approved all the components of the study's research methodology including the acquisition of the student data and teacher survey. The IRB required the teachers to be informed of their consent through the email that included the survey link for their participation. The researcher also met with the teachers invited to complete the surveys to inform them of their consent and to explain the purpose and nature of this study. He then emailed them the link to the survey and included the consent waiver in the body of that email explaining their consent would be

given should they chose to click on the link and submit their responses to the survey. The consent email, survey with disclaimer statements, and IRB Approval can be found in Appendix E.

Intervention and Research Plan

The following research questions drove both the data gathering and analysis to test the above hypotheses.

1. How do students perform in rigorous courses their teachers recommended they take?
2. How do students perform in rigorous courses who did not receive a teacher's recommendation but gained entry on appeal?
3. What are teacher perceptions of the role of teacher recommendations in student course selection?

The answer to these questions required the collection of the performance data of both entire cohorts of students taking ninth grade classes as well as the performance data of the students who appealed the recommendations. It would also require the procurement of the teacher perceptions through survey questions. Through the analysis of the whole group.

The topic of this research was selected based on the researcher's experiences teaching in Newport News, Virginia where he saw many students who were considered incapable of taking honors classes and were labeled as "academic students". He worked with these students and witnessed them rise to higher expectations and, with targeted interventions and proper instruction, outperform their peers who were labeled as "honors students". They rose to the level of expectations they were given. The researcher witnessed the power of the growth mindset in the classroom and has always been weary

of labeling kids as "honors" or "academic" students. These labels create perceptions based on stereotypes. These fixed mindset perceptions limit students' opportunities for growth and often keep them from developing to their potential. Conversely, when students are given opportunities to respond to high expectations and targeted instruction, they respond in kind and rise to that level of expectation (Marzano et al., 2001). The course recommendation and placement process at the eighth to ninth grade transition in the Peters Township School District was identified as the topic of this study because of its potential to either promote a growth mindset or perpetuate a fixed mindset. The purpose of this study was intended to reveal the nature of the current process by which students are placed in classes and to identify the impact that placement had on their academic trajectory. Once the topic had been selected the three questions were identified to help guide the research moving forward.

Timeline

The timeline of this study began with the identification of the topic and the request for the study to be approved by the Institutional Review Board (IRB) in August 2021. The IRB required the identification of the data sources, guiding research questions, and the plan for informed consent and confidentiality. The plan for gathering the data was driven by the three research questions. Question 1: How do students perform in rigorous courses their teachers recommended they take? In order to answer the question, the researcher considered the courses that are most commonly appealed each school year. This data source emanated from lists of students who have submitted appeal forms to the counseling department after learning they did not receive a teacher's recommendation for a more rigorous course they would like to take the following year. The high school

counselors gather these lists of student appeals each spring during the scheduling window following the time when teachers complete course recommendations and present them to the school administrators for their consideration regarding whether or not to grant the appeal and override a teacher's recommendation to allow the student entrance into the higher rigor level course. The historic final grade data of students who gained entry to rigorous courses via teacher recommendation is housed in the student information system database. This data was gathered in November and December of 2021 following IRB approval. All student identifiers were removed during this data review to maintain confidentiality.

Question 2: How do students perform in rigorous courses who did not receive a teacher's recommendation but gained entry on appeal? The answer to this question first required the identification of the students who appealed and were approved to take the higher rigor courses. Then, as a second data source by which to compare, the historic final grade data for those students who gained entry to a course on appeal overriding their prior teacher's recommendation were identified. This data existed for the past four years for various classes at the high school level for between 30 and 50 students each year. This data was maintained and available to the researcher in the student information system database. All student identifiers were removed during this data review to maintain confidentiality. This allowed for comparison between the data set for Questions 1 and 2.

Question 3: What are teacher perceptions of the role of teacher recommendations in student course selection? In order to answer this question, the courses most commonly appealed at the secondary level were identified. That list of courses was used to identify the teachers who teach them as well as the teachers who typically issue recommendations

for those courses. Then, once the list of teachers was identified at the middle and high school levels, they were given the opportunity to anonymously offer their perceptions of the current process of course recommendation and placement via survey questions. That data was quantitative data based on teacher perceptions of student growth and the current course selection and recommendation process. First an email was sent notifying the eighth and ninth-grade teachers as to the purpose of the upcoming invitation to complete a survey. The researcher then met with the teachers invited to the survey to explain the nature of the topic and the opportunity to participate in the study via the completion of the survey. Following the meeting, the survey invitation was sent via email that included the link to the survey. The email provided a disclaimer that informed them of their consent and the possibility of identification through the courses they teach.

Based on the review of literature, when opinions of course recommendations have been gathered from students, parents, teachers, counselors, and principals in prior studies, teachers were the group found to be the most supportive of using teacher recommendations as the final determination on whether or not a student should have the opportunity to take an honors level class. Prior studies revealed that teachers acknowledged that teaching honors classes with students who had less preparation required more time and effort in lesson planning. In order to avoid that perceived extra work, teachers stated they were more in favor of using teachers recommendations as the final determination as it gave them more control over the students in the honors classes which they believed meant less work to support more struggling learners (Ireson et al., 1999). Furthermore, the review of literature showed there was often bias on the part of teachers in terms of having a false perception of the ability levels of the students in their

classes. There was a gap between the perceived prior student performance and the actual prior student performance of the kids on their rosters. In many cases, teachers assumed a greater degree of homogeneity in the skill sets or prior performance levels of the students on their roster. These assumptions were based on the course name. Teachers assumed students in honors classes all had higher past performance and ability while students in academic classes had universally lower past performance and ability. This perception held by teachers in the prior studies was based on bias and stereotypes triggered simply by the label of the class rather than on actual data (Oakes, 1985).

The survey given to the recommending and receiving teachers was meant to capture the perceptions of Peters Township teachers to see if they ran parallel to the findings of the prior research studies. They were asked Likert scale questions with four choices to indicate the amount of agreement or disagreement with multiple statements that demonstrated degrees of either a fixed or growth mindset. They were also asked questions pertaining to their beliefs about honors and academic classes and whether or not they believed their recommendations should determine whether a student was able to take an honors course or not. The questions from the survey are included in the Appendix A.

Fiscal Impact

The study itself incurred no additional monetary cost to the school district or to the researcher. Google forms and email were used to conduct the survey which is a platform the District currently employs. The reports on student data were readily available through the District's student information system, Powerschool. No costs were incurred using these software programs. The study may have a fiscal impact if it results in

the District determining it needs to replace the present course recommendation and placement process. The District may have to consider alterations to the present programming in Powerschool which may have a cost. Furthermore, the results of this study may show a need for professional development for counselors and teachers in how best to identify and develop student potential. The presence of a fixed mindset toward students and ability seems to be a common finding from prior research. Similar findings were hypothesized at the onset of this study. Overcoming a fixed mindset in course placements, teacher perceptions, and instruction requires intentional effort and professional development. Maintaining a growth mindset requires continuous effort on the part of a district. These professional developments will likely incur some cost in time spent and trainings offered. The cost of these trainings would depend on the level of commitment the District determines would be necessary. These are hypothetical possible costs and not actual costs associated with this study.

Research Design, Methods & Data Collection

This study consists of a convergent parallel mixed methods approach with both quantitative and qualitative methods conducted simultaneously. It is a non-experimental research design including quantitative historical student classroom grade performance data to target the first and second research questions, teacher survey data, and some qualitative data including open-ended questions asking for teacher input to target the third research question. Some correlational research was done in the analysis of the performance outcomes of the two student groups to determine if being recommended or appealing was co-related to earning an A or B in the honors class. Furthermore, additional correlations were examined between the two groups of students and the course placement trajectories they followed in subsequent school years.

In addition to the quantitative historical student grade data, the study also includes quantitative survey data that used a four-point Likert scale to measure teachers' agreement or disagreement with certain statements that represented a growth or fixed mindset. The 1 on the scale indicated "Strongly Agree", the 2 indicated "Agree", the 3 indicated "Disagree", and the 4 indicated "Strongly Disagree" with the provided statements. These cross-sectional surveys were provided to teachers of both the eighth-grade feeder courses who recommend students for 9th grade classes and teachers who teach those 9th grade classes. The surveys given to teachers also included some open-ended questions asking them to identify the ideal course placement and recommendation process and the skills needed for students to be successful in honors classes. These open-ended questions were more qualitative in nature due to being open-ended as well as in how they were interpreted to shed light on their quantitative answers. Teacher perceptions of the recommendation process were gathered from those who both recommend and those who receive recommended students. Through survey responses, their perceptions were gathered regarding student ability and whether they believe the current system is accurate and appropriate in predicting student outcomes. The four-point Likert survey questions used in the instrument were developed based on findings discovered through the review of literature. Multiple studies were examined in the literature review that focused on the influence teacher perceptions have on both how they recommend students and how they approach lesson planning for their classes. The third research question called for an examination of the teacher perceptions for this reason. It was hypothesized the teachers in Peters Township would have similar perceptions to the

perceptions of teachers in prior studies. Ultimately this would add both a quantitative and qualitative element to help frame the student quantitative data.

The quantitative historic student data in the form of final student grades in the core courses of ninth grade science, math, and English were compiled and examined. These course areas were selected as they were the most appealed course recommendations. This allowed for a comparison set of data in the final grades of students who were not recommended, but who took the higher rigor courses through the appeal process.

The researcher met with the teachers invited to complete the survey and explained the nature of the study. Following the meeting, the teachers were emailed a link to the survey. The email body consisted of a summary of the study, its focus on the three course areas of Biology, Geometry, and English 9, the title of the study, the purpose of the study, and the specific interest in their perceptions of the current course recommendation and placement process. It also served as their invitation to complete the survey as well as provided the notice of consent for participation. It was made clear that clicking the link to complete the survey would serve as their indication of consent for their responses to be included in the study. It notified the teachers that the survey was ostensibly anonymous, but there was still a risk that individuals could be identified by triangulation with the titles and grades of the courses they taught. The survey invitation email was sent to twenty-one teachers including the nine middle school teachers who taught the feeder courses for Biology, Geometry, and English 9 and the eleven high school teachers who teach those courses. They were informed that the survey would take about 5 minutes to complete and that their participation was entirely voluntary. They were also informed this

study had been approved by the California University of Pennsylvania Institutional Review Board. Nine middle school teachers responded and 11 high school teachers responded.

This data offers a window into two populations of students, those who were recommended for rigorous course placement and those who were not. This data provides a comparison on multiple facets of student performance including final grades in the classes as well as quarterly grades throughout the following school year. The data from the past four years of 18-19, 19-20, 20-21, and 21-22 was available to the researcher. Regarding confidentiality, all student data had the identifiers removed following appropriate IRB and FERPA guidelines.

Validity

This study was intended to assist the Peters Township School District examine the effectiveness of its current course recommendation and placement process in terms of whether or not it was placing giving students the most opportunities to fulfill their potential in taking and being successful in rigorous classes. Multiple steps were included in this research study to maintain the validity of the research. The quantitative student data pertaining to student final grades was garnered from the District's student information system, Powerschool. The list of students who appeal their teacher's course recommendations was retained by the school counselors for the years 18-19, 19-20, and 20-21. That is not data that is always retained but was available for those three cohorts which enabled them to be included in this study. All student data sets had individual student identifiers removed to maintain confidentiality and diminish opportunities for bias to interfere with the research. The comparison of the performance of the students who appealed their teacher's recommendation to the performance of students who were

recommended for the courses was intended to offer validity to the current recommendation and placement process's continuance or for it to be changed. The teacher perceptions were garnered for the same purpose, to see if teachers were in favor of the current process and to identify the reasons to support their input and opinions. Efforts were made to omit identifying information for the teachers who completed the survey to maintain confidentiality and diminish opportunities for bias to interfere with interpretation of the data. The study was layered with these multiple data sources to offer greater validity to any conclusions drawn regarding the course recommendation and placement process.

External threats to the validity of the study include population validity and ecological validity. In terms of the population, this study includes three different cohorts of students and examines the numbers of students recommended for honors classes, not recommended for honors classes, and those who were not recommended but appealed and were given the opportunity to take honors classes. Though trends are seen in the percentages of student grade outcomes in each group, there are three distinct groups of students. This prevents the researcher from assuming any prediction trends from year to year as there are entirely distinct groups of students from one year to the next who possess unique strengths, weaknesses, and experiences that play a part in their final grade outcomes. The ecological impact is the unmeasured but undeniable impact of the Covid-19 pandemic. The Covid-19 pandemic altered the way students engaged with school and their teachers, especially in the 19-20 school year when all students were remote and learning apart from their peers and teachers. This further separates the three cohorts of

students and creates uncertainty in any trends observed between the course final grade outcomes.

Additionally, the Likert scale survey questions were based on opinions measured at a specific point in time. There is a chance that if the same teachers were given the same survey again, their responses may shift from their original responses due to timing, affect, and other environmental external factors that are immeasurable. Considering this, the researcher focused primarily on the aggregate of the responses of the group of teachers to better represent the opinions of the whole rather than focus on individual opinions.

Summary

The intention of this study was to determine if the present recommendation and course placement process at the transition from middle school to high school is in line with the Peters Township School District's mission and vision in providing its students with the most opportunities to grow and excel. Students should be placed in courses that provide them the appropriate rigor and opportunity for academic growth. The placement process a school district employs should avoid putting students into course levels that stifle growth. This study's primary purpose is to help the District determine if its course placement process is doing just that. Presentation of the results of this study will help teachers and administrators in the District to determine whether or not to continue or modify its current processes.

This chapter described and provided the rationale for the mixed-methods approach employed in this study. This chapter also provided a thorough description of the Peters Township community and school district of the same name as well as of the researcher who conducted the study. The research questions provided a guide for which

data to seek. The review of literature provided the researcher the direction and specificity of how to gather and examine that data. Through the fall of 2021, the quantitative student data was identified and captured from the 18-19, 19-20, and 20-21 school years. The quantitative and qualitative teacher perception data was gathered using Google Forms in November and December of 2021. The purpose and rationale of the study was also presented to connect the data to a genuine desire to help students increase the belief in themselves and their opportunities to gain experience and respond to rigorous coursework. The validity and efforts made to present unbiased data were presented and justified. Chapter 4 will provide the specific data and meaning will be derived from its analysis. Through the presentation of the data, the District's current process of recommending and placing students in courses at the transition from middle school to high school will be examined. Ultimately the District will have more insight into whether or not the current recommendation and course placement process supports its mission and vision to its students' fullest potential.

Chapter 4

Data Analysis and Results

This chapter includes an analysis of the data gathered in response to the three driving research questions. In this chapter, the data pertaining to each question will be presented in light of how it was determined, garnered, and viewed in response to the research question. The data pertaining to each question will be presented with discussion pertaining to its meaning. The data sets associated with the student performance data were collected from the three-year cohorts from the 18-19, 19-20, and 20-21 school years and consist of quantitative data. These sets consist of final grade data for the students who received a recommendation to take an honors course as well as those students who appealed to do so. They also include data pertaining to their course path trajectories in subsequent years of tenth and eleventh grades. Data gathered in response to the third research question encompasses qualitative and quantitative data gathered from teacher surveys collected in the fall of 2021 via survey questions meant to capture teacher perceptions. The eighth and ninth-grade teachers who either teach or recommend for the ninth-grade courses were issued survey questions pertaining to their perceptions of the current course recommendation and placement process. This survey was a mixed-methods approach including quantitative and qualitative data including open-ended response questions. They were asked to complete Likert scale responses indicating their level of agreement with certain statements pertaining to opinions of the current course recommendation and placement process. They were asked to indicate their level of agreement with statements pertaining to their beliefs about the role of grades in the process, their perceptions of student ability, and their perceptions of their ability to teach

certain groups of students. They were also given open-ended opportunities to put forth their ideas about the elements of an ideal course placement process.

Each data set will be presented and analyzed to examine the current course recommendation and placement process for the transition from eighth-grade to ninth-grade in the Peters Township School District. In doing so, this chapter will provide an analysis of the current course recommendation and placement process in terms of how it impacts students and is perceived by teachers. This analysis will help to evaluate the level to which it is aligned with the District's mission and vision and where it can be improved upon or modified. Prior to this study, the effectiveness of the current process was based on the assumption that teacher recommendations were the most effective way to determine course placements for students to maximize their potential learning outcomes. The data analysis included in this chapter will present the outcomes of the current recommendation and placement process. To the knowledge of the current teachers and administrators, this placement process has never been scrutinized in the manner intended by this study. This chapter will establish a foundation upon which the fifth chapter will present recommendations for the implementation of procedural changes to the current system of course recommendations and placement.

For the purpose of clarity and context, the majority of the quantitative data considered by this study centers on student final course grades. While there are arguments that final course grades are not the only indicators of student success and growth, they are the most universally understood and readily available indicators of successful course completion. Final grades are also the main reason students are further recommended for future courses. They are also the primary element included on student

high school transcripts. A Peters Township School District transcript includes course title and final letter grade. This is eventually a primary element considered in the college admission process which leads to further post-secondary opportunities for students. The final letter grades are the determining factor in future course placement, student evaluation, and future trajectory. Therefore, this study equated final grades with the student outcomes. For the purposes of this study, final grades of A's and B's were equated with successful student performance in each course. Table 3 shows the range of percentages that equate to each letter grade in the District. Final grades are assigned based on a formula that combines the four final quarter grades with the final exam grade. See Appendix F for the specific grading formula that determines the final course grade.

Table 3

Letter Grading Scale at Peters Township High School

	A	*B*	*C*	*D*	*F*
Percentage Range	100%-90%	89%-80%	79%-70%	69%-60%	59%-0%

Data Analysis

Every roster in each of the ninth-grade core classes at Peters Township High School consists of students who were either recommended for the course or appealed their prior teacher's recommendation to get into the course. To determine the effectiveness of the teacher recommendation and course placement process it was necessary to compare how each of these two groups of students perform in their classes in comparison to one another. The final grade data was gathered for the three most commonly appealed course subject areas: Geometry, Biology, and English 9. The data for the three most recent cohorts of students who have moved through the District was available to the researcher as the high school counseling office retained the lists of course

appeals for the graduation cohorts of 18-19, 19-20, and 20-21. The first research question focused on the students who were recommended to take those courses in those years. The group of students who appealed their recommendation will be presented in the analysis of the second research question. This was the most salient way to evaluate the present course recommendation process since it most directly relates to the title and purpose of this study. The rest of the data analysis in this study provides context for the scope of the conclusions drawn from whether the teacher recommendations are accurate predictors of student success.

The student course enrollment and final grade data was retrieved from Powerschool, the student information system employed by the District. A report was generated from Powerschool that pulled the occurrence of final grades (A, B, C, D, and F) for Biology Honors, Biology Academic, Physical Science Academic, Geometry Honors, Geometry Academic, English 9 Honors, and English 9 Academic in the three years included in the study. All of these courses were included in this report as they represent the honors courses students most commonly appeal to take as well as the academic level courses taken if their appeal is rejected or they do not receive a recommendation.

The list of student appeals is compiled by the high school counseling office following the teachers issuing their recommendations for students' courses during the scheduling season each February. The appeal process is a subjective one and is a large part of this study. To answer the second research question and to add clarity to an otherwise subjective process, the data was gathered for the students who filed an appeal in the three years of this study. This data included all the students who appealed with

their personal identifiers removed to satisfy the IRB requirements for this study. It also included the course requested, whether or not the appeal was granted, the final grade outcome in the course they were placed in as a result of their appeal decision, and the trajectory of courses they took in subsequent years. The column headings for this data is included in Appendix B.

Students placed in lower rigor course levels are likely to remain in courses of a similar level for the remainder of high school. This trend is the same for students who take higher rigor courses early in high school; they are likely to remain in that level throughout their high school years. Students are also more likely to drop down a level in subsequent years than to advance up a level (Bernhardt, 2014). This phenomenon is due to the impacts these level placements have on student self-perception and on student performance outcomes. Students placed in lower-level courses tend to perceive themselves as lower-ability students and typically perform as such. This then causes them to remain in lower-level course tracks in subsequent years due to falling short of prerequisite final grades (Legette, 2018). This was a trend this study sought to identify in the current course placement process at the Peters Township School District. Data on subsequent year course tracking was gathered for each of the students whose appeal had been granted. The tracking data for subsequent year course enrollment in this study paralleled the findings from prior research studies; namely the level of course placement for students in ninth-grade had long-term effects on their course level trajectories throughout their subsequent high school years. Students tended to remain in the course level track in which they were placed in ninth-grade. When there was movement between levels each year, most of it was downward to a lower-level course.

In order to answer the third research question pertaining to teacher perceptions of the role of teacher recommendations in student course selection, survey questions were given to teachers of the eighth-grade courses who issue recommendations that guide student course selection in the following course in their content area. They taught either English, Algebra 1, or Science courses at the eighth-grade level in the Peters Township Middle School. Surveys were also provided to the teachers of the most commonly-appealed ninth-grade courses included in this study, Geometry Honors, Biology Academic, Biology Honors, and English 9 Honors. These two groups of teachers together represented those who recommended students for these courses and taught them. The surveys given to them used a mixed-methods approach of four-part Likert scale responses and open-ended responses. The four-part Likert scale questions provided a statement with which they would select their level of agreement. They had the option of selecting "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree" as one of the four options for each Likert scale survey question. The open-ended questions asked for their ideal course placement process as well as the traits they thought best exemplified an honors student.

Results

In response to the first research question, data was gathered to show how students typically do in the courses included in this study. Since most students take the courses they were recommended to take, the data for the whole of the student population in each course was garnered to identify their typical final grade outcomes. This allows this study to compare the results for the students who appealed to take an honors course to the general population of students who took the courses they were recommended for. The

number of students in each of the courses and the percentages of each letter grade earned in that year in that course is included in Appendix H. Table 4 shows the aggregate of these final grade occurrences by course combining the three years together. The data shown in these figures represents the final outcomes and enrollments overall which provides data to respond to the first research question.

In Table 4, the final grade outcomes are shown averaged across the three years included in the study. For the purpose of this study, a final grade of an A or B is considered successful. Students falling short of a final grade of B are typically relegated to the academic level course the following school year. Inversely, the final grades of D and F are considered unsuccessful outcomes for the purposes of this study. An F is a failing grade and students do not receive credit for a grade of F resulting typically in students having to take the course over again or earning the credit through some type of approved outside credit recovery. A final grade of a C was not considered to indicate success but was also not included in the data for a student being considered unsuccessful. Therefore, it was not included in this study. A final grade of D is also considered to be an unsuccessful grade for the purposes of this study. This is due to its proximity to a failing grade, it's impact on a student's GPA, and how a final grade of D on a transcript is perceived by college admission boards.

Table 4 shows the average outcomes based on final grades. This table was selected for this study as it demonstrates a divergent set of likely outcomes based on which course level a student is placed in. This data set provides a juxtaposition of outcomes between honors and academic classes.

Table 4

Average Occurrence of Final Grades for Honors and Academic Courses

Combined 3 Year Cohorts	*Students Earning A or B*	*Students Earning D or F*
Honors Courses	**91%**	**1%**
English	98%	0%
Geometry	88%	1%
Biology	87%	2%
Academic Courses	**69%**	**10%**
English	78%	6%
Geometry	75%	7%
Biology	62%	10%
Phys Science	55%	17%

Most students in honors classes over the course of the three years included in this study earned successful grades whereas students in academic level classes did not experience the same occurrence of successful grades. In honors classes 91% of students earn successful grades of an A or B while only 69% of their peers in academic level classes earn successful grades. On the other side of the data, 1% of students in honors classes and 10% of students in academic level courses earn unsuccessful final grades. Overall there were higher rates of students achieving successful grades of an A or B in honors class than in academic classes. Students in honors classes had less occurrences of unsuccessful grades of a D or F.

In an examination of the different courses students take in ninth-grade, there were different occurrences observed in the percentages of students earning successful grades. More students in the honors courses in each content area earned successful grades than their peers in academic level courses. This was true for all three content areas examined in this study. Table 5 shows between 87% and 91% of the students in the honors courses in each content area earned an A or B. More parity between student outcomes was observed over the three cohorts included in this study especially in the science courses of

Biology Academic and Physical Science Academic. Physical Science shows the lowest occurrence of student success with only 57% of students in that course earning successful grades. It also had the highest occurrence of unsuccessful grades. English 9 Honors shows the highest percentage of students earning successful grades with 98% of students placed in English 9 Honors earning the final grade of an A or B and 0% earning a D or F. Not one student over the course of three years out of the 482 students observed earned a final grade of a D or F in English 9 Honors. Students placed in this course experience success at a higher occurrence than any other course in the three years of cohort data included in this study.

Table 5 shows the enrollments in the honors courses from the 17-18 school year through the 20-21 school year. The figure shows the changing enrollment from year to year and whether or not that enrollment is rising or falling. In examining these trends across these years, it identifies the years and courses when students are requesting honors classes. For the purposes of simplicity, only the course with the highest rigor was depicted in the figure. The colors of the boxes represent cohorts of students. If you follow the green cohort across and down the chart, you see the fluctuation in that cohort's enrollment in the sequence of honors courses in English, Math, and Science from year to year. Looking at this enrollment data by cohort allows like to be compared to like. Overall numbers of students in a given cohort can fluctuate year to year with students coming and going through transfers in and out of the school district. However, in Peters Township, these transfers are relatively few. As a result of this consistent enrollment, cohorts remain very similar in size from year to year. The purpose in looking at this enrollment data is to get a sense of the common trajectory of students in the honors

tracks. This will allow a later comparison to the trajectories of students who appeal their courses.

Table 5

Trends in Honors Course Enrollment Trajectories

School Year		17-18	18-19	19-20	20-21
English Honors Track					
	English 9 Honors	173	206	144	
	English 10 Honors	202	213 (+40)	237 (+31)	168 (+24)
	AP Eng Language		168 (-34)	202 (-11)	194 (-43)
Math Honors Track					
	Geometry Honors	160	155	105	
	Algebra 2 Honors	157	130 (-30)	167 (+12)	104 (-1)
	PreCalc Honors		144 (-13)	121 (-9)	145 (-22)
Science Honors Track					
	Biology Honors	189	155	96	
	Chemistry Honors	208	183 (-6)	175 (+20)	105 (+9)
	AP Physics 1		107 (-101)	102 (-81)	103 (-72)

*(+): Enrollment increased, (-): Enrollment decreased

In the English department there is an observed trend in Table 5 that shows a consistent increase in students enrolling in English Honors 10 each year. More students choose to take English 10 Honors than the amount that took English 9 Honors each previous year. In eleventh grade, students can choose to take English 11 Honors or English 11 Academic in addition to the AP English Language and Composition course. This helps to explain the consistent decrease from tenth grade to eleventh grade as the higher rigor course population is divided between Honors and AP levels.

As seen in Table 5, each year, the enrollments in each honors level math course typically decrease as students leave the honors math track for the academic math track. This coincides with the increase in the complexity and rigor of the math curriculum itself as students progress from Geometry to Algebra 2 and on to PreCalculus. While there was a growth in the honors track from Geometry to Algebra 2 between the 18-19 and 19-20

school years, the rest of the chart indicates a trend showing the declining enrollment in honors classes from year to year in the honors level math courses.

In science courses, enrollment tends to grow slightly each year in from Biology Honors to Chemistry Honors but drops precipitously from Chemistry Honors to AP Physics 1. This occurs as students meet success in Biology Academic and opt to move up to the Honors track the following year in Chemistry. Whenever an AP course is offered as the highest level, there are some students who do not feel ready to take that AP course and instead take the lower leveled course offering. In the case of AP Physics 1, students who were in Chemistry Honors the prior year have more options of courses they can take, namely, Physics Academic, AP Environmental Science, or Geoscience. This explains the decrease in the top honors track in science after Chemistry Honors. Similar to the trend in English, more tenth-grade students enroll in the honors level track after Biology. Like the analysis of that similar trend in English, it could signal that more students should have been in Honors Biology, or it could mean that Biology Academic grew the confidence and skill set of their students to achieve higher final grades to meet the prerequisites for Chemistry Honors. Likewise, further research would have to be conducted to truly identify which phenomenon was the case.

As seen in Figure 1, the number of appeals received between the 18-19 school year and the 20-21 school year was between thirty-four and sixty appeals each year depending on the year. Of the appeals received the majority are granted. As seen in Table 6 the average number of appeals that were granted was different each year. The average appeal approval rate across the three years in this study showed 63% of appeals were approved and 37% of appeals were denied. Having been in each of these appeal review

sessions, the researcher anecdotally identified that the high school principals and counselors typically looked favorably at the requests and had tendency to grant the appeals. In most cases, students were close or just shy of the pre-requisite grades and scores to receive the teacher's recommendation which made the team favorable to granting the student's request. Most of the appeals that were denied were due to a perception that the student was too far from meeting the pre-requisites in terms of indicated ability based on standardized testing and prior grade performance. In those cases, the principals and counselors were worried the student would not be successful in the higher-level course and thought in the best interest of the student to deny the request. Once a student's appeal was ruled upon, their parents were notified by the high school counselor of the outcome. If the appeal was granted, the student's schedule was adjusted to reflect the approved higher course for the coming school year.

Figure 1

Total Appeals by Academic Year

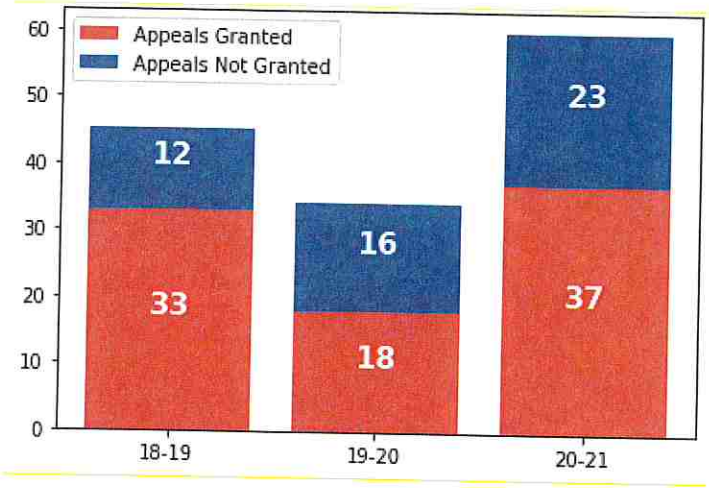


Table 6

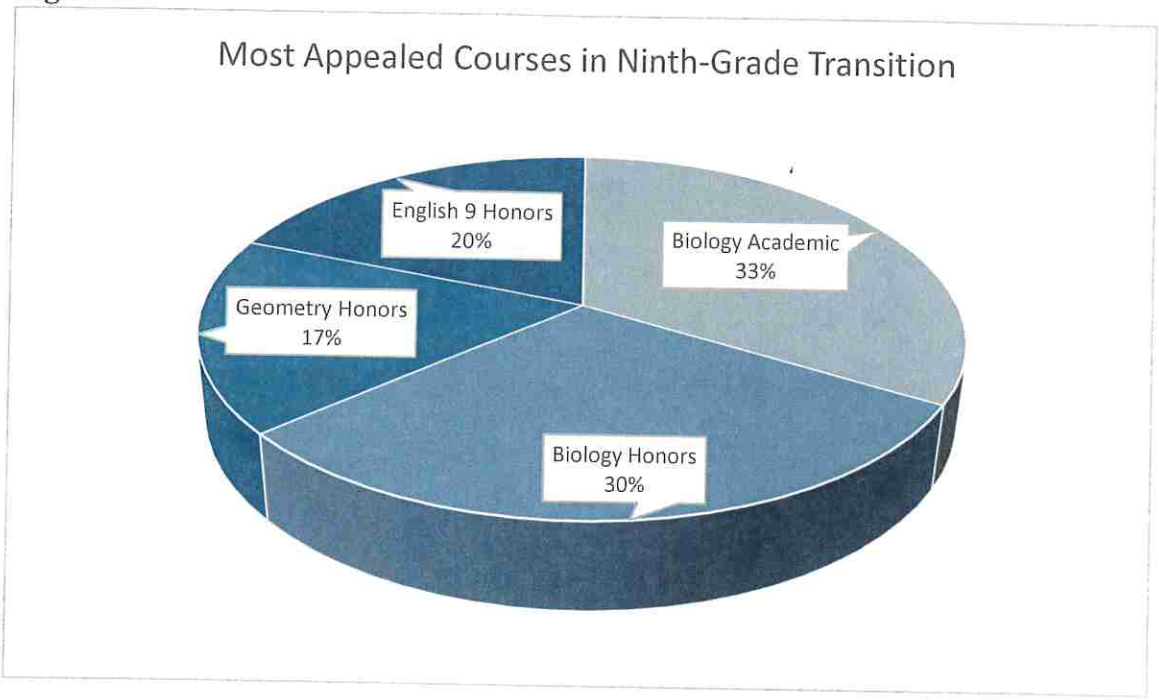
Percentage of Total Appeals Granted Each Year

Academic Year	Percentage of Appeals Granted
18-19	73%
19-20	53%
20-21	62%

Figure 2 shows the quantities of appeals broken down by course title. Over the three years in the study Biology Academic was the most frequently requested course appeal followed by Biology Honors. Figure 2 shows the percentages of appeals requested for each course. Both Figure 2 and Figure 3 are averages including all three years included in the study. While Biology Honors and Biology Academic have received the most appeals by students, English 9 and Geometry Honors appeals have been granted more frequently. About 70% of Geometry Honors and 74% of English Honors appeals have been granted while 67% of Biology Honors and 50% of Biology Academic have been granted. One possible explanation for this trend is the role their concurrent placement in math and science. Typically, science and math courses follow coinciding pathways. This is due to the use of Algebra 2 style equations in Chemistry lab work. High school counselors typically advise students to take Chemistry when they are simultaneously enrolled in Algebra 2 so as to have the exposure to the math used in both courses. However, this is an area that may require further examination. This is a phenomenon that has been perpetuated by the Chemistry teachers and has not been validated beyond anecdotal perceptions. Nonetheless, this has had an influence on the decisions made during the appeal review sessions. Students who are taking Algebra 1 in ninth-grade are often thought to be at a disadvantage if they were simultaneously enrolled in Biology as that would yield them being in Chemistry and Geometry simultaneously the

following year. Those students are often placed in Physical Science and if they appealed to get into Biology, it is often denied as a result. Again, this is a trend worth exploring further in a later study as it is one reason why appeals for Biology are denied.

Figure 2



Standardized testing is also a factor that influences the decisions made on appeals of course placement. Algebra 1 is a course that concludes with a Keystone Exam, which is a requirement for students to take and pass as part of their graduation requirements in Pennsylvania to fulfill Federal assessment accountability requirements. In Peters Township, students most commonly take Algebra 1 in eighth-grade. If they earn a proficient score on the Keystone Algebra Exam, they are permitted to move on to Geometry in ninth-grade. Those who are earn a score below proficient are required to repeat Algebra 1 in ninth-grade. This affects whether or not students are able to take Geometry. Appeals for Geometry when a student scored below proficient on the Keystone Algebra Exam are typically denied though there are some cases when students

are granted permission to simultaneously take Geometry along with Algebra 1 if the high school team of counselors and administrators are confident they have the ability based on grades and prior standardized assessment scores which are often their prior PSSA scores in prior years.

A second way standardized testing influences the appeal review process is that the team of high school counselors and administrators know Biology is a course that leads to the Keystone Biology Exam. They have a vested interest in ensuring students are in the best position to gain proficiency on the Keystone Biology Exam since it too is a requirement for graduation in Pennsylvania. This causes the appeal review team to take pause when considering an appeal for Biology Academic or Biology Honors. This and the congruence with math course placement is shown in Figure 3 and helps to explain why more student appeals are denied for Biology courses. Half of the appeals for Biology Academic were denied over the course of the three years included in this study. The students whose appeal was denied were relegated to the Physical Science course.

Figure 3

Appeals by Courses

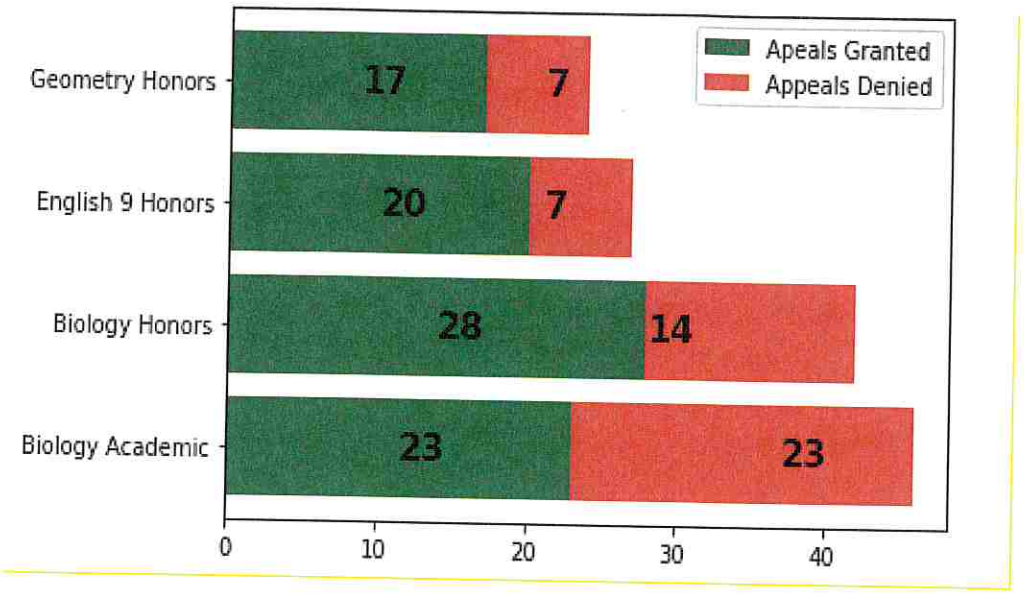


Table 7 presents the average occurrence of A's and B's as earned final grades in each course for both the appeal group and the recommended group of students across the three years of this study. The recommended group was identified by removing the occurrence of the appeal group grades from the whole group in each course. A student earning an A or B as their final grade would likely receive the recommendation to remain or advance into the next higher level of course the following year. Thus, for the purposes of this study, earning a final grade of an A or B is considered a marker of success for a student taking this course. This data is some of the most important data in this study as it most directly answers the first two research questions. The data included in Table 7 shows the occurrence of student success in both the recommended group and the group of students who appealed to get into the course. Ultimately, the occurrence of student success is the true evaluation of whether the current course recommendation and placement process is correctly leading students to the course levels in which they will meet the most success.

Table 7

Average Occurrence of A's and B's

Average A&B Percentages	Appeal Group	Recommended Group
Geometry Honors	46%	89%
English 9 Honors	96%	98%
Biology Honors	91%	87%
Biology Academic	92%	68%

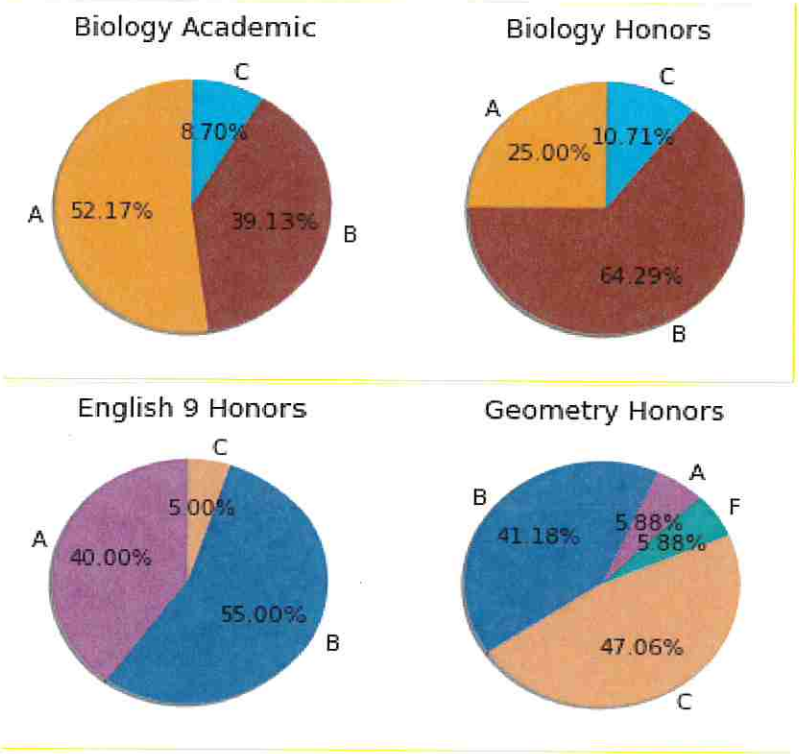
Table 7 shows a different occurrence of successful grades in English 9 Honors, Biology Honors, and Biology Academic than in Geometry Honors. Similar percentages of students in the appeal group earned successful grades as their peers that were recommended for the higher-level courses. In the science courses, students who appealed to take Biology Honors and Biology Academic actually had higher percentages of successful grades than their peers who were recommended for those courses. This data was not expected and when juxtaposed with the data from Figure 3 which shows that less Biology Honors and Biology Academic appeals are granted than those in Geometry shows a flaw in the current system. In the current system of course placement, the courses that get the least approved appeals are actually the courses with the highest occurrence of successful grades. This juxtaposition will be discussed further in the fifth chapter.

As seen in Table 7 students whose appeal was granted typically earn successful grades with the exception being the students taking Geometry Honors. As seen in Figure 4, one of the students whose appeal was granted to take Geometry Honors earned an A, 41.18% earn a B, and 47.06% earn a C. There was one occurrence of a student in the three years earning an F in Geometry. Overall, the appeal group does not meet with as much success as the recommended group in Geometry Honors even though more of their

appeals are granted. In English 9 Honors, students in both groups perform relatively the same in terms of final grade outcomes over the three years in the study.

Figure 4

Final Grades for Students Whose Appeal Was Granted



The data in Figure 5 shows the appeal group earned A's and B's more frequently than the recommended group. The blue line indicates the occurrence of A's and B's as final grades in Biology Honors, Biology Academic, Geometry Honors, and English 9 Honors for the students who were recommended to take those classes. The purple line represents the outcomes for students whose appeal was granted to take those courses. They have a higher occurrence of A's and B's in the first two of three cohorts included in this study and only fall short of the recommended group by one percentage point in the 20-21 cohort. In an analysis of the correlation between an appeal being granted and

successful final grade outcomes, those two points of data are highly correlative with a P value of 0.0006508576422942924. The lower the value of P, the higher the correlation between the two data points. When the occurrence of successful grades is considered by course, it is more often the case that the appeal group outperforms the recommended group. As shown in Figures 6, 7, and 8, this is the case for Biology Honors, Biology Academic, and English 9 Honors for the first two cohort years. As shown in Figure 6, only in Biology Academic does the appeal group have a higher occurrence of successful grades in all three cohorts. However, as has been previously discussed and as depicted in Figure 9, in all three cohort years in this study, the recommended group had a higher occurrence of successful final grades for Geometry Honors.

Figure 5

Comparison of Occurrence of A's and B's in Recommended and Appeal Groups

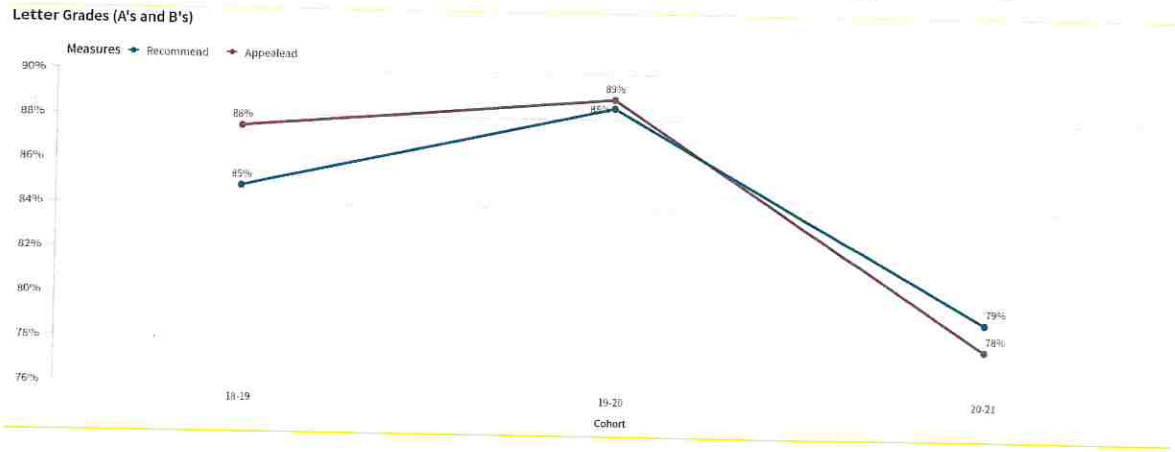


Figure 6

A's and B's in Recommended and Appeal Groups in Biology Academic

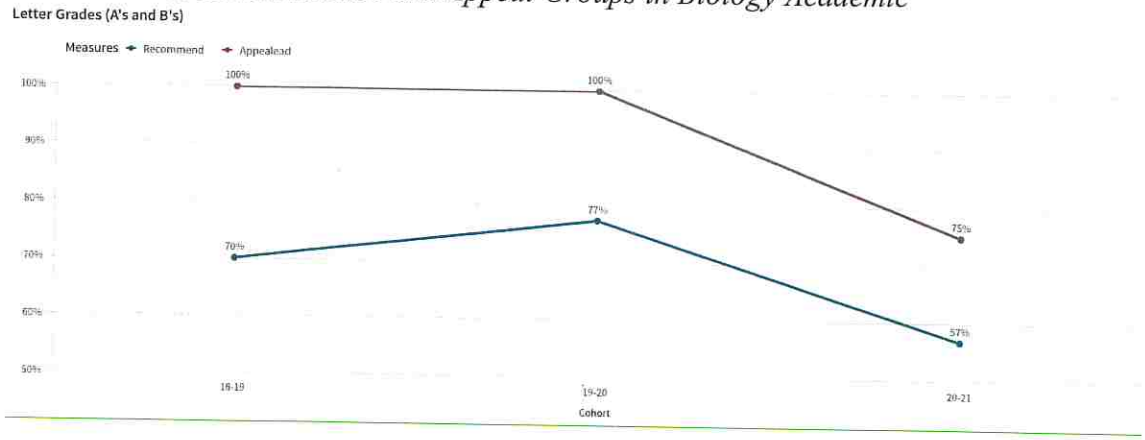


Figure 7

A's and B's in Recommended and Appeal Groups in Biology Honors

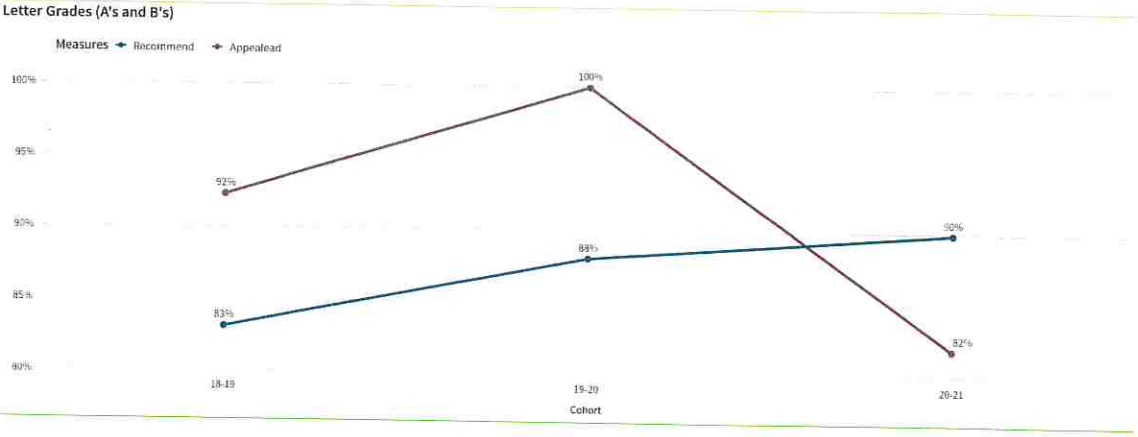


Figure 8

A's and B's in Recommended and Appeal Groups in English 9 Honors

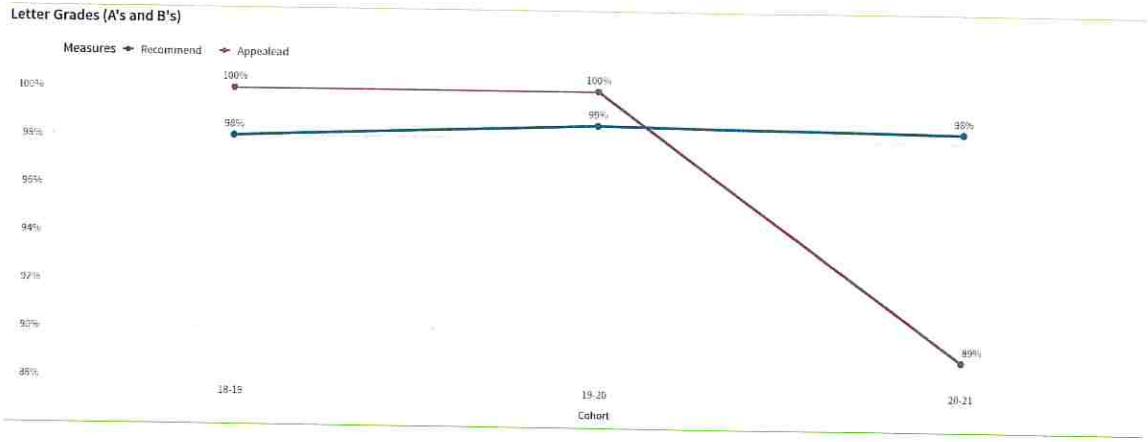


Figure 9

A's and B's in Recommended and Appeal Groups in Geometry Honors

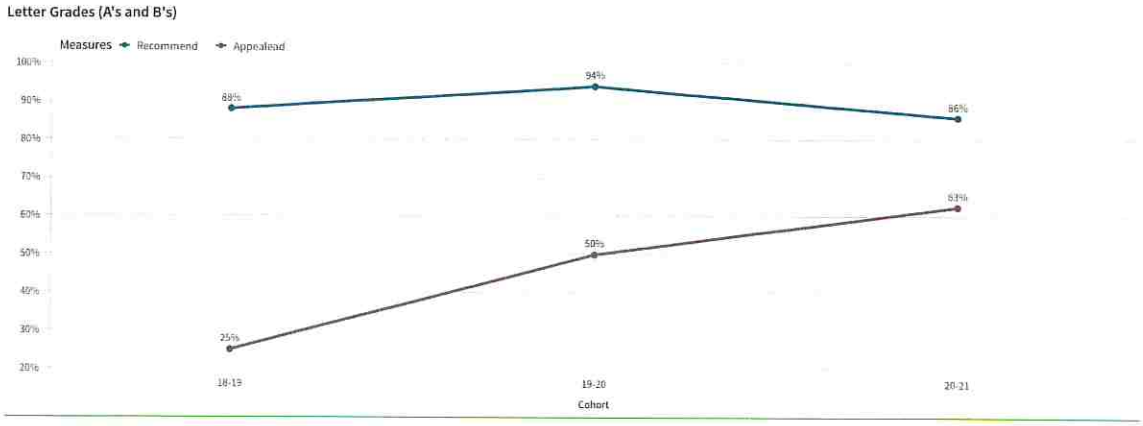


Table 8 shows the courses taken in the tenth-grade year following the course for which their appeal was granted. Of the students who appealed to get into Biology Academic, the majority stayed in the same track taking Chemistry Academic in tenth-grade. In science honors courses 80% of the students who took Biology Honors stayed in the same level track taking Chemistry Honors the following year. The same was true for students who appealed to take English 9 Honors with 85% staying in the same track level in tenth grade. However, the opposite was observed for the group of students whose appeal was granted to take Geometry Honors. In this group, 65% of the students did not remain in the honors track opting to take Algebra 2 Academic instead of Algebra 2 Honors the following year. This is consistent with the data that was revealed in data pertaining to final grades for the appeal group students. The students who took Geometry Honors after the granting of their appeal had lower occurrences of successful final grades. This would explain this lower tracking into Algebra 2 Honors since final grades are the primary determining factor for which level of course students take in subsequent years.

Table 8

Directional Tracking in 10th Grade Following Successful 9th Grade Appeal

9th Grade Course	*10th Grade Course*	*Tracking Direction*	*Percentage*
Biology Academic	Chemistry Academic	Same	70%
Biology Academic	Chemistry Honors	Up	30%
Biology Honors	Chemistry Academic	Down	14%
Biology Honors	Chemistry Honors	Same	86%
English 9 Honors	English 10 Academic	Down	15%
English 9 Honors	English 10 Honors	Same	85%
Geometry Honors	Algebra 2 Academic	Down	65%
Geometry Honors	Algebra 2 Honors	Same	35%

In Table 9, the data is presented that shows how students track in the two subsequent school years following the course they took in ninth-grade. This data was specifically gathered from the students whose appeal was granted. This data shows a long-term impact on the students who appealed their eighth-grade teacher's course recommendation. This data was gathered to further answer the second research question upon which this study is based. In the figure, the course they took in ninth-grade after their appeal was granted is listed and then the track they took in tenth and eleventh-grade is indicated by the words, "Up", "Down", or "Same". The appearance of "Up" in the figure means students advanced from an academic level to an honors level or from an honors level to an AP level. A student who tracked "Down" moved from the honors level of the class to the academic level the following year. The percentage of the appeal group

students who followed that path is listed under "Percent on Track." As an example, the first line of the figure shows 60% of the students tracked "Same+Same". These are students whose appeal to take Biology Academic was granted and remained in the academic pathway in both tenth and eleventh-grades in the following school years. That means that they took Chemistry Academic in tenth-grade and Physics Academic in eleventh-grade. Students who took Biology Honors did not have an opportunity to move up a track since their only option is to either remain at the honors level in Chemistry Honors or to drop down to Chemistry Academic.

Table 9

Tracking Likelihood Per Course

Appeal Granted 9th Grade	***Tracking in 10th + 11th Grades***	***Percent on Track***
Biology Academic	Same + Same	60%
Biology Academic	Same + Up	7%
Biology Academic	Up + Down	20%
Biology Academic	Up + Up	13%
Biology Honors	Down + Same	6%
Biology Honors	Down + Up	6%
Biology Honors	Same + Down	35%
Biology Honors	Same + Up	53%
English 9 Honors	Down + Same	9%
English 9 Honors	Same + Down	9%
English 9 Honors	Same + Same	18%
English 9 Honors	Same + Up	64%
Geometry Honors	Down + Same	62%
Geometry Honors	Down + Up	12%
Geometry Honors	Same + Down	25%

Opportunities for students to level up in eleventh-grade for each of the three subject areas included in the study are due to the availability of an AP course in that content area. There was a correlation in the data for the students whose appeal was granted and their tracking upward in their trajectory of honors level classes in subsequent years. The correlation was P = 0.0065328368015667064 for the data point of a granted appeal and a resultant upward track to an AP course in eleventh-grade. In eleventh-grade science, students have the option to take AP Physics 1. In English, eleventh-grade

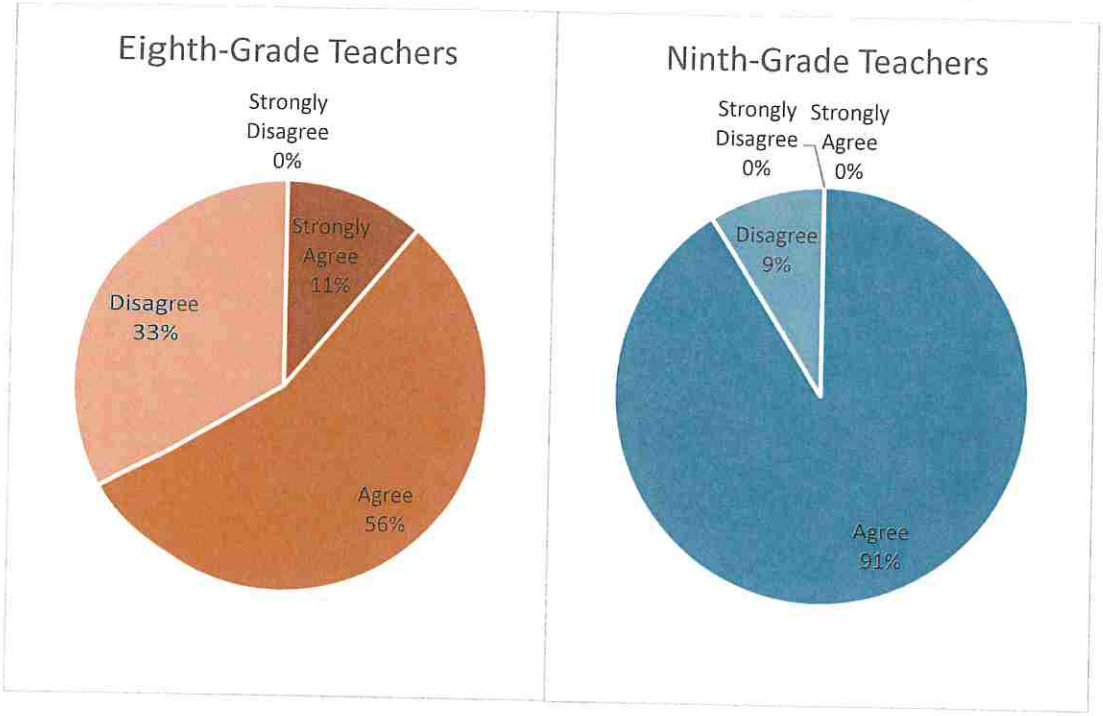
students have the option to take AP English Language. These advanced course offerings are typically only accessible to students coming from the honors level tracked classes. As is shown in Table 9, 33% of the students in Biology Academic move up to Chemistry Honors and 88% of students in Biology Honors stay or move up in both subsequent years. Of the students whose appeal was granted as they transitioned to ninth-grade to take English 9 Honors 91% stayed in the honors level for tenth-grade. 64% of those students leveled up in eleventh-grade taking AP English Language.

The teachers in the study were asked directly whether they thought the present system of recommending students for courses was appropriate. Figure 10 shows the responses. Interestingly there was a difference in perceptions based on the grade level the teachers taught. The ninth-grade teachers overwhelmingly agreed with the appropriateness of the current system while the eighth-grade teachers weren't so sure. While over 90% of the ninth-grade teachers agreed with the current system, one third of the eighth-grade teachers didn't agree with it.

Figure 10

Opinion On Present System of Recommendation and Placement

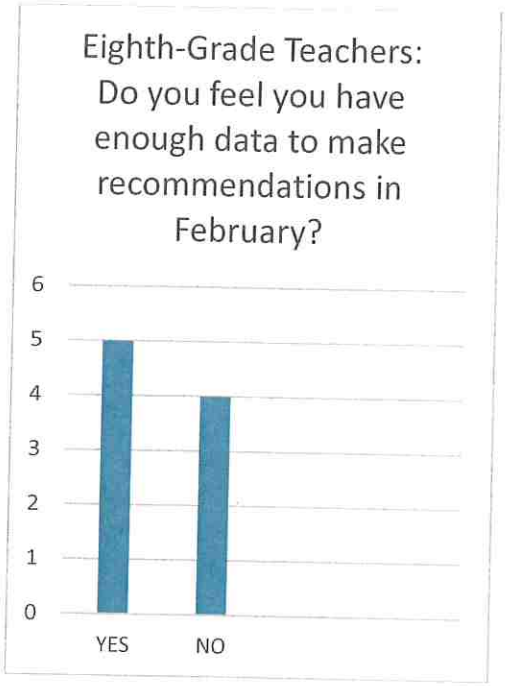
"I think the present system of recommending students for courses is appropriate."



The qualitative data gathered by the teacher survey shows there are mixed perceptions about the merits of the current process. As shown in Figure 11, multiple responses to the survey indicated a lack of faith in the current process. The eighth-grade teachers were asked whether they felt they had enough data by which to make a recommendation for their students in February, the month they are asked each year to make recommendations. Five out of nine eighth-grade teachers said they did not feel they had enough data to make accurate recommendations for their students.

Figure 11

Eighth-Grade Teacher Opinions on Quantity of Data Available



When asked about whether grades reflect ability, 22% of eighth-grade teachers and almost half of the ninth-grade teachers thought grades did not reflect ability as seen in Figure 12. This echoes the responses shown in Figure 11 showing a need for additional data to provide more accurate recommendations.

Figure 12

Opinions On Whether Grades Reflect Ability

"Grades reflect ability."

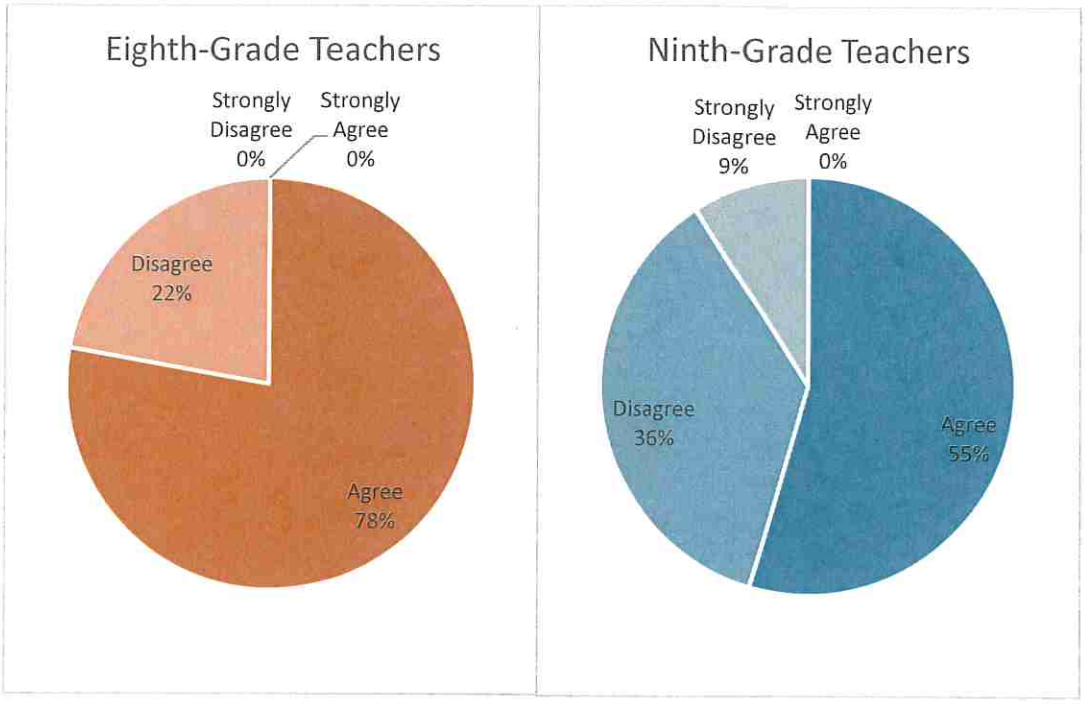


Figure 13 shows further conflicted opinions within the group of surveyed teachers that quarter one and two grades in eighth-grade courses should be the sole factor in whether to provide a recommendation to a student. This shows a need to provide additional criteria and data upon which placement decisions should be based.

Figure 13

Eighth-Grade Teacher Opinions on Impact of Q1 and Q2 Grades

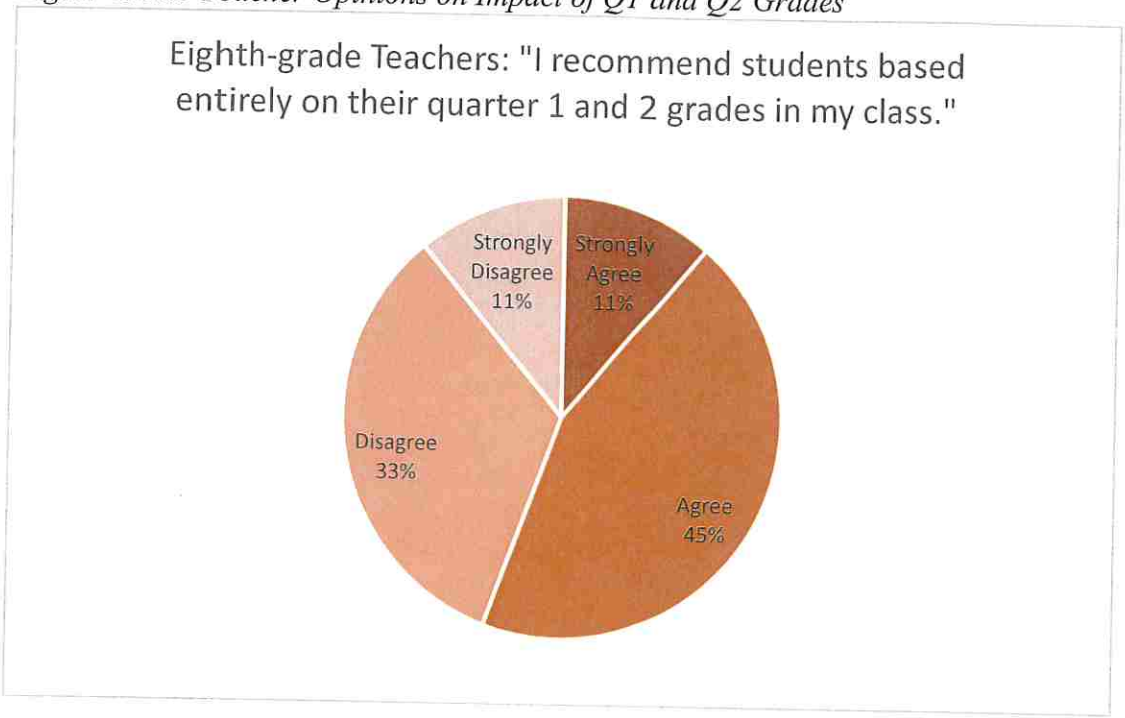


Figure 14 shows the eighth-grade teachers place value in student preference and are willing to give a recommendation if a student has expressed a desire to take the higher-level course. These responses seem conflicted between the growth and fixed mindsets pertaining to the use of grades. Figures 14 and 15 show the teachers are open to student preference and believe that grades should not be the only factor in making placement decisions.

Figure 14

Eighth-Grade Teacher Opinion on Student Interest

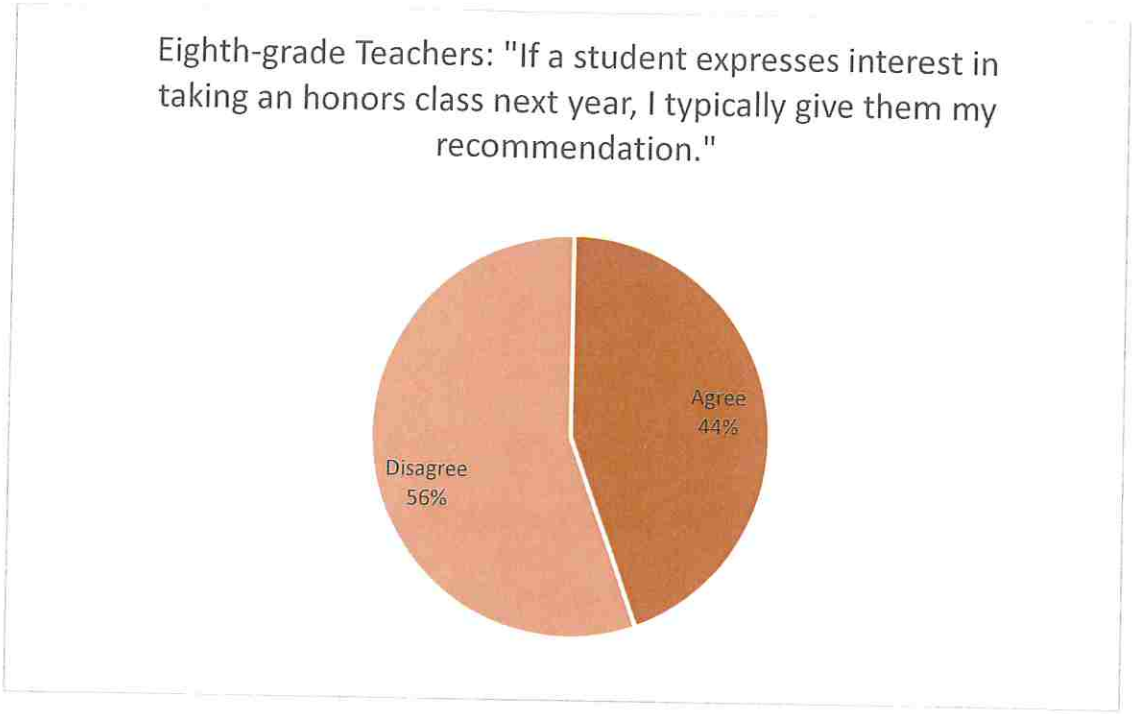


Figure 15

Eighth-Grade Teacher Opinions on Student Ability

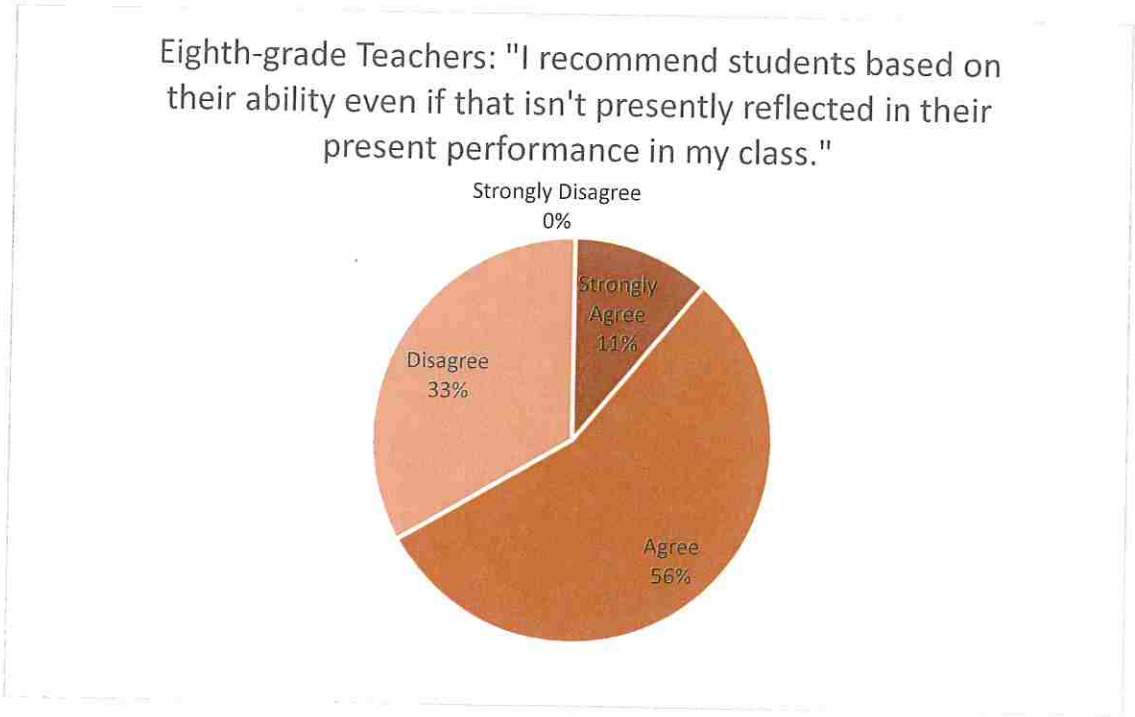
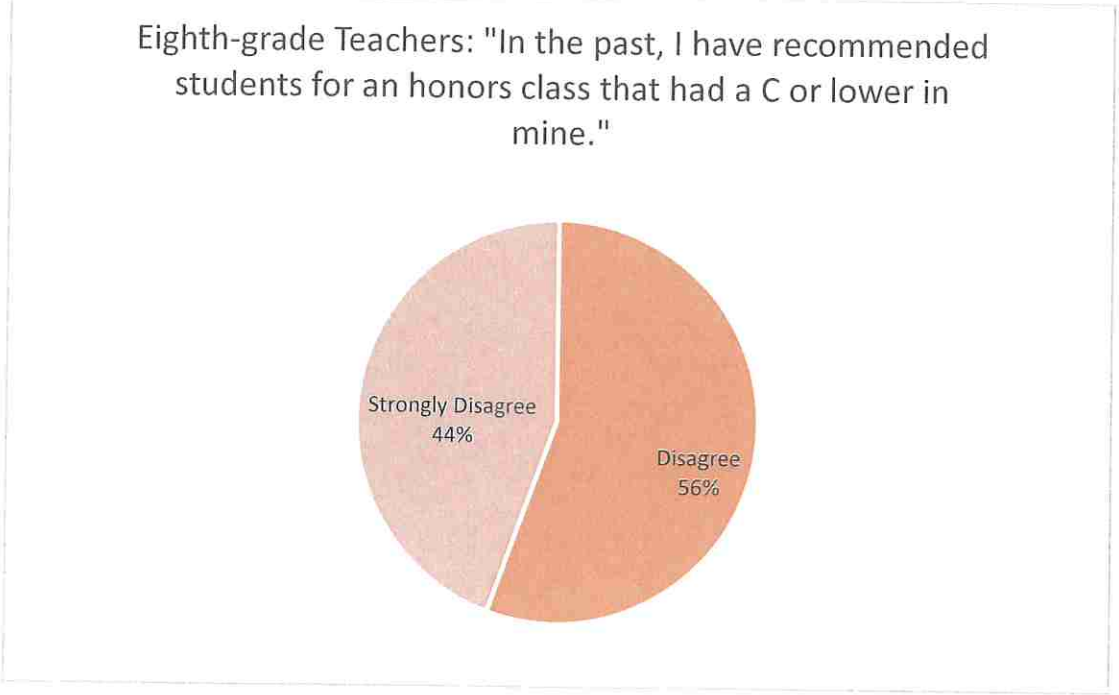


Figure 16 shows not one of the teachers would give a student with a grade of a C the recommendation to take an honors course the following year. In response to the third research question, these responses shown in Figures 15 and16 seem contradictory and are an example of a conflicted perspective from the teachers on the current course recommendation and placement system.

Figure 16

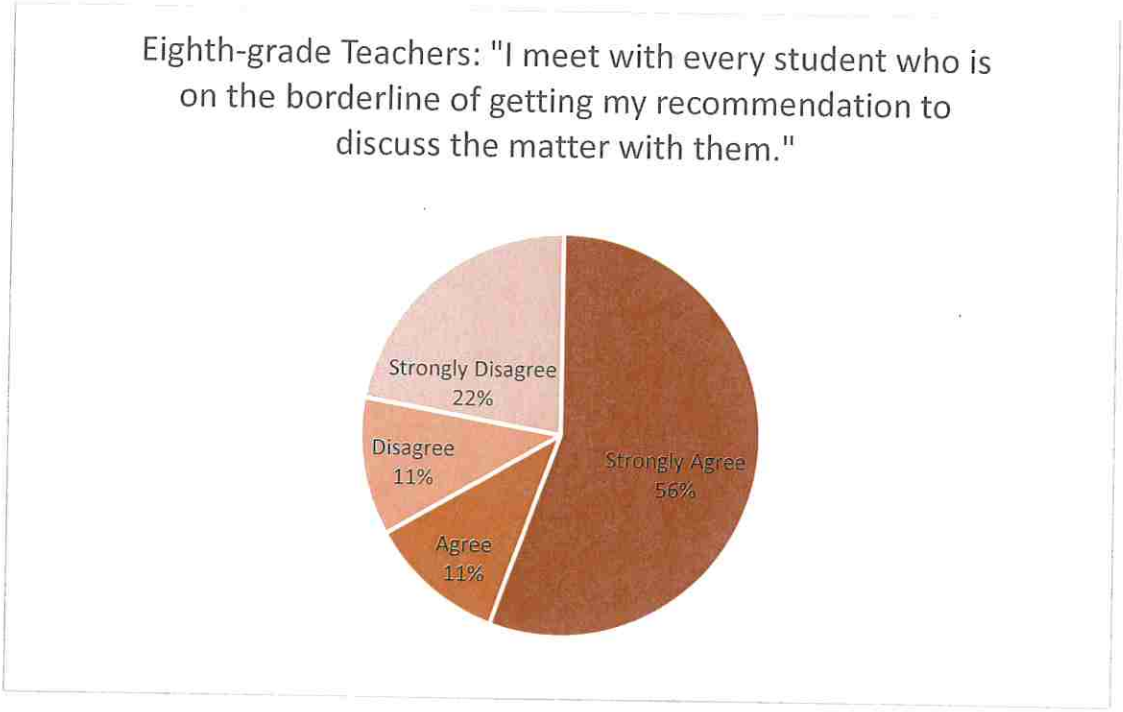
Eighth-Grade Teacher Opinions on Grade of C and Lower



Nearly half of the eighth-grade recommending teachers show a value in the role of student interest in receiving their recommendation. In Figure 17, this opinion in valuing student interest and communication is shown. Most eighth-grade teachers state that they meet with students to have some form of discussion prior to issuing their recommendation. This shows consideration beyond pure adherence to grades being the primary determinant for whether or not a student receives their recommendation.

Figure 17

Eighth-Grade Teacher Opinions on Meeting with Students to Recommend

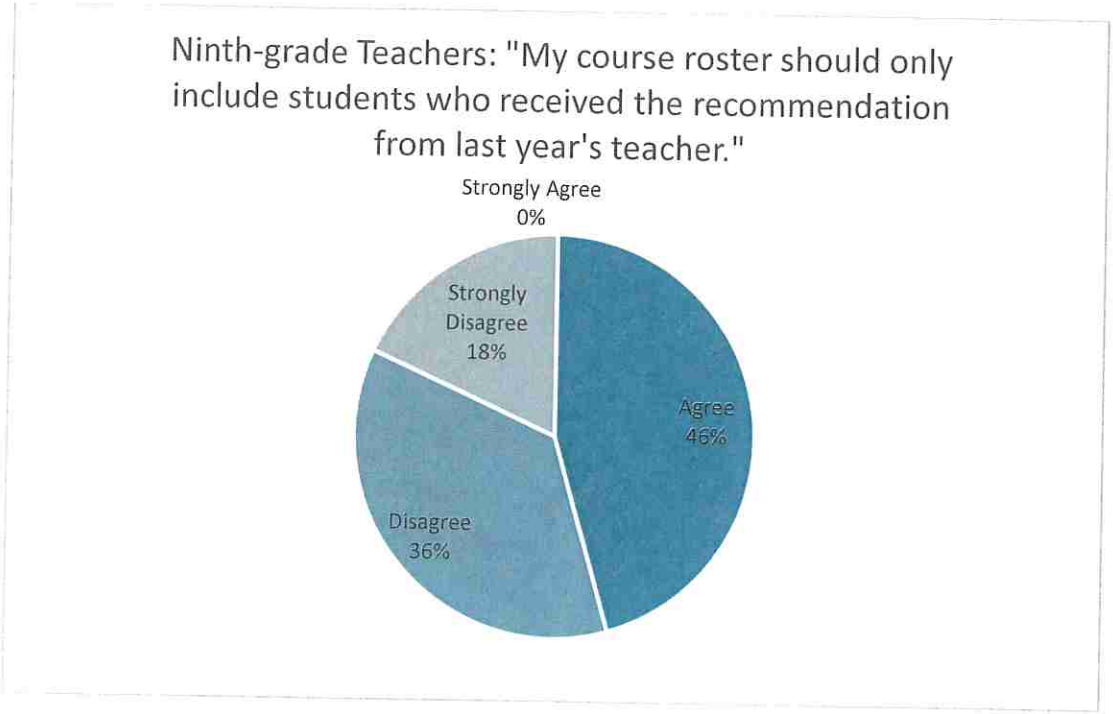


Continuing with the question of whether teachers think that student grades in quarters one and two of the eighth-grade feeder course should drive teacher recommendations, the responses included in Figure 12 show that the eighth-grade teachers have a stronger opinion on the matter. In eighth-grade, 78% of the teachers agree with the idea that grades reflect ability. This would indicate a reliance on issuing recommendations based on student grades which is currently the case in the present process. However, as shown in Figure 15, about half of the eighth-grade teachers indicate they have recommended students based on elements beyond grades like student preference or perceived ability. This data may indicate a struggle to identify a better way to identify who should get a recommendation and who shouldn't without the decision being primarily influenced by student grades.

In Figure 18, the ninth-grade teachers showed mixed feelings about eighth-grade teacher recommendations being the final determining factor for course placement in their classes. 54% of the ninth-grade teachers disagreed that the recommendations should determine who should be on their course rosters.

Figure 18

Ninth-Grade Teacher Opinions on Eighth-Grade Teacher Recommendations



In Figures 18-20, many of the ninth-grade teachers seem to be open to the idea of having more students gain access to their courses beyond those who received the recommendation as many seem to support students who have appealed to get into their classes. The ninth-grade teachers also show mixed perceptions of the students they have had in their classes historically. While most ninth-grade teachers seem to have the opinion that appealed students don't meet with the same success as the students recommended for their class shown in Figure 20, the majority of those same teachers

agree that they don't really know who those appeal students are each year. In other words, Figures 19 and 20, when considered together, show the presence of bias. They have opinions about the potential for success for certain groups of students without the data to support that opinion. The presence of the assumption that some students are not worthy of their honors level class and will not meet with success simply because they didn't have the prior teacher's recommendation which was based on two quarterly grades is evidence that the bias discovered in prior research studies is present and has some bearing on the perceptions teachers have in the Peters Township School District.

Figure 19

Ninth-Grade Teacher Perceptions of Outcomes of Appeal Students

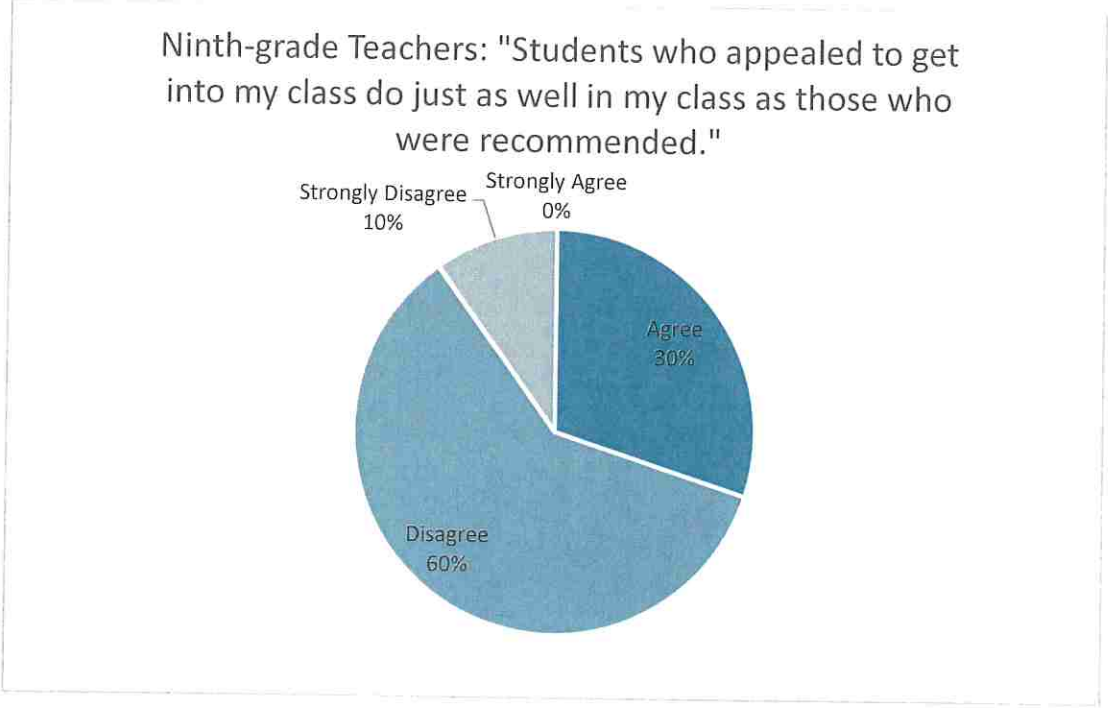
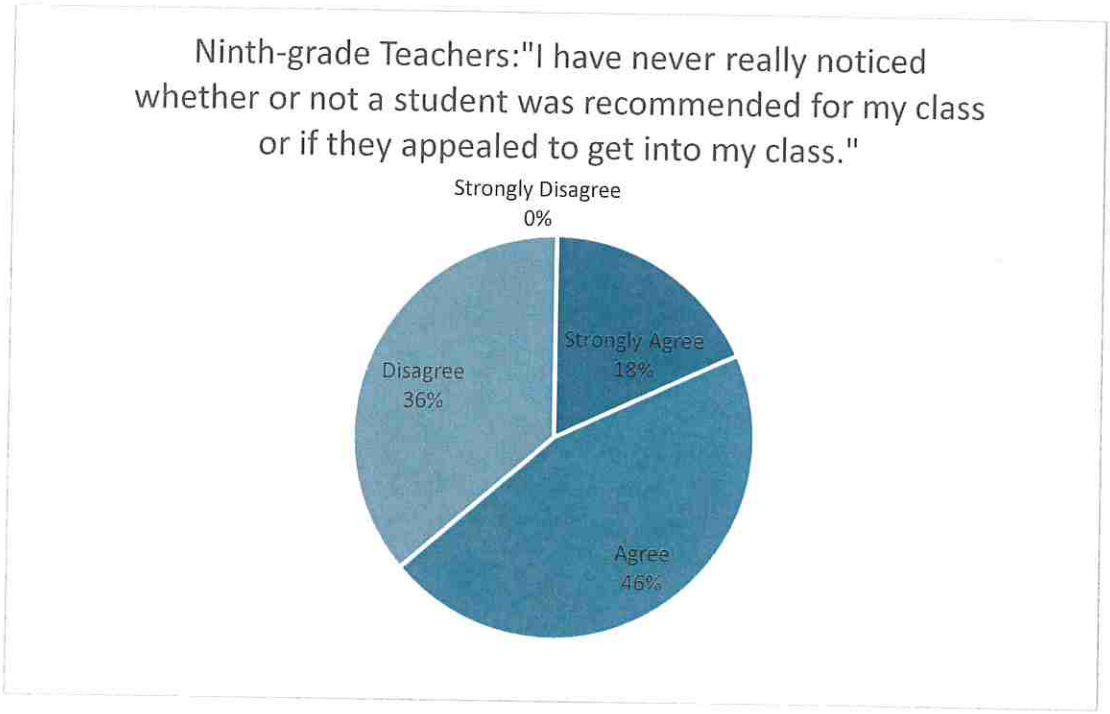


Figure 20

Ninth-Grade Teacher Awareness of Student Appeal Status



Using open-ended questions, qualitative responses were gathered from the teachers asking them to respond to questions with their ideas. The first open-ended question asked the teachers to list the skills a student needs in order to be successful in an honors level class. Their responses were aggregated into the following types of qualities. thirteen teachers identified the need for an honors student to demonstrate motivation and work ethic. Eleven teachers identified organization and time management as being needed skills. Eleven teachers also identified various academic skills pertinent to the subject area like reading ability and mathematic experience. Three teachers said the students needed an inherent interest in the content area. Only two teachers identified prior grades and assessment scores as a requisite for a student to be successful in an honors course. Based on these results, when asked what traits they thought were needed for

students to be successful in honors courses, teachers identified traits associated with student personalities and tendencies more than prior performance or grades. This is in contrast with the current process that leans primarily on teachers only recommending students who have achieved A's or B's in the prior class.

The second open ended question asked the teachers: *If you could design a process by which to help students choose the right level of course, what would it entail*? The teachers' responses were sorted into three categories of response. The categories were those that advocated for increasing student choice into the process, those that advocated for less student choice and more influence of teacher recommendations, and some other enhancement to the current system. The list of responses can be found in Appendix I.

Seven responses advocated for increased student choice and less reliance on teacher recommendations or other prior data. Seven responses advocated for decreased student choice and increased reliance on teacher recommendations or other prior data. Three responses opted for enhancement starting with the status quo. Many of the teacher responses advocated for additional information by which to make more informed decisions. Some cited the need for additional assessment data to frame the decision upon while others requested historical studies like this one be conducted to identify trajectory patterns. Those advocating for an increase in the use of student choice and a decreased reliance on teacher recommendations referenced the need for the students to be better informed in making their choices.

Discussion

1. How do students perform in rigorous courses their teachers recommended they take?

The rosters in honors ninth-grade courses each year are filled with students who received the recommendation from their eighth-grade teacher in that similar content area.

A small handful of the students on the honors course rosters submitted an appeal form to the committee of administrators and counselors to request access to honors classes in spite of not having their eighth-grade teacher's recommendation. Their appeal was granted and they were given permission to take the honors class. Quantitative data was gathered from Powerschool, the student information system employed by the District to identify the final grade data and subsequent course enrollment data for the most commonly appealed ninth-grade courses consisting of Geometry Honors, English 9 Honors, Biology Honors, and Biology Academic.

In the three-year cohorts included in this study, between 6% and 12% of each cohort have successfully appealed to get into an honors ninth-grade course. This study sought to investigate the process by which this occurs. To do so, the study compared the final grades and course trajectories of this small group of appeal students to the majority group of students who were recommended for these honors classes. The first research question drove the acquisition and analysis of enrollment and final grade outcome data associated with the students who were recommended for the honors courses.

Students in the Peters Township School District follow similar trends as those identified by prior research studies. They tend to remain in the level of course they started with in ninth-grade throughout their high school years. When movement occurs between levels, it is more often a downward move in course level from honors to academic. Higher percentages of students in honors classes earn successful grades and are likely to remain in that honors pathway through tenth grade with greater opportunity to take an AP course in each content area in eleventh-grade. Students in academic level classes,

especially in science, earn more unsuccessful grades and have limited access to an eventual AP level course in eleventh-grade.

2. *How do students perform in rigorous courses who did not receive a teacher's recommendation but gained entry on appeal?*

After identifying the patterns for the overall student population, the study centered on the group of students who appealed their teacher's recommendation and had the opportunity to take the honors class they desired. This allowed for a comparison between these two groups of students in terms of the outcomes they experienced as final grades and the courses they took in subsequent school years. The review of literature identified that students tend to remain in the level of courses they started in ninth-grade. This trajectory was observed in the District. The data yielded an interesting phenomenon. The course with the fewest approved student appeals was Biology and yet it was the course where students who appealed actually had higher occurrences of successful final grade outcomes. Both Biology Honors and Biology Academic showed this trend. Most of these students remained in the higher leveled courses in science in tenth and eleventh-grades. Students whose appeal was approved to take English 9 Honors had nearly the same occurrence of successful grades as those students who were recommended. However, this was not the case for Geometry Honors. Students whose appeal was approved to take Geometry Honors did not meet with the same occurrence of successful grades and most did not continue in the honors courses in subsequent years.

Students whose appeal was granted typically earned successful grades in the courses they were given the opportunity to take in spite of not having their eighth-grade teacher's recommendation. Students given the opportunity to take English 9 Honors

performed at similar levels to their recommended peers and experienced similar pathway trajectory resulting in opportunity to take AP English Language in eleventh-grade. Most of these students remained in the higher-level English courses in the subsequent years of high school. The same is true of the students for whom their appeal to take Biology Honors and Biology Academic was granted. They had higher percentages of successful grades than their recommended peers and remained in the higher-level pathway in the subsequent years with many of them taking AP Physics 1 in eleventh-grade. This was not the case for students who did not receive an initial recommendation for Geometry Honors. They had a lower percentage of students who earned successful grades and more of them tracked downward into the academic level science courses in subsequent years.

3. *What are teacher perceptions of the role of teacher recommendations in student course selection?*

The third question for the study included a mixed-methods approach of qualitative and quantitative data gathered from surveys issued to teachers of the four most commonly appealed courses and to the teachers of the eighth-grade feeder courses that recommend students for those ninth-grade courses. They were asked four-part Likert scale questions asking them to indicate their level of agreement with certain statements. They were also given the opportunity to answer open ended questions giving their opinions about the ideal course selection process and requisite honors student traits. The analysis of that quantitative and qualitative data revealed some contradictions between stated opinion and actual practice. Teachers responses indicated they had mixed feelings about the current process that prevents students from being able to select an honors course when registering for classes without a teacher recommendation or an approved

appeal. 91% of the Ninth-grade teachers agreed with the current course recommendation and selection process while 66% of the eighth-grade teachers agreed with it. However, more teachers were in agreement with statements that supported beliefs about their ability to work with students or that there were other indicators of student ability. Some teachers' responses indicated they were open to the ideas of incorporating more data and greater student choice into the current process. They also listed qualities of student motivation, interest, and work ethic as needed traits for students to be successful in honors classes much more than they listed prior grade performance.

Summary

After analyzing the quantitative student final grade data, course trajectory and enrollment data, and the teacher responses to the surveys, greater light has been shed on the present course recommendation and placement process. The current process requires an eighth-grade teacher's recommendation in order for a student to see the choice of a ninth-grade honors class on their course registration page in Powerschool each spring. The only way a student who does not receive a recommendation from an eighth-grade teacher can take an honors ninth-grade course is via the appeal process. This appeal process is included in the course description book if students and their parents research to find it. Most students follow the pathway for levels of courses they were recommended for. The eighth-grade teachers primarily make their recommendations based on quarter 1 and quarter 2 grades in their class. Their survey results show that while they believe grades are a critical element to help them make this decision, many identify the importance of student choice and think there is a need for additional data upon which to make a decision. The ninth-grade teachers who teach these courses often don't know who

was recommended and who appealed to get into their classes and most believe they can teach any student.

The students who appeal to get into the honors classes typically do as well as their recommended peers. This is true for students who desire to take English 9 Honors. However, this is not the case for Geometry Honors, where the recommended group earns A's and B's at higher percentages. Yet, in some cases, the students who appeal to get into honors classes actually outperform their recommended peers and earn A's and B's at higher percentages. This is especially true for students who appeal to take Biology Academic and Biology Honors. The act of involving student choice as observed in the student appeal process has been correlated with trajectories of higher rigor classes and greater access to AP courses in the eleventh-grade year following a granted appeal. Students who were given the opportunity to take an honors course via a granted appeal typically have done very well in that course and go on to continue to find success in more rigorous classes. Few students challenge the recommendations they were given and accept the label of honors or academic as they enter the high school. They tend to remain there throughout the subsequent years of high school.

The findings associated with the student final grade outcomes parallel the findings found in other studies and reinforce the need for adjustment to the current course recommendation and placement process. Students, when given high expectations and opportunities to grow, will do so and vice versa. In the next chapter, the primary findings from the data analysis in this chapter will be used to support recommendations for potential modifications to the present course recommendation and placement process

within the Peters Township School District. Recommendations will also be made for future and further research opportunities that came about as a result of this study.

CHAPTER 5

Conclusions and Recommendations

This study inspected the current course recommendation and placement process used by the District to place students in ninth-grade courses as they transition from middle school to high school. When given the opportunity students will rise to the level of the expectations they are given. Thinking and operating in this manner is a reflection of the growth mindset. This growth mindset is written into the mission and vision of the Peters Township School District. In order for students to have access to an honors level course in ninth-grade, they must have the recommendation from their eighth-grade teacher in that content area to do so. Without the eighth-grade teacher's recommendation, the honors level course is not available for them to select when they register for classes in the Spring. A student who doesn't get their teacher's recommendation is relegated to the academic level course unless they were to formally appeal that teacher's recommendation and have their appeal granted.

This study was driven by three research questions.

1. How do students perform in rigorous courses their teachers recommended they take?
2. How do students perform in rigorous courses who did not receive a teacher's recommendation but gained entry on appeal?
3. What are teacher perceptions of the role of teacher recommendations in student course selection?

Chapter 4 of this study offered the analysis of that data that would ultimately lead to the answering of the three driving research questions. Chapter 5 of this study will use

the analysis of data to draw conclusions as well as to make recommendations for the Peters Township School District regarding possible changes or modifications to the current course recommendation and placement process. It will discuss the limitations of this study and any implications of the recommendations issued. This chapter will then conclude with an offering of ideas for future research that may yield further benefit to the Peters Township School District or others who want to continue further exploration on the topics discussed herein.

Conclusions and Recommendations

Students in honors courses are more likely to achieve successful final grades than students who take academic level courses. As was identified in Chapter 2, the review of literature, those who advocate for offering lower-level or academic courses say they meet students at their current ability level and provide more targeted instruction to bolster student abilities. They argue they are more supportive for students at lower ability levels and encourage growth to catch up to their peers in higher rigor level courses. However, this is rarely the case. More often lower-level courses are used to house students deemed not worthy of an honors course due to perceptions these students are of lower ability (Oakes, 1985). Parallel to this research, students who take academic level courses at PTHS earn successful grades at a lower percentage than their peers in honors courses which results in them being less likely to receive the recommendation to take an honors course in subsequent school years. Proponents of course tracking and ability grouping would argue the students placed in academic courses have a history of lower final grade performance and this data is simply evidence of these students' lower academic ability and commitment to successful performance. This point of view would be an example of a

fixed mindset, believing that students will simply repeat their prior performance outcomes each subsequent year of school. However, research has shown that students measured abilities are often the product of expectation levels and quality of teaching. What teachers do with students in classrooms has an impact on their outcomes. Good instruction can take any student and make them better (Marzano et al., 2001). The same is also true for the teachers and students in the Peters Township School District.

The course in which students earn the least successful final grades is Physical Science. This is the lowest rigor level science course offered for ninth-grade students at PTHS with two higher rigor course levels offered above it in Biology honors and academic. Students who take Physical Science at PTHS are those who are typically the lowest performing students from eighth-grade science and are often simultaneously enrolled in Algebra 1 in ninth-grade. Students in this course earn more final grades of D and F than in any other ninth-grade course in this study. They also earn the least final grades of an A or B than any other ninth-grade course in this study. Students placed in this course take Biology in their tenth-grade year with the following cohort's ninth-grade students. The presence of both lower percentages of students earning an A or B and higher percentages of students earning a D or F shows that students placed in Physical Science have the hardest time advancing into the higher rigor honors courses in subsequent years and are tracked into the academic level courses throughout high school. The data associated with this course is representative of the findings prior researchers have concluded; namely, that lower rigor courses are often used to house students with a history of lower academic performance to keep them out of the higher rigor honors courses. These students often receive lower expectations and lower levels of instruction

that result in students being tracked in lower rigor courses in subsequent years through high school. The final grade data for the Physical Science course shows it is not improving student ability. This study did not review the trajectory data of students in Physical Science; however, final grades are the primary determinate for whether or not students advance upwards or downwards in their course level trajectory. Students with lower grades are less likely to advance upwards in subsequent years and will most likely remain in the lower track of courses. Therefore, it is a logical conclusion that students placed in Physical Science are less likely to advance to honors courses in subsequent years due to the lower occurrence of successful final grades in this course. This course and the way in which it is currently being taught is worthy of further inspection and consideration for improvement. Should Physical Science continue to be an option for the students at PTHS, the curriculum and instruction should be adjusted to improve student ability and yield more successful outcomes for students.

In the English department, an increase in the number of students taking the honors level from tenth to eleventh-grade was observed. This is due in part to the addition of a higher level of course offering in AP English Language in eleventh-grade. This is an overall increase in the students taking honors level coursework in the English content area. Many of these students started in the academic level as a result of not receiving the recommendation to take English 9 Honors. This is a point of importance due to the fact that the vast majority of students who take English 9 Honors earn successful grades and remain in the honors pathway. This shows students who were capable of honors level courses were denied that opportunity during their transition to high school. More students who take the honors level English class in ninth-grade are eligible to take the AP level

course in that content area. Anecdotally, students are often more hesitant to take an AP course than they are an Honors course as they assume a higher amount of work and rigor. However, this adds to the interest in why tenth grade consistently sees increases in enrollment. There is a clear trend between cohorts that students are more comfortable making the jump from the academic level to the honors level after the transition into ninth grade. One possible interpretation of this trend is that English Academic 9 and its teachers are preparing their students to make the upward move to English Honors 10. As a result, more students are being recommended and meeting the requisite grade of an A to make the jump. A second possible interpretation is that these students were ready to take the honors level course during the transition to high school but didn't as a result of not getting the recommendation, not having an A in English 8, or not yet having confidence in their ability to take an honors level course. If this interpretation is correct, it would indicate that the current course placement process at the transition to high school is guiding students to a lower level of course when they are capable of being successful in a higher-level course, especially in the content area of English.

In the Math department, there is a consistent atrophy of students who leave the honors level for the academic level starting each year in ninth-grade. In the 2013-2014 school year, the District reorganized the sequencing of math courses K-12 and moved Algebra 1 from the high school to eighth-grade for the majority of students. Initially this move was met with much concern and outcry from high school teachers thinking that Algebra 1 was a high school course that would be overwhelming for middle school students especially since this was also a course that had a Pennsylvania state Keystone Exam at its conclusion. This couldn't have been farther from the truth as the eighth-grade

students performed very well on the Algebra 1 Keystone Exam in each subsequent year. The eighth-grade students, given high expectations, rose to this challenge with the proper supports and instruction from their teachers. This was an example of the driving beliefs in a growth mindset that govern this study. At the time of this study, nearly the entire population of eighth-graders is exposed to the Algebra 1 curriculum at either the Enriched or standard levels.

This exposure to a high school math curriculum and pace is what puts the transition from eighth-grade to ninth grade in a different situation from the English and science courses when considering the course recommendation placement process. As a result of this prior sorting and ability grouping that takes place in the earlier years of middle school in math, the students and teachers have much more objective data upon which to base a course recommendation by the end of eighth-grade. This allows the Algebra 1 eighth-grade teachers to base their decision to recommend students on more prior performance and testing data. In addition, there is a norm-referenced statewide Algebra 1 Keystone Exam that offers a final data point to place students in the correct level of math course in high school. All of these factors seem to have an impact on the placement of students in the honors level courses, making these recommendations mor accurate predictors of student success and correct placement that English and Science don't have.

The recommended group significantly outperforms the appeal group in Geometry in all three years considered in the study. Adding to this is the fact that fewer students overall earn a C or lower in Geometry Honors than in other courses. The difference in the occurrence of A's and B's between the appeal group and the students who received their

eighth-grade teacher's recommendation indicates the teacher recommendations are more accurate in identifying who is ready for the step to Geometry Honors than the same process in other courses. This is especially true when you consider the same course recommendation and placement process is producing the opposite success gap in Biology. Students who appealed to get into both Biology Honors and Biology Academic are more successful than students who were recommended to take those courses. This is profound when one considers the students who were identified by their eighth-grade teachers to be more successful in Biology are not meeting with the same occurrence of successful grade outcomes as the students who did not receive that recommendation. One assumption that can be made is that the process for course recommendation and placement is not as accurate in Biology as it is in Geometry. The current appeal review process is denying a higher percentage of requests to take Biology Honors and Biology Academic while those two courses have proven to be the courses where students who appeal are most successful. In addition, students whose appeals are denied are placed in Physical Science where students experience the least occurrence of successful final grades of any of the courses included in this study. This trend is juxtaposed with the higher occurrence of granted appeals for Geometry even though less of those appeal students meet with success. These two phenomena are worthy of further inquiry in later studies and reveal a flaw in the current appeal review process.

When appeals by courses are considered alongside the average occurrence of final grades in honors and academic courses, a contradiction to the District's mission and vision becomes apparent. Students who are placed in Biology Academic have a higher likelihood of earning better grades than those placed in Physical Science. The data further

shows the negative impact of denying student appeals for Biology Academic and relegating them to Physical Science with the lowest occurrence of A's and B's. Students who take Biology Academic are more likely to earn an A or B than students who take Physical Science. This is even more the case for the students who appeal to get into Biology Academic. They are much more likely to earn an A or a B in Biology Academic than they are in Physical Science. 92% of students who appealed to get into Biology Honors earn an A or B in the course.

The accuracy of the course recommendation and placement process is also suspect in the English content area. 96% of the students in the three cohorts included in this study earned an A or B in English 9 Honors while 98% of the students recommended for English 9 Honors earned successful final grades. The similarity in outcomes shows less significance in the accuracy of the recommendation and placement process in correctly identifying the students who will be successful in English 9 Honors. Students who didn't receive the recommendation, when appealing that decision, achieve success at nearly the same frequency.

Students who appeal their eighth-grade teacher's recommendation in science should be given the opportunity to take Biology at whatever level they have requested. Since the appeal group over the course of the three years included in this study had higher occurrence of final grades of A's and B's than their peers who were recommended for the courses, they should not be restricted from taking Biology and relegated to Physical Science Academic, the course with the lowest occurrence of successful final grade outcomes. In addition, the District may want to consider not using teacher

recommendations at the conclusion of Science 8. Students have shown that if they want to take Biology, they will likely be successful in the course.

The District may want to consider the same thing in English. Students who desire and appeal to take English 9 Honors are just as successful as their peers who were recommended. The course recommendation process does not seem to be working in English 8 and Science 8. In fact, it seems to be preventing students from taking a course at a level they are likely to be successful in. This can be unnecessarily restrictive for students. Prior research has established that students who take academic level courses are perceived by their teachers, their peers, and themselves to be less capable students regardless of whether that is true (Oakes, 1987). The District needs to consider modifications or replacement of the course recommendation and placement process in English and Science 8. There is evidence it unnecessarily restricts students from achieving their highest levels of success. This is not the case in math. The course recommendation and placement process seem to have a greater accuracy in placing students in the correct level to meet with success.

The appeal group earned A's and B's more frequently than the recommended group. This is significant because it shows that there are group of students each year for whom a teacher's recommendation would have failed. Their eighth-grade teacher made a predication for which level of course they should take in ninth-grade based on their quarter one and two grades in the eighth-grade class. Had they not appealed, the data shows they would have been placed in a course that had a lower occurrence of A's and B's. In addition, based on the trends identified in the literature review and echoed in this study, they would have likely remained in the course level they were relegated to

throughout high school. This would have ultimately diminished their access to AP courses in the later years of high school and subsequently diminished their opportunities for competitive post-secondary options. While nothing is certain and there are always anomalies in trends, it is undeniable to see that had they not appealed and had that appeal approved as they transitioned to high school, they would have experienced course levels and expectations from teachers that would have hindered their potential. With each decision made either by teacher recommendation or appeal review decision, a student's future is being influenced if not determined. To keep the present system of course placement without modification would be a cementing of the fixed mindset voluntarily placing unnecessary limits on student potential.

The vast majority of students whose appeal was granted and were given the opportunity to take the higher-level course stayed in that higher level and quite often took an AP course in their eleventh-grade year. Over the three years included in this study, a significant number of students had the chance to take AP classes due to the fact their appeal was granted. Had they not appealed or had their appeal denied, they would not have had that opportunity. They would have had the ability, but not the opportunity. Had things been left up to the course recommendation process, many students who ended up taking an AP course would have been deprived of that opportunity. In fact, 41% of the students whose appeal was granted took AP courses that would have been deprived of that opportunity had their appeal been denied or if they had not appealed at all.

The amount of students who appealed to get into an honors course who were successful revealed inconsistencies in the appeal process. The courses receiving the least granting of appeals were actually the ones in which students most often meet with

success while courses with the highest granting of appeals were those where those students met with the least success. Additionally there is no telling how many students who would have appealed didn't because they didn't know they could. Part of this inconsistency can be resolved through either making the appeal process more accessible to students and families and part of this inconsistency can be addressed through revisions to the recommendation and course placement process that would incorporate more student choice and less restrictions.

The District may want to consider increasing the value placed on student choice and preference. If students are made aware of the requirements of honors courses and demonstrate a desire to challenge themselves with a higher rigor course, they should be given that opportunity. In that vein of thinking, teacher recommendations should be used more as advice rather than gates that restrict access to honors courses. Specifically in English and science, where students have been meeting with the most success, the District may want to consider modifying the current process to allow students to first select their preferred level of course and have their teachers follow with a review of what they selected. That would flip the current process. Instead of teachers closing or opening a course to students so they are forced to either accept it or appeal the decision, the teachers could review student preferences and determine if a student is making a deeply unwise decision. If they wanted to advise them to reconsider, they would have that opportunity at that time.

The current process, though currently retaining favorable opinions from the eighth and ninth-grade teachers is in need of modification to promote more student choice and access to higher expectations. While over 90% of the ninth-grade teachers agreed with

the current system, one third of the eighth-grade teachers didn't agree with it. Perhaps this is due to the eighth-grade teachers being the ones doing the recommending while the ninth-grade teachers are the recipients of those recommended students. Based on the research findings that showed that teachers are the group most in support of a teacher's recommendation used as the primary method of course placement, this would support that finding. Teachers like being the ones to determine course placement. In doing so, they think they have some control about the types of students who get onto their rosters. Research has shown that teachers typically avoid having heterogeneous groups of student ability and prefer not to teach students who need more supports due to the increased workload for them in planning and preparation with differentiation for students with diverse needs (Ireson et al., 1999). The findings of this study pertaining to teacher perceptions reinforce the prior research found in the literature review. Additionally the findings of this study should be reviewed with the teachers to give a clearer understanding of how their past students have performed after they transitioned to high school.

Prior research discussed in the review of literature has shown a correlation between teachers' beliefs about their ability to improve student ability and their actual impact on student ability. If teachers believe more in a growth mindset for students, they perceive student ability more as a starting point for their work rather than a limit. This study has shown that teachers in the Peters Township School District have many of the same biases that studies have shown in teachers around the globe. These are predispositions for perceptions of student ability and represent a fixed mindset. To shift these perceptions and inspire more of a growth mindset, those same studies have shown

that there is power in belief. Teachers must have a growth mindset toward their own abilities as teachers. When they believe they can make a difference in their students' ability levels, they will.

Work needs to be done at Peters Township to increase teachers' perceptions of their own ability to increase student ability. Specifically, a next step in this realm could be professional development on how to work with diverse student abilities within one classroom. Presently, there is a great reliance on identifying the correct level of course placement to track students. Much of this is based on bias and perceived student ability. Instead, more emphasis should be placed on pedagogy and assessment methods to identify actual data that correctly identifies student strengths and weaknesses in each content area. This provides a starting point and an opportunity for teachers to plan instruction that builds student ability from where they actually are at the beginning of each school year. Then, assessment can be used to effectively monitor their growth throughout the year. The District would benefit from investment in the professional development of its faculty to this end. When teachers know they can move the needle with their students and have confidence in their ability to do so, they are more likely to be open to any student who shows up on their roster each year. Emphasis is then paid more to identifying individual student needs and responding to them via appropriate targeted instruction rather than to gate-keeping practices that seek to sort students by ability in order to group them into leveled classes. Teachers are then in a position to place their focus on the right instruction for their students rather than getting the right students for their instruction.

There is also benefit to increasing the role of school counselors in advising their students to take more challenging courses. The District should share the results of this study and make the review of trajectory data more available to its school counselors. Armed with that data, they can more successfully advise their students about which level of course might better assist them in achieving their goals through high school and in the post-secondary realm.

An additional change to the current process at Peters Township School District would be in the investigation of the instruction occurring in academic level courses. During the Review of Literature, a discrepancy was observed between the stated purpose of academic level courses and the actual outcomes that result from lower expectations and instruction that actually takes place in these academic classes. Supporters of academic tracking make the case for students to be sorted by ability so that they might receive more catered instruction to the average level of the students in the class. They purported that lower ability students would receive more supportive instruction that met them at their level. However, as was revealed in the reviewed literature, teachers often perceive the students in academic classes inaccurately. They often make assumptions about the common ability levels in class that are based on stereotyping rather than on prior performance data. The teachers then offer lessons that are often below the actual ability level of the students in the academic classes. This results in a stifling of student ability and increases readiness gaps between students in academic classes and their peers in honors classes. These readiness gaps grow each year a student remains in the lower track and results in further limitation of their ability to ever make the jump into the higher level class. Therefore, at Peters Township, it would be a worthy next step to review the

curriculum in academic classes and the type of lesson planning that is currently taking place to identify the elements of curriculum and pedagogy that could be adjusted to promote growth in academic ability and afford each student more opportunity to make the jump into the higher leveled classes in future years.

Alfred Binet created the IQ test to identify student's initial measured ability. He intended that measured score would then be used only as a starting point to help target instructional resources and supports to help them grow and reach similar potential as their same age peers. Similarly students in academic classes should be perceived as students in need of higher expectations with supports and should be encouraged to improve their present status to take the higher level class next year. This would require additional training on rigorous differentiation to continuously target bolstering and improving the academic skillset and performance of students where they are. Bringing this from vision to reality will require additional resources and supports for teachers of academic classes. This may include time, training, and differentiated instruction and assessment that continuously monitors present levels of achievement and reorients focus on where to improve so students aren't given the same lower-level expectations throughout the year.

By the time students transition into ninth grade, readiness gaps are not yet insurmountable, especially in English and Science. As was observed in the data, it is harder for students to make the jump to the honors level in Math than it is the other courses due to the earlier ability grouping that takes place in math in the elementary years which moves readiness gaps up earlier in a student's educational experience. By the time they are transitioning into high school, their readiness gaps are more entrenched. This divide is not as wide in the courses other than Math due to the later ability grouping

resulting in a smaller readiness gap between peers in those content areas. As a result, there is more of a case in the present course trajectories at the Peters Township School District to encourage more students to challenge themselves in honors level classes in the other content areas. Ultimately any unnecessary barriers to students taking the classes they feel they are ready to take should be identified and removed.

Limitations

As with any mixed methods study, there are limitations to the scope and validity of the research and the data gathered for review. When comparing cohorts of students and their performance results from one year to the next, there are always limitations due to the comparison of different groups of people who have infinitely different experiences and external factors influencing their performance. The averaging of each cohort's final grade outcomes assists in diminishing this impact on validity, but is impossible to fully remove.

The scope of this study was limited to three cohorts of student data. The records of students who appealed their prior teacher's recommendation during the transition from eighth-grade to ninth-grade were only maintained in its present form by the high school counseling office starting with the cohorts of 18-19, 19-20, and 20-21 which is why the scope of this study was limited to these three cohorts. The scope of this study was also centered on the eighth to ninth-grade transition due to prior research indicating the impact the ninth-grade placements had on a student's entire high school years and beyond. Undoubtedly, the scope of this study could have been expanded to include the recommendations and placements between each of the high school years or even the earlier years when students receive advancement in math courses which typically takes

place between fifth and seventh-grades as there are similar appeals and recommendations issued at each of those transitions. Though some trajectory data was considered, it was only for the three cohorts of student data.

Each February, teachers submit their recommendations to Powerschool ahead of the window for students to select the courses made available to them. The first two cohorts of students went through the course recommendation and placement process prior to the global Covid-19 pandemic. However, the 20-21 cohort of students experienced the Covid-19 pandemic closure and subsequent fully remote learning for the end of their seventh-grade school year. The Peters Township School District returned to in-person instruction for the entirety of their eighth-grade school year when they were recommended for ninth-grade courses. The trajectory data showing how students were placed in subsequent years of high school may also be jaded by the Covid-19 pandemic. The nature of new mitigation protocols and procedures in response to the Covid-19 pandemic altered the way teaching and learning was conducted. Considering the infinite and unmeasurable impacts of adjusted instructional methods, issuance of 1 to 1 laptops, integration of the Canvas Learning Management System, quarantines, brief closures, opportunities for remote learning, and mental health of all involved, there was an impact on the validity of the data. Therefore, it is important to consider the environmental changes that played out as this student data was being generated and recorded. While it is impossible to quantify its overall impact on final grade data and teacher perceptions, it likely to have had an impact and should be considered when this study is reviewed.

Recommendations for Future Research

The nature of research is that data is always being generated and the ideas for how to perceive, inspect, and use that data to draw conclusions is unending. In the course of a

research study, there are always avenues that emerge for further research and analysis. At some point, a study must have boundaries and conclude. However, in going through the process of conducting this research study, multiple opportunities for further research presented themselves.

One area of further research in the District is the alignment of curriculum between the middle school and high school content areas of English and science. In the course of this study, the data showed that the recommendations from eighth-grade English and science teachers are less accurate as the students who did not get their recommendations and appealed to get the honors courses in each area performed as well or even better than the students who received the recommendation.

Eighth-grade math teachers are typically teaching Algebra 1 and are recommending students for Geometry in ninth-grade. These math teachers' recommendations seem to have a higher degree of accuracy than their colleagues' recommendations in English and science in terms of the percentage of students who earn a final grade of an A or B. Part of this accuracy could be associated with the relationship between Algebra and Geometry. The Algebra curriculum is considered a high school curriculum since it is a course that concludes with the Algebra 1 Keystone Exam. As a result, this course carries high school pacing and rigor whereas English 8 and Science 8 are and have always been middle school courses. There may be a need to explore the alignment of the eighth and ninth-grade curricula in these two courses to examine how closely they are aligned. Perhaps there is a difference in rigor causing less accuracy in predicting success than the eighth-grade math teachers have. Most of the teachers indicated they issue recommendations based on quarter one and two grades. This may

indicate a discrepancy in the alignment of the curricula in English and science. Are the grades in the eighth-grade courses irrelevant when it comes to predicting success in the subsequent ninth-grade honors course? An investigation of the curriculum alignment and its correlation to the ninth-grade courses may yield beneficial information to the District.

Another possible topic of future research could be the best and most efficient way for teachers to have motivating conversations or interactions with their students that would help them make the appropriate choice for the right courses to take. Teachers want to guide their students to take courses they will not only be successful in but also be properly challenged. Helping students make more informed decisions will better enable them to have more say in the levels of courses they are approved to take. However, these conversations, in order to be different from the recommendation process, should focus on encouragement of student growth rather than discouragement and gate-keeping. In order for that growth mindset to occur, teachers must believe they have the skills to foster that growth on the part of their students. Professional development may be needed to increase the capacity for teachers to bridge gaps with students and move them forward for future challenges through instructional growth. This may also require an assurance that the teachers are communicating with the teachers of the courses for which they are recommending. The integration of school counselors and helpful advisory conversations may also benefit this process. There must be a firm knowledge of the curricular and skill set requirements students will need to be successful in the following year. This would require increased collaboration and information sharing between teachers and counselors of the different grade levels.

Summary

There is power in the growth mindset. It is mostly based on belief in the idea that student ability can change in response to high expectations and supportive instruction. The growth mindset affects teachers as well in that they can impact student ability when they believe they can and put their efforts behind that belief. Students and teachers will benefit in the Peters Township School District when the growth mindset ideals written in the District's mission and vision statements are kept in the forefront of each and every process the District utilizes. This study sought to examine the ways in which the current course recommendation and placement process supported or hindered the District's mission and vision. In doing so, this study has identified contradictions within the course recommendation and placement process that hinder the mission and vision and perpetuate a fixed mindset. As long as there are different course levels within the District's menu of courses there must be a mechanism by which to determine the roster of students placed in those courses. In this way, a course placement and recommendation system is needed. This study has shown the effectiveness of the teacher recommendations for Geometry placement. However, this study has also shown there are parts of that system that are unnecessarily restricting students from taking more challenging courses. Increasing student choice while decreasing the gate-keeping for Biology and English is a change that should be made. Helping teachers to have more training in how to work with students of diverse abilities will inspire more belief in their own abilities and the growth mindset. This will in turn create more student ability growth which will in turn create more opportunities for students to take more challenging courses. The impact of taking challenging courses with high expectations and supportive instruction is well documented

in research. It is also shown to provide greater access to AP courses and to lead to greater opportunities in post-secondary schooling afterwards.

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APPENDICES

Appendix A

Survey Issued to Eighth and Ninth-Grade Teachers With Consent To Participate

The Effectiveness of Teacher Course Recommendations in Predicting Student Outcomes

You were selected as a teacher who either recommends students for Biology, Geometry, or English 9 or who teaches those classes. If you would like to participate in this study, you can share your opinions via the anonymous survey linked at the bottom of this email below. It should take about 5 minutes to complete. Your participation is voluntary and confidential as no identifying information will be gathered beyond the courses you teach. Your participation will assist in adding teacher perceptions and opinions to the research. In addition, you will be presented with the aggregate data and the results of the study. You may withdraw your participation and responses at any time. The results of this study will be published as a public research project as well as presented to the district administration.

If you have any questions regarding the research or your rights as a participant, feel free to contact the members of the research committee below.

1. Principal Researcher: Christian Lesnett [redacted]
2. District Advisor: Dr. Michael Fisher [redacted]
3. Faculty Advisor: Dr. Kevin Lordon [redacted]

Submitting your survey responses via the link below serves as your indication of consent.

This study has been approved by the California University of Pennsylvania Institutional Review Board. This approval is effective 08/15/21 and expires 08/15/22

"Anyone could be an honors student with the right effort and expectations."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

1 2 3 4

"Students in honors classes receive better instruction."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"I think the present system of recommending students for courses is appropriate."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"Students who want to take an honors or AP class should earn the right to do so by getting the requisite grades in the prior school year."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"Grades reflect ability."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"Teaching Academic Level Classes takes more work than teaching Honors Level Classes."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

Please list the skills a student needs in order to be successful in an honors level class?

Long answer text

Do you think research supports the use of ability grouping (honors and academic classes) at the transition of middle school to high school?

- ○ Yes
- ○ No

If you could design a process by which to help students choose the right level of course, what would it entail?

Long answer text

Which class do you teach? *

- ○ Biology
- ○ Geometry
- ○ English 9

For which class do you recommend? *

- ◯ Biology
- ◯ Geometry
- ◯ English 9
- ◯ N/A: I teach one of these classes

Are you a teacher or recommender for Biology, Geometry, or English 9? *

- ◯ I teach one of those classes
- ◯ I recommend students for one of those classes

After section 1 Continue to next section

Section 2 of 3

Recipient Teacher Section

This section is for the teachers of Biology, Geometry, or English 9 classes.

"Students who appealed to get into my class do just as well in my class as those who were recommended."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

1 2 3 4

"I have never really noticed whether or not a student was recommended for my class or if they appealed to get into my class."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"I can teach students who got a C in the prior course just as well as I can teach a student who got an A in the prior course."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"My course roster should only include students who received the recommendation from last year's teacher."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=No Opinion, 4=Disagree,5=Strongly Disagree

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	Strongly Disagree

After section 2 Continue to next section

Section 3 of 3

This section is for the teachers recommending students to take Biology, Geometry, or English 9 classes.

"I recommend students based entirely on their quarter 1 and 2 grades in my class."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"I recommend students based on their ability even if that isn't presently reflected in their present performance in my class."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"I meet with every student who is on the borderline of getting of getting my recommendation to discuss the matter with them."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"In the past, I have recommended students for an honors class that had a C or lower in mine."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

"If a student expresses interest in taking an honors class next year, I typically give them my recommendation."

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

	1	2	3	4	
Strongly Agree	○	○	○	○	Strongly Disagree

Do you provide recommendations for all of your students?

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

- ○ Yes
- ○ No
- ○ Some

Do you feel you have enough data to make recommendations in February?

Please indicate your level of agreement with the above statement. 1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree

- ○ Yes
- ○ No

Appendix B

Student Data Spreadsheet Template

(This provides the headings for each of the data points that were identified in the full spreadsheet for the three cohorts of students for each of the courses included in the study. This data was for the overall student population. There were 139 students assigned an ID from the three cohorts.)

A	B	C	D	E	F	G	H	I	J
Student Identifier	Year of Appeal	Grad Cohort	Course Requested by Appeal	Appeal Granted? Y/N	Final Grade Appealed/ Rejected Course	10th Grade Course Taken	10th Tracked Up, Down, or Same	11th Grade Course Taken	11th Tracked up, down, or same?

Appendix C

Peters Township School District Approval Letter

Peters Township School District

Dr. Jeannine L. French, Superintendent
Dr. Jennifer L. Murphy, Deputy Superintendent
Dr. Michael W. Fisher, Assistant Superintendent

July 20, 2021

[redacted]

Dear Christian Lesnett,

I am pleased to write a letter in support of your doctoral capstone project entitled, "The Effectiveness of Teacher Course Recommendations in Predicting Student Outcomes." The proposed research has significant value in that it will offer insight into the current process of student course selection associated with pathways to higher rigor courses at the secondary level. It will also offer insight into perspectives associated with student growth and access to challenging course work. The study is in line with the mission, vision, and shared values of our district and will offer data by which we can continue to support students taking challenging coursework.

I have reviewed the project proposal and understand the following related to participation:

- Teacher participation will only involve volunteers completing surveys relating to perspectives on student growth and systems of course selection pathways.
- Participation will be voluntary, and teachers may withdraw from the study at any time.
- Data collected will be kept confidential and kept secure via electronic files and will have all identifying information removed.
- Potential risks are minimal and include the possibility of identifying the need for changes to our current system of teacher course recommendations to better support student growth and access to rigorous courses.

The Doctoral Capstone Project Committee will consist of the following:

- Faculty Capstone Committee Advisor: Dr. Kevin Lorden
- External Capstone Committee Member: Dr. Michael Fisher

Please accept this letter as my formal consent and support of the District's participation in the proposed research project.

Sincerely,

Dr. Jeannine French
Superintendent of Schools
Peters Township School District

Appendix D

Institutional Review Board Approval Application

(This contains the application materials that were submitted to the IRB for approval to conduct the action research study as outlined.)

California University of Pennsylvania

Proposal Number

Date Received

IRB Review Request

Institutional Review Board (IRB) approval is required before beginning any research and/or data collection involving human subjects

Submit this form to instreviewboard@calu.edu or Campus Box #109

Project Title: ***The Effectiveness of Teacher Course Recommendations in Predicting Student Outcomes***

Researcher/Project Director ***Christian Lesnett***

Phone # [redacted] ***E-mail Address:*** [redacted]

Faculty Sponsor (if researcher is a student) ***Dr. Kevin Lordon***

Department ***Education***

Anticipated Project Dates: ***August 24, 2021*** *to* ***July 30, 2022***

Sponsoring Agent (if applicable) _____

Project to be Conducted at Peters Township School District

Project Purpose: ☐ ***Thesis*** ☒ ***Research*** ☐ ***Class Project*** ☐ ***Other***

Keep a copy of this form for your records.

Required IRB Training

All researchers must complete an approved Human Participants Protection training course. The training requirement can be satisfied by completing the CITI (Collaborative Institutional Training Initiative) online course at http://www.citiprogram.org *New users should affiliate with "California University of Pennsylvania" and select the "All Researchers Applying for IRB Approval"course option. A copy of your certification of training must be attached to this IRB Protocol. If you have completed the training within the past 3 years and have already provided documentation to the IRB, please provide the following:*

Previous Project Title _____

*Date of Previous Project IRB Approval*_____

Please attach a typed, detailed summary of your project AND complete items 2 through 6.

1. *Provide an overview of your project-proposal describing what you plan to do and how you will go about doing it. Include any hypothesis(ses)or research questions that might be involved and explain how the information you gather will be analyzed. All items in the Review Request Checklist, (see below) must be addressed.*

2. *Section 46.11 of the Federal Regulations state that research proposals involving human subjects must satisfy certain requirements before the IRB can grant approval. You should describe in detail how the following requirements will be satisfied. Be sure to address each area separately.*
   (text boxes will expand to fit responses)

   a. *How will you insure that any risks to subjects are minimized? If there are potential risks, describe what will be done to minimize these risks. If there are risks, describe why the risks to participants are reasonable in relation to the anticipated benefits.*

There are no physical risks of any kind. The only potential risk would be confidentiality of historical student performance data, student appeal data, and teacher survey responses. These risks will be minimized in the following ways:

1. *All student performance data will have names replaced with numbers to remove all identifiers to actual students. This historical class grade data is currently maintained in our school district's student information system that I have full access to.*
2. *All student appeal data will have names replaced with numbers to remove all identifiers to actual students. This historical class grade data is currently*

maintained in our school district's student information system that I have full access to.

3. *All Teacher survey data will be gathered anonymously via survey instrument. Surveys will be offered to volunteers at the Middle School and High School to gather teacher perceptions of the current student course selection process. The survey instruments will not request identifying information from the volunteers.*

b. How will you insure that the selection of subjects is equitable? Take into account your purpose(s). Be sure you address research problems involving vulnerable populations such as children, prisoners, pregnant women, mentally disabled persons, and economically or educationally disadvantaged persons. If this is an in-class project describe how you will minimize the possibility that students will feel coerced.

All student performance data will be historical in nature and will include final grades earned in prior school years. Nothing will be asked of students. No students will be questioned or included in this study, only the aggregate historical data with all identifiers removed. My school district provides me access to this data as I am a high school administrator. Specifically, student final grades from the most commonly appealed courses will be analyzed. This will involve lists of student grades from prior school years.

c. How will you obtain informed consent from each participant or the subject's legally authorized representative and ensure that all consent forms are appropriately documented? Be sure to attach a copy of your consent form to the project summary.

The letter of informed consent will be issued to the teachers who teach or recommend students for Biology, Geometry, or English 9 classes. It will be in the body of the email sent to them with the link for the survey. Those teachers may volunteer to participate and will indicate consent by submitting their survey when finished.

d. Show that the research plan makes provisions to monitor the data collected to insure the safety of all subjects. This includes the privacy of subjects' responses and provisions for maintaining the security and confidentiality of the data.

All data gathered will either have any identifying information removed or, as in the case of the surveys, not request any identifying information at all.

3. *Check the appropriate box(es) that describe the subjects you plan to target.*

☒ *Adult volunteers*	☐ *Mentally Disabled People*
☐ *CAL University Students*	☐ *Economically Disadvantaged People*
☐ *Other Students*	☐ *Educationally Disadvantaged People*
☐ *Prisoners*	☐ *Fetuses or fetal material*
☐ *Pregnant Women*	☐ *Children Under 18*

☐ *Physically Handicapped People* ☐ *Neonates*

4. *Is remuneration involved in your project?* ☐ *Yes or* ☒ *No. If yes, Explain here.*

5. *Is this project part of a grant?* ☐ *Yes or* ☒ *No If yes, provide the following information:*

   Title of the Grant Proposal _____

   Name of the Funding Agency _____

   Dates of the Project Period _____

6. *Does your project involve the debriefing of those who participated?* ☒ *Yes or* ☐ *No*

   If Yes, explain the debriefing process here.

The results of the teacher survey data will be shared with the teachers who participated in its aggregate form.

7. *If your project involves a questionnaire or interview, ensure that it meets the requirements indicated in the Survey/Interview/Questionnaire checklist.*

California University of Pennsylvania Institutional Review Board
Survey/Interview/Questionnaire Consent Checklist (v021209)

This form MUST accompany all IRB review requests

Does your research involve ONLY a survey, interview or questionnaire?
YES—Complete this form
NO—You MUST complete the "Informed Consent Checklist"—skip the remainder of this form

Does your survey/interview/questionnaire cover letter or explanatory statement include:

[_] (1) Statement about the general nature of the survey and how the data will be used?

[_] (2) Statement as to who the primary researcher is, including name, phone, and email address?

[_] (3) FOR ALL STUDENTS: Is the faculty advisor's name and contact information provided?

[_] (4) Statement that participation is voluntary?

[_] (5) Statement that participation may be discontinued at any time without penalty and all data discarded?

[_] (6) Statement that the results are confidential?

[_] (7) Statement that results are anonymous?

[_] (8) Statement as to level of risk anticipated or that minimal risk is anticipated? (NOTE: If more than minimal risk is anticipated, a full consent form is required—and the Informed Consent Checklist must be completed)

[_] (9) Statement that returning the survey is an indication of consent to use the data?

[_] (10) Who to contact regarding the project and how to contact this person?

[_] (11) Statement as to where the results will be housed and how maintained? (unless otherwise approved by the IRB, must be a secure location on University premises)

[_] (12) Is there text equivalent to: "Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective nn/nn/nn and expires mm/mm/mm"? (the actual dates will be specified in the approval notice from the IRB)?

[_] (13) FOR ELECTRONIC/WEBSITE SURVEYS: Does the text of the cover letter or explanatory statement appear before any data is requested from the participant?

[_] (14) FOR ELECTONIC/WEBSITE SURVEYS: Can the participant discontinue participation at any point in the process and all data is immediately discarded?

California University of Pennsylvania Institutional Review Board
Informed Consent Checklist (v021209)

This form MUST accompany all IRB review requests

Does your research involve ONLY a survey, interview, or questionnaire?
YES—DO NOT complete this form. You MUST complete the "Survey/Interview/Questionnaire Consent Checklist" instead.
NO—Complete the remainder of this form.

1. **Introduction** (check each)
   [X] (1.1) Is there a statement that the study involves research?
   [X] (1.2) Is there an explanation of the purpose of the research?

2. **Is the participant.** (check each)
   [X] (2.1) Given an invitation to participate?
   [X] (2.2) Told why he/she was selected.
   [X] (2.3) Told the expected duration of the participation.
   [X] (2.4) Informed that participation is voluntary?
   [X] (2.5) Informed that all records are confidential?
   [X] (2.6) Told that he/she may withdraw from the research at any time without penalty or loss of benefits?
   [X] (2.7) 18 years of age or older? (if not, see Section #9, Special Considerations below)

3. Procedures (check each).

[X] (3.1) Are the procedures identified and explained?

[X] (3.2) Are the procedures that are being investigated clearly identified?

[ ] (3.3) Are treatment conditions identified?

4. Risks and discomforts. (check each)

[ ] (4.1) Are foreseeable risks or discomforts identified?

[ ] (4.2) Is the likelihood of any risks or discomforts identified?

[ ] (4.3) Is there a description of the steps that will be taken to minimize any risks or discomforts?

[ ] (4.4) Is there an acknowledgement of potentially unforeseeable risks?

[ ] (4.5) Is the participant informed about what treatment or follow up courses of action are available should there be some physical, emotional, or psychological harm?

[ ] (4.6) Is there a description of the benefits, if any, to the participant or to others that may be reasonably expected from the research and an estimate of the likelihood of these benefits?

[ ] (4.7) Is there a disclosure of any appropriate alternative procedures or courses of treatment that might be advantageous to the participant?

5. Records and documentation. (check each)

[X] (5.1) Is there a statement describing how records will be kept confidential?

[X] (5.2) Is there a statement as to where the records will be kept and that this is a secure location?

[X] (5.3) Is there a statement as to who will have access to the records?

6. For research involving more than minimal risk (check each),

[ ] (6.1) Is there an explanation and description of any compensation and other medical or counseling treatments that are available if the participants are injured through participation?

[ ] (6.2) Is there a statement where further information can be obtained regarding the treatments?

[ ] (6.3) Is there information regarding who to contact in the event of research-related injury?

7. Contacts.(check each)

[X] (7.1) Is the participant given a list of contacts for answers to questions about the research and the participant's rights?

[X] (7.2) Is the principal researcher identified with name and phone number and email address?

[X] (7.3) FOR ALL STUDENTS: Is the faculty advisor's name and contact information provided?

8. General Considerations (check each)

[X] (8.1) Is there a statement indicating that the participant is making a decision whether or not to participate, and that his/her signature indicates that he/she has

decided to participate having read and discussed the information in the informed consent?
[X] (8.2) Are all technical terms fully explained to the participant?
[X] (8.3) Is the informed consent written at a level that the participant can understand?
[X] (8.4) Is there text equivalent to: "Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective nn/nn/nn and expires mm/mm/mm"? (the actual dates will be specified in the approval notice from the IRB)

9. Specific Considerations (check as appropriate)
[ ] (9.1) If the participant is or may become pregnant is there a statement that the particular treatment or procedure may involve risks, foreseeable or currently unforeseeable, to the participant or to the embryo or fetus?
[ ] (9.2) Is there a statement specifying the circumstances in which the participation may be terminated by the investigator without the participant's consent?
[ ] (9.3) Are any costs to the participant clearly spelled out?
[ ] (9.4) If the participant desires to withdraw from the research, are procedures for orderly termination spelled out?
[ ] (9.5) Is there a statement that the Principal Investigator will inform the participant or any significant new findings developed during the research that may affect them and influence their willingness to continue participation?
[ ] (9.6) Is the participant is less than 18 years of age? If so, a parent or guardian must sign the consent form and assent must be obtained from the child
[ ] Is the consent form written in such a manner that it is clear that the parent/guardian is giving permission for their child to participate?
[ ] Is a child assent form being used?
[ ] Does the assent form (if used) clearly indicate that the child can freely refuse to participate or discontinue participation at any time without penalty or coercion?
[X] (9.7) Are all consent and assent forms written at a level that the intended participant can understand? (generally, 8th grade level for adults, age-appropriate for children)

California University of Pennsylvania Institutional Review Board
Review Request Checklist (v021209)

This form MUST accompany all IRB review requests.
Unless otherwise specified, ALL items must be present in your review request.

Have you:
[X] (1.0) FOR ALL STUDIES: Completed ALL items on the Review Request Form?
Pay particular attention to:

[X] (1.1) Names and email addresses of all investigators

[X] (1.1.1) FOR ALL STUDENTS: use only your CalU email address)

[X] (1.1.2) FOR ALL STUDENTS: Name and email address of your faculty research advisor

[X] (1.2) Project dates (must be in the future—no studies will be approved which have already begun or scheduled to begin before final IRB approval—NO EXCEPTIONS)

[X] (1.3) Answered completely and in detail, the questions in items 2a through 2d?

[X] 2a: NOTE: No studies can have zero risk, the lowest risk is "minimal risk". If more than minimal risk is involved you MUST:

[_] i. Delineate all anticipated risks in detail;

[_] ii. Explain in detail how these risks will be minimized;

[_] iii. Detail the procedures for dealing with adverse outcomes due to these risks.

[_] iv. Cite peer reviewed references in support of your explanation.

[X] 2b. Complete all items.

[X] 2c. Describe informed consent procedures in detail.

[X] 2d. NOTE: to maintain security and confidentiality of data, all study records must be housed in a secure (locked) location ON UNIVERSITY PREMISES. The actual location (department, office, etc.) must be specified in your explanation and be listed on any consent forms or cover letters.

[_] (1.4) Checked all appropriate boxes in Section 3? If participants under the age of 18 years are to be included (regardless of what the study involves) you MUST:

[_] (1.4.1) Obtain informed consent from the parent or guardian—consent forms must be written so that it is clear that the parent/guardian is giving permission for their child to participate.

[_] (1.4.2) Document how you will obtain assent from the child—This must be done in an age-appropriate manner. Regardless of whether the parent/guardian has given permission, a child is completely free to refuse to participate, so the investigator must document how the child indicated agreement to participate ("assent").

[_] (1.5) Included all grant information in section 5?

[_] (1.6) Included ALL signatures?

[X] (2.0) FOR STUDIES INVOLVING MORE THAN JUST SURVEYS, INTERVIEWS, OR QUESTIONNAIRES:

[X] (2.1) Attached a copy of all consent form(s)?

[_] (2.2) FOR STUDIES INVOLVING INDIVIDUALS LESS THAN 18 YEARS OF AGE: attached a copy of all assent forms (if such a form is used)?

[X] (2.3) Completed and attached a copy of the Consent Form Checklist? (as appropriate—see that checklist for instructions)

[_] (3.0) FOR STUDIES INVOLVING ONLY SURVEYS, INTERVIEWS, OR QUESTIONNAIRES:

[_] (3.1) Attached a copy of the cover letter/information sheet?

[_] (3.2) Completed and attached a copy of the Survey/Interview/Questionnaire Consent Checklist? (see that checklist for instructions)

[_] (3.3) Attached a copy of the actual survey, interview, or questionnaire questions in their final form?

[X] (4.0) FOR ALL STUDENTS: Has your faculty research advisor:

[X] (4.1) Thoroughly reviewed and approved your study?

[X] (4.2) Thoroughly reviewed and approved your IRB paperwork? including:

[X] (4.2.1) Review request form,

[X] (4.2.2) All consent forms, (if used)

[X] (4.2.3) All assent forms (if used)

[X] (4.2.4) All Survey/Interview/Questionnaire cover letters (if used)

[X] (4.2.5) All checklists

[X] (4.3) IMPORTANT NOTE: Your advisor's signature on the review request form indicates that they have thoroughly reviewed your proposal and verified that it meets all IRB and University requirements.

[X] (5.0) Have you retained a copy of all submitted documentation for your records?

9

Project Director's Certification
Program Involving HUMAN SUBJECTS

The proposed investigation involves the use of human subjects and I am submitting the complete application form and project description to the Institutional Review Board for Research Involving Human Subjects.

I understand that Institutional Review Board (IRB) approval is required before beginning any research and/or data collection involving human subjects. If the Board grants approval of this application, I agree to:

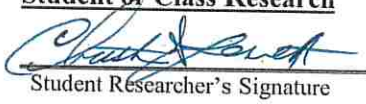
1. Abide by any conditions or changes in the project required by the Board.
2. Report to the Board any change in the research plan that affects the method of using human subjects before such change is instituted.
3. Report to the Board any problems that arise in connection with the use of human subjects.
4. Seek advice of the Board whenever I believe such advice is necessary or would be helpful.
5. Secure the informed, written consent of all human subjects participating in the project.
6. Cooperate with the Board in its effort to provide a continuing review after investigations have been initiated.

I have reviewed the Federal and State regulations concerning the use of human subjects in research and training programs and the guidelines. I agree to abide by the regulations and guidelines aforementioned and will adhere to policies and procedures described in my application. I understand that changes to the research must be approved by the IRB before they are implemented.

Professional (Faculty/Staff) Research

_____
Project Director's Signature

Student or Class Research



Student Researcher's Signature — **J. Kevin Lordon (es)** Supervising Faculty Member's Signature

ACTION OF REVIEW BOARD (IRB use only)

The Institutional Review Board for Research Involving Human Subjects has reviewed this application to ascertain whether or not the proposed project:

1. provides adequate safeguards of the rights and welfare of human subjects involved in the investigations;
2. uses appropriate methods to obtain informed, written consent;
3. indicates that the potential benefits of the investigation substantially outweigh the risk involved.
4. provides adequate debriefing of human participants.
5. provides adequate follow-up services to participants who may have incurred physical, mental, or emotional harm.

☐ Approved[_____] ☐ Disapproved

_____ _____
Chairperson, Institutional Review Board Date

Approved, September 12, 2005 / (updated 02-11-2016)

Appendix E

Institutional Review Board Approval

Institutional Review Board
California University of Pennsylvania
Morgan Hall, Room 310
250 University Avenue
California, PA 15419
instreviewboard@calu.edu
Melissa Sovak, Ph.D.

Dear Christian,

Please consider this email as official notification that your proposal titled "The Effectiveness of Teacher Course Recommendations in Predicting Student Outcomes" (Proposal #20-040) has been approved by the California University of Pennsylvania Institutional Review Board as amended with the following stipulations:

-The consent form must include a statement indicating estimated number of survey participants.

-The consent form must include a statement that while the survey is ostensibly anonymous, there is still a risk that individuals could be identified by triangulation.

Once you have completed the above request you may immediately begin data collection. You do not need to wait for further IRB approval. At your earliest convenience, you must forward a copy of the changes for the Board's records.

The effective date of the approval is 8/12/21 and the expiration date is 8/11/22. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

(1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)

(2) Any events that affect the safety or well-being of subjects

(3) Any modifications of your study or other responses that are necessitated by any events reported in (2).

(4) To continue your research beyond the approval expiration date of 8/11/22 you must file additional information to be considered for continuing review. Please contact instreviewboard@calu.edu. Please notify the Board when data collection is complete.

Regards,

Melissa Sovak, Ph.D.

Chair, Institutional Review Board

Appendix F

Peters Township High School Grading Formula

FYI: How to calculate Final Grades For Transcripts

Term of course	Qtr 1 weight	Qtr 2 weight	Qtr 3 weight	Qtr 4 weight	Finalex weight	How is FV calculated for you if your grades are in on time ↓ FV in PS (Final Average for transcripts)
Semester 1 S1	2 X letter grade equivalent of the percent	2 X letter grade equivalent of the percent			1 X letter grade equivalent of the percent	[(2 x Q1) + (2 x Q2) + FX] divide by 5 =FV printed as a letter grade
Year	2 X letter grade equivalent of the percent	2 X letter grade equivalent of the percent	2 X letter grade equivalent of the percent	2 X letter grade equivalent of the percent	1 X letter grade equivalent of the percent	[(2 x Q1) + (2 x Q2) + (2 x Q3) + (2 x Q4) + FX] divide by 9 =FV printed as a letter grade
Semester 2 S2			2 X letter grade equivalent of the percent	2 X letter grade equivalent of the percent	1 X letter grade equivalent of the percent	[(2 x Q3) + (2 x Q4) + FX] divide by 5 =FV printed as a letter grade

A=4, B=3, C=2, D=1 for calculating FV. Appropriate weights are applied to Honors and AP Courses after calculating FV (Final Average.)

Appendix G

Application Form for Student Appeal

(This is located within the Peters Township Course Description Book located on the District website. Students or parents can submit this form to request a course for which they did not receive a recommendation.)

PETERS TOWNSHIP SCHOOL DISTRICT

Appeal Form for Course Placement

Appeal Procedure: Students may initiate an appeal if they prefer to enroll in a course but have not met the prerequisites". Please submit this form to the counseling office signed by the student and the parent. Please include any evidence that supports the student's ability to succeed in the course in consideration. Student data such as attendance, PSAT scores, PSSA scores, Keystone scores, and other pertinent information will be considered. A panel that consists of a teacher within the subject area, school counselor(s), and the grade-level principal(s) will review the data and information presented on the appeal form. The school counselor will inform the student and family of the appeal decision prior to the new school year.

Student Name:	Grade:
I would like to appeal the following course:	
Supporting evidence for enrollment in course indicated above. Please indicate special circumstances that may have affected attendance or performance:	
Signature of Student:	Date:
Signature of Parent/Guardian:	Date:
(For Office Use Only)	
Previous course Data:	Test Scores (PSAT, SAT, Keystone):
☐ Appeal Accepted ☐ Appeal Rejected	Teacher: Counselor: Administrator:

Final appeal to the principal ( ) accepted () rejected by _____

Date: _____/_____/_____

Appendix G

Overall Course Performance Data: Occurrence of Final Grades

(This shows the enrollment numbers in each course as well as the percentages of those students who earned successful or unsuccessful grades.)

Year	Course	Students	% A/B	% D/F
18-19	Biology Academic	207	71%	8%
19-20	Biology Academic	177	78%	5%
20-21	Biology Academic	191	58%	17%
18-19	English 9 Academic	155	87%	2%
19-20	English 9 Academic	153	76%	4%
20-21	English 9 Academic	168	71%	11%
18-19	Geometry Academic	181	82%	3%
19-20	Geometry Academic	85	61%	12%
20-21	Geometry Academic	186	81%	7%
18-19	Physical Science	133	56%	14%
19-20	Physical Science	140	61%	11%
20-21	Physical Science	108	49%	27%
18-19	Biology Honors	155	84%	3%
19-20	Biology Honors	96	89%	2%
20-21	Biology Honors	110	89%	1%
18-19	English 9 Honors	206	98%	0%
19-20	English 9 Honors	144	99%	0%
20-21	English 9 Honors	132	98%	0%
18-19	Geometry Honors	155	86%	1%
19-20	Geometry Honors	105	92%	0%
20-21	Geometry Honors	93	84%	2%

Appendix I

Teacher Ideas for Course Selection Process

Responses that advocated for increased student choice and less reliance on teacher recommendations or other prior data:

- "Starting in elementary school giving students opportunities to try out 'honors' or 'excelled' activities to see if they could potentially start an honors program at the middle school level. Giving students the opportunities to change their placement if they excel or are motivated in subjects"
- "The students should know what is expected of them in each course, such as amount of homework each night, amount of reading required, types of exams given, how the class functions day-to-day. This information may allow students to decide if they are cut out for such a course. This could be done by hearing from the teachers of these courses (through an introductory video for instance), or by hearing from students who are currently enrolled in the course. Potential honors students should know how these high school courses differ from their 8th grade classes."
- A description of the differences in work and expectations for each course. Some students decide to drop out of Honors English 9 as soon as they learn they have to read 2-3 novels over the summer. And sadly, we do hear feedback (and so do the students) that this class or that class is "so easy" which undermines what we are promoting.
- Let the kids/parents pick because they override us anyway. The child and parents know whether they were putting their best foot forward or not.

- Curiosity and interest in a particular discipline.
- Students need to be honest with themselves about which classes they enjoy and which classes they tolerate. Parental influence or preference should play no part. Over the years, I've noticed when I view the schedule of a struggling student, honors English 9 is the only honors course they have. Why? "My parents wanted me to try an honors course and English is easy." Previous grades/effort put forth in that subject in the past. Does this student have a history of enjoying English class or excelling in English class?
- It would entail a combination of a standardized reading exam and a student-created project of interest to "catch" the students who have a desire to take an accelerated course but perhaps do not do well on standardized tests.

Responses that advocate for decreased student choice and increased reliance on teacher recommendations or other prior data:

- "I believe my course is set up to have students with the skills I listed above earn a high B or an A in my class for the year and thus qualify based on their grades. Between 1/3 and 1/2 qualify for honors by earning 87% or higher in my class, which seems like an appropriate percent to have a truly enriched version of the college prep the other half take."
- Course selections should be based on teacher recommendations only.
- A survey of student interest, a statistical analysis of past performance and a content neutral test of cognitive abilities in the 3rd and 4th levels of Bloom's Taxonomy.
- Look at both math and science grades to predict science placement

- A skills based assessment + an interest survey/questionnaire
- survey of past grades and a self-assessment of skills and motivation
- In addition to teacher recommendation and an A at the 8th grade level, a survey of student reported motivation would be beneficial. I am not in favor of the appeals system.

Responses that opted for enhancement starting with the status quo

- It would include course descriptions to make sure the students understand the expectations, as well as a grade prerequisite, a teacher recommendation, and possibly an aptitude test or entry level exam for students wishing to appeal/override a recommendation.
- The process would be similar to the one we currently use: teacher recommendation and grades from previous math classes
- I think status quo is appropriate.