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Elective Course Choice as a Factor in K12 Graduation Rates

A Thesis
Submitted to the Faculty
of the Department of Leadership Education
College of Education
of Winona State University

by
Matthew Wagner

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for the Degree of
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Abstract

This paper explores the relationship that elective course offerings and requirements have on student success through graduation rates. The purpose of this study is to better understand the effect that elective courses have on a student's academic success. This research focused on the Big 9 conference of southeastern Minnesota Public High Schools, which consisted of nine different school districts. These districts paralleled the makeup and diversity of districts around the state. All data reviewed was public information and included resources such as the Minnesota Department of Education's Report Card database, and course catalogs from each district in the study. Graduation rates from 2017-19 were compared to the amount of elective courses required to graduate, as well as the amount of elective courses offered in each district. Data was compared through the Pearson correlation coefficient. Results indicated little to no correlation between the number of elective courses offered and graduation rates. A moderate positive correlation was seen between the required number of elective credits to graduate in comparison to graduation rates. This research has concluded that increasing the number of electives required for graduation would have a positive relationship to student success through improved graduation rates. The number of elective courses to select from however does not strongly influence student success. Implications for school leaders and state legislators include the importance of a stronger consideration of elective courses for future cohorts of Minnesota High School students through improved funding and graduation requirements.

Keywords: elective courses, high school graduation rate, student autonomy

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Introduction

Choice has always played an important role throughout a student's K-12 schooling experience. During recess in elementary school, often regarded as a student's favorite class if you ask them, there are boundless decisions and opportunities for what games to play and people to interact with. Unfortunately, as a student progresses throughout their schooling experience, their opportunity of course selection, personal autonomy, and registration placement can often become limited. This paper aims to investigate the current state of elective coursework requirements in Minnesota and examine what changes could be applied to better serve students for the 21st century.

The complexities surrounding coursework requirements for a diploma create a barrier of knowledge for what specific tasks and classes are required. Students frequently struggle to grasp the necessity of completing these required courses in full, and in turn diminish in progress and fall greatly behind those in their same grade level, which is defined as their cohort. Although my teaching workload takes place at an Alternative Learning Center (ALC) for grades 9-12, many of the students I work with had difficulties in the general education setting and arrive at our building due to a lack of course completion. This gives me a unique insight to the courses that students have difficulty passing and completing. For a student to be awarded a high school diploma in the state of Minnesota, they must complete a total of 21.5 credits at minimum (Minnesota Department of Education, 2019). This diploma is not the same thing as a General Education Development certificate, also known as a GED, which can be awarded by passing an exam specific to national standards. School districts may also elect to add credits beyond the minimum requirement of 21.5, which can be done to help bolster the quality or allure that one

district may have over another. Specifically, the elective course requirements in Minnesota compose of completing seven credits, with each credit consisting of a full academic year (Minnesota Department of Education, 2019). This means that seven out of the 21.5 required credits are based on elective options, equaling just under 33% of a students' overall high school coursework being freely selected.

Although there are limited studies done on elective courses, research suggests that students who are able to select an elective course themselves have increased intrinsic motivation (Ferrer-Caja & Weiss, 2010). As a teacher who works directly with high school students, intrinsic motivation is a huge factor in determining the success and overall course completion that a student has with a course. I am fortunate that teaching Visual Art and Work-Based Learning courses involve a great deal of student interest prior to even taking the course. Often, other staff members have informed me that art is a favorite course of students at my school. I do not necessarily attribute this to my classroom techniques, but rather a combination of the power that elective courses provide for students. Gaps of knowledge regarding elective courses are varied. One of the biggest barriers for a school to successfully implement courses is scheduling conflicts. This is directly based on the size and student population of a secondary school, as well as general resources. Minnetonka High School is near the Minneapolis area and each year graduates over 700 students, had a vast selection of elective courses such as jewelry making, metal works, and a plethora of ceramics courses. Comparing that to graduating from Winona Senior High School in Winona, MN, many of the courses were never an option to select from for students. Areas of research have tried to focus on answering the issue of scheduling, including the application of mathematical models to streamline scheduling conflicts (Kristiansen, 2011).

Despite this research, the appropriate application truly varies across communities and populations, even looking only throughout Minnesota.

Problem Statement

Since electives are already a requirement in Minnesota high schools, there is a need to further explore the effectiveness they have on students attending school. Do more elective course options increase a student's likelihood to graduate? Would replacing the amount of required core courses, such as English, Science, and Math with elective courses provide more intrinsic motivation for students to not only be attending school more, but thrive? Does the number of elective courses that a school district requires impact the graduation rates of that district in a positive or negative manner? Beyond the simple number of elective courses, are there ways beyond the traditional model to award credits? One area for further research is the idea of awarding elective credit to students based on work done outside or in conjuncture to the school day. Community service hours, which are only required at the state level in Washington D.C. and Maryland to graduate high school (Education Commission of the States, 2014) provide another alternative resource for Minnesota to consider streamlining. As I type this paper now, schools are currently closed due the outbreak of COVID-19 and are anticipated to be closed for an entire month, if not longer. Students have been asked to stay home and are awaiting directives. What if prior to this pandemic, students were given the flexibility to work on projects based on their own interests? Minnesota Statute 124D.19 states that:

A school board may offer, as part of a community education program with a youth development program, a youth service program that provides young people with meaningful opportunities to become involved in their community, develop individual capabilities, make career connections, seek support networks and services, become active

citizens, and address community needs through youth service. The board may award up to one credit, or the equivalent, toward graduation for a pupil who completes the youth service requirements of the district. (Minnesota Legislature, 2019, p.2)

Part of this youth service program includes the subcategory of “training for and providing emergency services” (Minnesota Legislature, 2019, p.3). What if students were made aware of this current opportunity, and rather than feeling helpless and trapped during an uncertain pandemic, they knew that helping in their community would not only strengthen their town but also reward them with credit? This would of course require using proper procedures and methods, as students risking their own health to provide services to their community and others is not something to be done lightly. Ideas that I have seen across community support groups on social media such as Facebook include the option to deliver supplies to places in need, such as the Winona Senior Friendship Center.

When considering the population that this paper aims to address, the main demographic will be students attending public secondary schools in the state of Minnesota. Although K-8 students may be considered due to their eventual transition through secondary school, only in grades 9-12 do students have a transcript documented for the end goal of graduation. The secondary populations that this paper will address include teachers, administrators, as well as state and local politicians. The tertiary population would be the local community, as changes to a local school district’s course requirement may have a positive or negative ripple effect on job placements, student skill levels, and general capabilities in the workforce. Overall, the purpose of this study is to better understand the effect that elective courses have on a student’s academic success, and whether Minnesota’s current requirements allow for students to be prepared for a

21st century future and career. Would students benefit from replacing required courses with more opportunities for elective courses?

Background of the Problem

The rationale behind studying the context of elective courses in Minnesota high schools is motivated by the end goal of all educators and institutions, student success. We know that the content of a class often plays a role in student engagement and course completion. Although more science focused, the article titled “Disciplinary Differences in Out-of-School High School Science Experiences and Influence on Students’ Engineering Choices” reveals that students who explore Science in an unstructured out-of-classroom manner are more likely to enjoy and retain their learning (Sonnert, Godwin, & Sadler, 2017). This begs the question of asking how teachers can shift curriculum to better this exploratory model of learning that engages students in more meaningful ways? High School teachers could begin by looking towards extracurricular activities. One study used the self-determination theory to examine the connection between student motivation for an extracurricular activity and its relationship with school attendance. The study concluded that when students participated in extracurricular activities, their overall motivation to be successful and attend school increased (Denault & Guay, 2016).

Limitations/Delimitations

Limitations that must be considered include the prior notes of unique school resources. We know that high schools across the state of Minnesota differ greatly in their allocated resources. Many of these high school vary depending on the size of the district, the local economy, and the community values of a district. In 2019, 45 out of 63 school districts had at least one levy that passed who asked their local community (Minnesota School Boards

Association, 2019). This means that 18 school districts who asked their community for monetary support beyond the minimum were not supported in their request. Within levies themselves, accountability to the taxpayers is always important, and future levies may very well pass. We must consider these inequalities, however, when we look at the elective suggestions that may be forthcoming from this research. Other limitations include the foundational upbringing that students receive. Where they attended elementary school, their home life, and socioeconomic realities all influence their current reality of school success and graduation, and in turn must be acknowledged as something well beyond control of this research. A final limitation to consider would be the variety of schedules that each high school studied adheres to. According to the *Winona Post*, the Winona Senior High School, part of the Winona Area Public School district, is only one of two schools within the state of Minnesota that use a hybrid five-day schedule (Squires, 2018). Within each high school observed in the research, each school uses a slightly different schedule or start time. Mayo High School in Rochester uses a standard eight period day. Northfield High School uses a seven period schedule which includes a flexible learning time. Faribault High School uses a six period day. The schedule often dictates the way in which credit is awarded and distributed, and in turn may affect how courses are run and offered.

Beyond schedules, the specifics of which courses are selected by students is an important consideration. Oftentimes elective courses have a required “seat count” for how many students it will take for that class to be deemed worth running and paying the teacher to teach. In today’s tight budgetary constraints, more unique classes such as Floriculture or Welding may not have a high enough student demand for the course to be run. Because of this, it must be noted that although a high school’s course catalog book may list a certain number of elective course options, it does not necessarily reflect that all courses will indeed be offered.

Delimitations aim to narrow in on the small aspect of elective courses and their overall influence on student success and graduation in high school. Due to the inequalities previously discussed between high schools, a basic understanding of elective course options may be required. Although core classes, such as English, Science, and Math all have required courses that are needed to graduate, they may also harbor elective course opportunities. Examples of these could be a Creative Writing course in English, an energy course in Science, and a Gaming course in Math. Beyond these cores, foundational elective courses have typically stemmed from Physical Education, Visual Arts, Music, Industrial Arts, and Family and Consumer Science courses. These delimitations are further defined in the definitions of terms below.

Definition of Terms

One of the main operational terms to define in this research is that of an elective course in a formalized educational setting. In this research the setting is specifically the secondary education level in grades 9-12. Elective courses represent the opportunity for a student to make a personal decision on which they are given choices on the class or classes they would prefer to participate in. Later in Chapters III, IV, and V, the number of elective courses will be displayed through a numeric value for each school district. The way this number was reached was through a specific means of counting the available courses each student may select from within their high school's course catalog. A course was counted as an elective when it was not a required course to graduate. Often, a specific course may still be considered an elective even if it fulfills a specific graduation requirement, such as the Arts standard, which most schools require the completion of at least two classes. An example of this would be a student taking and completing Drawing I and Drawing II. The student would in turn fulfill the Arts standard of their school's graduation requirement while simultaneously completing what would be considered two elective courses.

Elective courses that form a progression, such as Spanish I-V, would be counted as five elective courses because foreign language is often a college admission requirement, but not a high school diploma requirement. Finally, Post-Secondary Education Opportunities, often titled PSEO courses, are not considered elective courses unless they serve only the students at that school. This preserves the integrity of the data by displaying the resources and opportunities only available to students from that school. Opening up PSEO options to count as elective courses would prove too complicated to record, and it would involve another institution's resources and provide an uneven playing field for data analysis.

When discussing the definition of an elective course, the counterpart of defining a credit must also be addressed. In the state of Minnesota, per Minnesota Statutes section 120B.024, a student must complete 21.5 credits (Minnesota Legislature, 2019). Each semester long course a student completes is considered a .5 credit. For the sake of clarity, different districts consider a full semester course either .5 credit or 1.0 credit. Because of this, the common language of identifying .5 as a full 1.0 credit will be given. Certain districts may require 23 credits of .5 credit per semester class, where others may require 46 credits of 1.0 credit per semester class. Because of these differences, the common language of identifying all semester long courses as a full 1.0 credit will be used.

Looking at graduation rate calculations, the term cohort must be expanded upon. Graduation rates are calculated and made public using the model of students graduating within a specific four-year time span. If a student starts 9th grade in the 2016-17 school year, they are organized as being part of a cohort of peers with the expected graduation year of the 2019-20 school year. If a student does not graduate by the end of the school year, but participates in summer school in an alternative program and receives the credit need to fulfill all requirements,

that student would still be considered as graduating on time. This is because the deadline for districts to send in their records is on September 15th. Data is kept through the state on students who take more than four years to graduate, with a maximum year count being seven, as students would age out of the system at 21 years old. The graduation percentage rate used through the Minnesota Department of Education Report Card reflects the four-year graduation rate of students within a specific cohort.

Another term used in many of the research articles is self-determination theory. This is defined as the acknowledgement between autonomous motivation versus controlled motivation (Gagné, & Deci, 2005). Part of this includes autonomy in general, defined as “acting with a sense of volition and having the experience of choice” (Gagné, & Deci, 2005, p. 333). Autonomous motivation is the outcome of intrinsic motivation, whereas controlled motivation is based upon outside consequences or rewards (Gagné, & Deci, 2005).

Summary

In summary, there are conflicting reports regarding the importance of elective course opportunities throughout the state of Minnesota. The purpose of this study was to provide evidence that increasing the amount of elective course requirements and decreasing content specific requires will in turn improve the overall success and graduation rates of students in the state of Minnesota. This is supported by the evidence that student autonomy is a foundational factor in determining engagement and achievement (León, Medina-Garrido, & Ortega, 2018).

Literature Review

Before understanding the implications of suggesting an alternation to the foundational requirements of a student's high school courses in Minnesota, we must consider the background and history of what has been researched and done before. Because of the nature of educational changes, the literature review is organized from a chronological approach. This approach helps the reader understand some of the places Minnesota has been in regard to high school graduation requirements, as well as some of the current practices and ideas research shows today in regard to student autonomy. The first section of this review focuses on a historical perspective of Minnesota's high school graduation requirements, as well important decisions regarding open enrollment opportunities and the achievement gap. The second section of this review identifies research regarding current student engagement and autonomy. The third section focuses on identifying what constitutes 21st century skills, with a subsection considering what a global crisis, such as the Covid-19 pandemic, implies for student learning and retention. Service learning opportunities are also reviewed in this as a subsection. The final section focuses on the theoretical framework of the study and further identifies which issues are most important for further exploration.

Historical Perspective

According to an information briefing to the Minnesota House of Representatives, Minnesota has historically used Carnegie Units as a measurement for credit allocation (Larson, 1996). A credit in high school "was defined as a Carnegie unit equal to five classes per week for one entire school year. Students had to complete a total of 20 credits during grades nine through twelve in order to graduate" (Larson, 1996, p. 2). Although it is unknown when Minnesota first

adopted the Carnegie Unit as a unit of measurement, research from Silva and White (2015) tells us the following:

In the first decade of the 20th century, American higher education was an ill-defined enterprise with virtually no standards for colleges and universities and few, if any, markers to distinguish high school from college. The duration of instruction in high school and college varied widely, and many colleges demanded little more from their applicants than elementary knowledge of geography, arithmetic, grammar, reading, and spelling. (p. 69)

This unit of measurement still plays a vital role in education today, most notably in colleges and universities, where classes are determined by an amount of “seat-time” spent working on a multitude of specific goals and outcomes. Over time, many high schools have taken a much closer look at what defines a credit. Often, discussions still arise frequently in my own profession at an alternative learning center, asking about what constitutes a credit. The discussion starts due to an issue of students not attending school, and how to balance between students being able to work on assignment outside of school when the state requires their presence in school. This current discussion topic highlights the pendulum in education, swinging between the topic of learning benchmarks versus required time in a building. This benchmark of learning can be seen in Minnesota, when in the 1996-97 school year, districts started implementing basic standards tests in reading and math (Larson, 1996). Since then schools have struggled with the balance of relying on time, such as the Carnegie Unit, versus content and knowledge (Silva & White, 2015). Examples of institutions breaking the trend of Carnegie Units are most notably Western Governor’s University in Salt Lake City, Utah (Silva & White, 2015). This nonprofit online only institution aimed to reduce costs for students by allowing them to advance once content and

learning was proven, versus spending a certain amount of time per class. On average students complete their bachelors' program at the cost of \$14,000 per year (Silva & White, 2015). To compare that, one year at a state college in Minnesota, such as Winona State, would cost a student \$9,665, with a four-year total of \$38,660 (Minnesota Office of Higher Education, 2020). This is not to say that online learning should replace in-person learning, but it does display that thinking outside the realm of how credits are awarded and made available to students may uncover greater means of efficacy that benefit students in a multitude of factors.

Programs that have begun engraining themselves in the discussion of content learning include the idea of Project Based Learning (PBL) curriculums. According to Lattimer and Riordan, "PBL is typically considered an approach to teaching in which students respond to real-world questions or challenges through an extended inquiry process" (2015, p. 18). For Project Based Learning to be successful, it must incorporate academic rigor, authenticity, applied learning, active exploration, and adult connection (Lattimer & Riordan, 2015). The outcome of creating and learning in meaningful ways parallel many of the arguments that elective courses offer for high school students. Staff development opportunities for my co-workers during the 2019-20 school year included the opportunity to shadow other alternative schools in the state that offer Project-Based Learning classes. According to the Buck Institute for Education (2020), Project-Based Learning "is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge". These schools, such as the Integrated Arts Academy in Chaska, provide students with an à la carte experience of selecting and building their courses depending on their graduation requirements left. Oftentimes, courses hit multiple standards and overlap in an interdisciplinary format that checks multiple boxes of graduation requirements

instead of just one at a time. Similar to the previously discussed Western Governor's University, both institutions rely heavily on student autonomy and learning objectives in their success.

The Achievement Gap and Open Enrollment

When considering the historical perspective, however, there are many factors beyond simply the courses and credit equivalencies that students select from. In Minnesota, the achievement gap is an important part of our educational context and history in high schools. This gap is far reaching across race, ethnicity, and socioeconomic status and is not limited to strictly metro versus rural school system (Grunewald & Nath, 2019). Knowing this helps better understand that there are a multitude of factors to consider when looking at the end goal of students graduating on time with their peers and feeling prepared to take on the career opportunities of the 21st century. Historical enrollment boundaries have also played a role in where students are graduating from in the first place. In 1985, Minnesota Governor Rudy Perpich unveiled a plan which he called "Access to Excellence" (Corson, 2000). The 1990-91 school year saw the state require all districts, no matter their size, to allow open enrollment for student and parental choice (Corson, 2000). As populations have grown and shifted across the state, the Minnesota Department of Education notes that in the 2017-18 academic school year "more than 80,000 Minnesota students, or nine percent, are open-enrolled" (Minnesota Department of Education, 2019, para. 1). Since the enactment of open enrollment in 1990, studies have helped shed light on the impact that open enrollment has had. One study titled "A longitudinal analysis of the effects of open enrollment on equity and academic achievement: Evidence from Minneapolis, Minnesota" examined if the promise of open enrollment provided a shift in academic achievement. Their findings noted that there was not a strong correlation between achievement scores and open enrollment (Choi & Hong, 2015). This information helps by

narrowing down possibilities and outside factors regarding the consideration of student choice in courses. The historical perspective and possibilities of what a credit is leads directly into the idea of school engagement, and how knowing more about student motivation factors strengthens the case for elective courses increasing and core courses decreasing.

School Engagement

Student engagement and autonomy play a valuable role in academic success as well as success beyond high school. Published in *The Journal of Educational Research*, Orkibi and Tuaf shed light on this connection to subjective well-being (SWB) in the article “School engagement mediates well-being differences in students attending specialized versus regular classes” (2017). The three indicators that compose a student’s subjective well-being include an evaluation of life as satisfying, the frequent experience of positive emotions, and scarce negative emotions (Orkibi & Tuaf, 2017). The authors of this research noted that there was a lack of clarity and gap of knowledge surrounding the connection between attendance of specialized courses, such as electives, and a high subjective well-being score. After careful data analysis, the researchers noted that “optimal learning environments should give students the possibility to self-select specialized classes according to their interests, abilities, skills, and talents” (Orkibi & Tuaf, 2017, p. 680). They concluded that policy makers and institutions would see an increase in academic performance as well as an increase in subjective well-being by increasing the opportunity students are given in selecting their courses.

Beyond engagement, we know there are a variety of reasons and factors to understand when looking at graduation outcomes. In the article “Factors that Promote High School Graduation: A Review of the Literature,” we see evidence of this through the main categories of “motivation, engagement, youth expectations for attainment, and locus of control” (Zaff et al.,

2017, p.451). The locus of control proves to be especially important in the question of expanding electives, as it directly correlates with a perception of influence and choice a student has. The study demonstrates that students who believe they control their outcomes, starting as early as 8th grade, are more likely to remain in school in 10th grade (Zaff et al., 2017).

The study notes that nearly one in five students drop out of high school before graduating. For each student that does drop out it “costs the USA an estimated \$292,000 more than the average high school graduate over his or her lifetime because of lower taxable income and a higher average reliance on social welfare programs” (p. 447). Zaff’s study uses the lens of Ecological Systems Theory, developed by Urie Bronfenbrenner. This is seen by the researchers understanding that graduation is an end result between an individual and the context in which they achieve said goal, with development being greatly shaped by their surrounding forces (Zaff et al., 2017).

21st Century Skills

The discussion of 21st century skills has been and will continue to be a relevant discussion point in education. Currently, a large majority of the United States has students participating “distance learning” also known as “remote learning” from their homes on devices provided by their school district. Now more than ever, we are faced with the conclusion that it is important for students to understand not only how to use devices to learn, but to expand upon their knowledge and navigate new programs that they have not used before through adaptive and critical thinking skills. The students in my own classroom have been abruptly forced to use an online program called Schoology that is completely new to them. Little did they know that when they left the school on March 6, 2020, for spring break, they would most likely not return for the remainder of the school year. Because of this, we need to recognize that 21st century skills are

needed, and many students are essentially being forced to adapt quickly to this change in how their classroom curriculum is presented. A quick Google search of 21st century skills will provide you with a variety of numbers, phrases, and interpretations as to what it means. For the purposes of this study, the researcher will use the National Education Association's four C's, which are critical thinking, communication, collaboration, and creativity (NEA, n.d.). This definition provides us with a framework to understand what exactly 21st century skills mean in the first place. In the article "Learning in the 21st Century: Concepts and Tools" author Nader Rifai has a documented discussion with four educational professionals in their field. Topics that are gleaned from research include the idea that educational delivery has remained almost the same in format since the middle ages (Rifai et al., 2018). In fact, the current pandemic of Covid-19 has provided the first disruption to that notion, and the "distance learning" response in the state of Minnesota for all school districts has been the response. K-12 districts are not alone in this swift change however, since colleges and universities have also had to radically change the way they deliver information, with many professors having to adapt lectures, tests, and even chemistry labs to a purely digital realm. Looking in the logistics of 21st century learning, Todd Rose states that the two most important things to consider are "access and credentialing" (Rifai et al., 2018, p. 1424). From my own perspective in the Winona Area Public School District, access has been swiftly accomplished. In a matter of two weeks, between March 16th-27th, the Governor of Minnesota ordered a mandatory shut down of schools. In that short time the district quickly organized a response, and all students have been given the opportunity to take home a device. It is now our challenge to work beyond the means of simply having the device and shifting to the scaffolding and training of using them in a meaningful way. The use of 21st century skills would complement elective course offerings by then providing students with the autonomy of selecting from a vast

wealth of online trainings and information beyond the offerings that their own district might be limited to. By no means does it replace the instructor relationship however, which accounts for one of the most important factors in a student's learning (León et al., 2018). This will be further expanding in the theoretical framework.

Service Learning

As previously discussed in chapter one, Minnesota Statute 124D.19 provided some context for understanding that Minnesota School Boards and districts are given the opportunity to provide elective course credits to students who engage in a youth service program (Minnesota Legislature, 2019). Currently, Washington D.C. and Maryland are the only states to require community service hours to graduate high school (Education Commission of the States, 2014). The argument to expand and strengthen the awareness to Minnesota students I believe is strongly needed. From the publication *Multicultural Education*, Melissa Cloyd calls for further research in service learning in her article "When Volunteering Is Mandatory: A Call for Research About Service Learning" (2017). In Cloyd's own state of Maryland, it is required that students complete 75 student service learning (SSL) hours (2017). Cloyd critically addressed the impact of service learning as a high school graduation requirement and brings up the issue that students who have not started their hours by 10th grade may already be considered behind. Looking deeper into this research, however, I believe it strengthens the case for service learning to be gradually implemented as long as we keep the required hours lower than 75. Self-determination theory is also considered and is the lens in which behavior is viewed. Service learning greatly strikes the three needs of this behavior, which include "autonomy, competence, and relatedness to others" (Cloyd, 2017, p. 36). There are many models to base implementation of SSL programs, but this research suggests that providing students the responsibility to consider and link their learning to

their learning program is most effective for creating social change (Cloyd, 2017). As touched upon, the Covid-19 global pandemic has created a unique opportunity for students to explore opportunities helping in their community. In March of 2020 Cotter High School, a private Catholic School in Winona, hosted a Red Cross blood drive that continued to operate despite the statewide closures. This blood drive was organized by the student council leadership who helped run volunteer positions throughout the day. Cotter High School does require students to complete some form of service learning as a graduation requirement. Despite the uncertainty of the future, the students felt engaged and involved in a situation that could be easily written off as hopeless, and in turn helped strengthen their community in the process. Overall the aspect of service learning provides a good base in community engagement and could help strengthen a student's relationship with school in a positive and meaningful manner.

Theoretical Framework

The theoretical framework through which the contents of elective course effectiveness is viewed is based largely upon Self-Determination Theory, which considers intrinsic and extrinsic motivations (Gagné & Deci, 2005). Self-Determination Theory helps us better understand motivational decisions in organizational institutions, such as high schools. This qualitative approach in research provides considerations of a student's individual perspective and motivators. In a topic as abstract as student choice, there are a multitude of decisions and factors that lead to qualitative research methods. For starters, qualitative research directs the questions to "why?" and "how?" while providing breathing room for real life scenarios and decision making (Kuper, Reeves, & Levinson, 2008). This approach will better fit the intention of creating meaningful suggestions to better improve the opportunities that students may have in the future.

Summary

Overall, there are vast amounts of literature that each strive to answer important questions. It was my goal to complete a comprehensive list of information in regards to the unique overlaps in relation to the questions I've asked. The historical perspective of high school graduation requirements could be researched as stand-alone topic in and of itself. I believe that through acknowledging the relationship between the factors of where we are today in high school education and where we've been, we can see progress and decisions being made. It is the goal of this research to better understand the implications in how students being provided more choice and more opportunity will allow them to succeed and thrive. The added twist of a global pandemic is something that has and will alter the trajectory of how education is delivered in the United States. More research is needed to determine the effectiveness in increasing student elective choices. Through the literature, we have learned that providing more autonomy and decision making opportunities, paired with high quality teaching, can provide highly effective environments and success for students in schools (León et al., 2018).

Research Methodology

The purpose of this study was to better understand the effect that elective courses have on a student's academic success, which in this case was measured by a school district's overall graduation rate. It also aims to further understand whether Minnesota's current coursework requirements allow for students to be prepared for a 21st century future and career by analyzing the amount of choices students are given in their local high school. The methodology used to gather this data was the documentary method, which was chosen for a multitude of reasons. For starters, accurate and accessible information is available to the public through the Minnesota Department of Education's Report Card database. Through the Every Student Succeeds Act, this data is federally required to be available to the public and provides a greater understanding of a specific school or district's current and past climate. The information available extends well beyond the basic data sets such as graduation rates, and includes factors such as school attendance rates, student demographics, mastering of standards, and staff demographics. The state released a 29-page user guide in February, 2019 to help the public understand and utilize all that the report card database provides. The data collected and shared in the Minnesota Department of Education's Report Card are done in a systematic and consistent method that is applied to all public schools in the state. Currently with the Covid-19 pandemic, the option of sending out or conducting surveys to students regarding their elective choices and motivation was not deemed possible. Because of this, the documentary method provided the best way to find reliable and accurate information from preexisting sources. This chapter will go over the research design, sample, setting, instruments, data collection procedure, and plan for data analysis to better display the research methodology used.

Research Design

The method used in this research follows the pattern of Vanderbilt University's study, "Does Online Course-taking Increase High School Completion and Open Pathways to Postsecondary Education Opportunities?" by Heinrich and Darling-Aduana (2019). Although their study is mainly focused on online-learning in relationship to one specific school's graduation rate over an eight-year period, it does aim to provide further evidence of student success through autonomy and choice. Although their study uses a complex fixed effect model, this research has used the Pearson correlation coefficient, as their design similarly analyzes student graduation rates in comparison to alternative methods in educational opportunities.

Sample and Setting

The sample population for this study are the nine school districts who are members of the "Big 9" Conference, which is under the leadership of the Minnesota State High School League. This conference has records as far back as 1915 and has since added Northfield School District. The other founding districts include Albert Lea, Austin, Faribault, Mankato, Owatonna, Red Wing, Rochester, and Winona. This sample was selected because it is a naturally occurring group. This group also represents a larger portion of Minnesota students as a whole through its demographic makeup. Examples of this include the Rochester school district, where less than 60% of students are white and Austin school district, where less than 50% of students are white. This parallels diverse districts in the Minneapolis-St. Paul metropolitan area. Beyond the state's capital, districts such as Austin have a Hispanic population of almost 30%, which is similar to districts around Minnesota including Sleepy Eye Public Schools, which has a 35.9% Hispanic population. Districts such as Winona and Duluth both have around 75% white students within their district. All districts within the Big 9 either operate or collaborate with an Alternative

Learning Center school as well, and share similar ranges of free and reduced lunch populations that mirror districts across the state. One consideration that must be noted is the relationship that alternative schools have with their cooperative district or region. First introduced in Minnesota in 1987, Alternative Programs and Centers have played an important role in educating all of Minnesota's students. As trends in enrollment shift between regions and cities, these programs have also adapted to meet the needs of their learners. A key distinction between an alternative learning center and learning program is that a center must not exclusively cooperate with one single district, and must have at least one other cooperating district. This ensures that all students are welcome to attend regardless of their previous school enrollment. An alternative learning program has the right to work exclusively with their home district, and a student must first enroll in the general high school setting before being entering the program. An alternative center also has the option of creating their own policy and deviating from the graduation requirements of their host district. Although these term distinctions may seem lacking in significance, the results are shaping discussions in where a diploma is awarded from, as well as how many credits a student must earn before graduating (Minnesota Department of Education, 2020). Alternative programs are included in the graduation rates of a district's data, but there may very well be a time in the future where the end objectives of schools within a single district may be different and therefore influence data. This is a trend happening in certain districts and is not deeply asessed within the data of this research, as the Minnesota Department of Education does not provide the distinctions needed. The setting of these groups are Minnesota public high schools and their corresponding school district, and range in student district populations of 2,681 in Red Wing to 18,145 students in Rochester (MDE Report Card, 2020).

Instruments

The data collection process was done through all forms of public information. District graduation rates and Free and Reduced Lunch percentages were taken from the Minnesota Department of Education Report Card, which was publicly available. It should be noted that Free and Reduced Lunch percentages are often used as a substitute for the local poverty rate which displays a multitude of local economic factors beyond the walls of a local school. The elective credit course count was taken from each high school's course catalog for the 2020-21 school year. This information was collected online through each school district's website.

Data Collection Procedure

Data collection was done through recording each district's graduation rate from the 2017-19 school year. Elective course counts were done manually through each districts course catalog. The school guidance counselors of each district was contacted through email to help support and verify elective course options, but only half of the counselors responded to this inquiry. Those who did respond referred me to their high school's course catalog. Data collected from districts that have multiple high schools had all of their local high school elective courses count towards their overall elective count. For example, Mankato has East and West High School, but share one course catalog for registration. If a student is interested in attending a course only offered at one of these high schools, a request can be made to their school's Principal to attend the other school pending it fits their schedule. The flexibility this provides ensures that students are given a wide variety of choices, however, it is most likely not used frequently as it would disrupt a student's daily schedule. Regardless, this demonstrates that the options available extend beyond the one high school a student may attend. The same procedure is done regarding the three Rochester high schools. The number of locally required elective courses for each school district will also be collected and recorded through the district's website. The state level requires a minimum of

fourteen 1.0 semester course credits. Many school districts require a number beyond that minimum. An example displayed below demonstrates the breakdown of required courses from the Winona Area Public School's course catalog. This screenshot can be found on page eight of the Winona Senior High School's catalog online:

Table 1

Winona Area Public Schools - School Board Graduation Requirements

Winona Area Public Schools (District 861) School Board Graduation Requirements		
9th Grade English 2 credits American Studies I & II 2 credits Mathematics 2 credits Physical Education 1 credit Science 9/Pre-AP Science 9 2 credits Electives 5 credits Total 14 credits	11th Grade English 3 credits Early World Cultures 1 credit Modern World History 1 credit Mathematics 2 credit Electives 7 credits Total 14 credits	In order to graduate from Winona Senior High School, <div style="text-align: center;">54</div> credits must be earned.
10th Grade English 2 credits American Studies III 1 credit Mathematics 2 credits Biology 2 credits Health 1 credit Electives 6 credits Total 14 credits	12th Grade English 2 credits American Government 1 credit Economics 1 credit Additional Credits 10 credits Total 14 credits	
Of the credits required for graduation, <ul style="list-style-type: none"> • English - 9 credits • Social Studies - 8 credits including 1 credit in World Geography (If a student's schedule allows, it is recommended World Geography be taken in 10th grade.) • P.E. - 2 credits • Health - 1 credit • Science - 6 credits 2 in 9th grade Science 9 / Pre-AP Science 9 		

Data Analysis

Data was analyzed through a correlation model. The Pearson correlation coefficient was used to measure the linear correlation between two variables, a district's graduation rates and the number of elective course offerings provided to students in that district. Correlation data was also compared between graduation rates and the percentage of free and reduced lunch students in the district. The overall percentage of students graduating are recorded from the 2017, 2018, and 2019 school year. Each year was observed separately to help better display a district's overall graduation rate and weed out anomalies. The specifics of what constitutes an elective course was defined in Chapter I – Definition of Terms. The correlation model will help display the

relationship that these two variables have in common, and provide clarity for answering the research question. A third consideration was that of the number of required elective courses needed to receive the diploma of a specific school district. This will be displayed in the analysis as a supporting factor for elective course count considerations.

Summary

The research methodology of this study was done by collecting existing and reliable data directly from the Minnesota Department of Education and the course catalogs of each individual school district within the Big 9 Conference. The sample of these nine school districts parallels many qualities of school districts throughout the state of Minnesota, and provides a wide range of demographics that represent large portions of the state as a whole. Due to the current Covid-19 pandemic and an unreliable way of surveying and contacting students, this historical data method provides the best insight to answering the research question of the relationship between student choice and success in school observed through graduation rates.

Results

Introduction

The results of this study will be presented in this chapter. This chapter is organized by looking at a deeper description of the sample and will include characteristics that are of value to the study. This will be followed by a data analysis, which will describe how the data will be analyzed and show results for each question. The data presented will be objective in nature and further reflected and discussed upon in Chapter V.

Description of Sample

The sample used to collect data was the Big 9 Conference of Southeast Minnesota. This naturally occurring group has existed in some form since 1915 and ranges in student demographics and population size. Students within this group participate in conference sporting events and regional academic events such as Knowledge Team. They share a similarity in geographic region but also represent the broader demographics of Minnesota students as a whole (Minnesota Department of Education, 2019). Each district's data was collected as a district overall and not as a specific school. The rationale behind this was done to ensure that all areas of the district, such as alternative learning programs and centers, were included. Alternative learning Centers and Programs provide valuable support for students who don't fit the traditional high school settings and need further support or smaller class sizes. It is important that this research accurately reflects all students and not just specific general high schools. Since alternative centers typically exist to help students who are behind in credits for a variety of reasons, including them in each district's overall graduation rate significantly drops the overall

graduation rate of a high school. For example, Winona Senior High School's graduation rate was 87.1% for the 2019 school year. In comparison, the Winona Area Learning Center's graduation rate was just 18% for 2019 (Minnesota Department of Education, 2019). It should also be known that these percentages are based on the number of students who complete their high school diploma within the four-year context of their cohort. One area of consideration that must be addressed is the shift of Alternative Learning Centers and their autonomy from districts. Currently the local school board in Winona made the decision to require a different amount of credits to graduate from the Winona Area Learning Center in comparison to the Winona Senior High School. This separation was done on the basis of equity and providing the best educational needs for the students being served. Regardless, the consideration must be made that in the future districts may require different educational requirements for different institutions. For now, this is not a factor in the sample used and does not affect the data.

A final characteristic of this sample is that not all districts share the same amount of high schools, in turn may provide more options for student choice. An example of this includes the Northfield School District, which has one general high school and one alternative learning center. In comparison, the Rochester School District has three separate high schools with large student populations, and one alternative learning center. This consideration will be made in the discussion and conclusion portion of Chapter V.

Data Analysis

When reviewing the research questions asked in Chapter I, we can now analyze the data that reflects these questions. We can begin by looking at the specifics of elective graduation requirements in comparison to local graduation rates. Does the number of elective courses that a school district requires impact the graduation rates of that district in a positive or negative

manner? Table 2 illustrates the graduation rate for each Big 9 district and displays the corresponding number of elective semester credits required:

Table 2

Graduation Rates vs Elective Course Requirements for Local Diploma

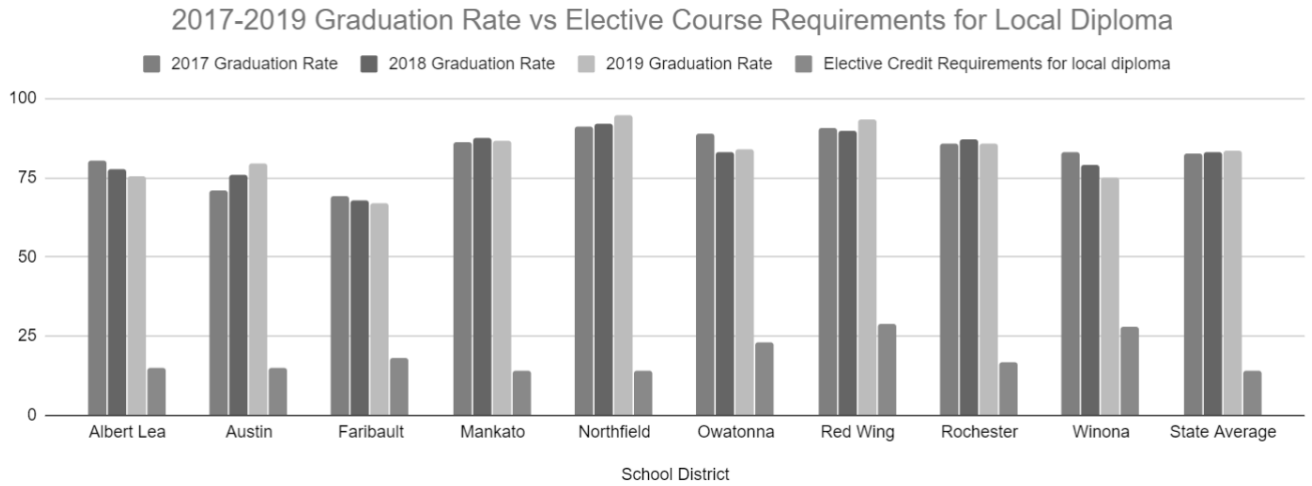
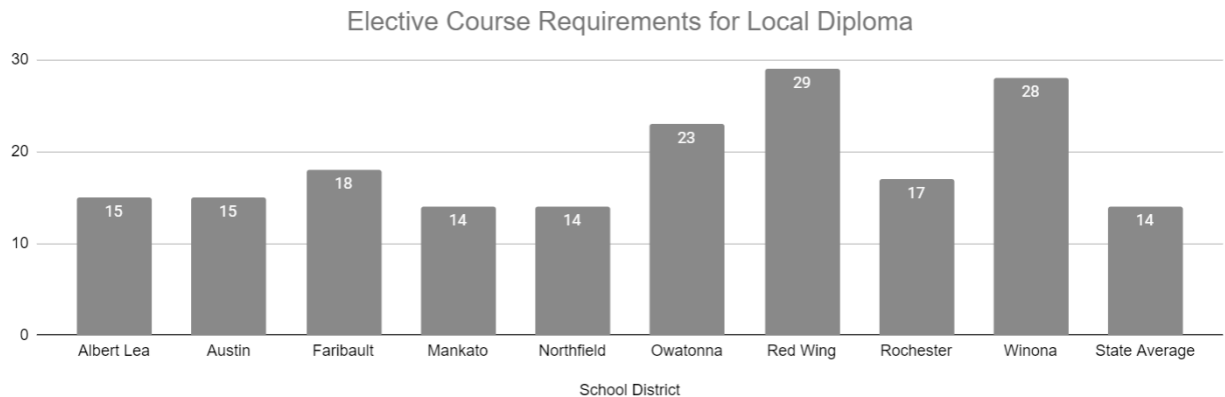


Table 3 displays a closer look at each district’s required amount of electives:

Table 3

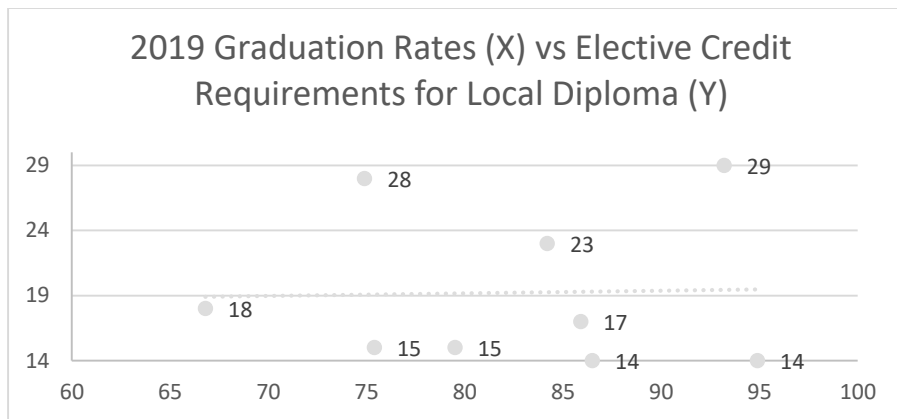
Elective Course Requirements for Local Diploma



Looking closer at the correlation data between the 2019 graduation rates and the number of elective courses required per district, an R value of 0.029923658 is found. The scatterplot and trend line data in table 4 can be seen below:

Table 4

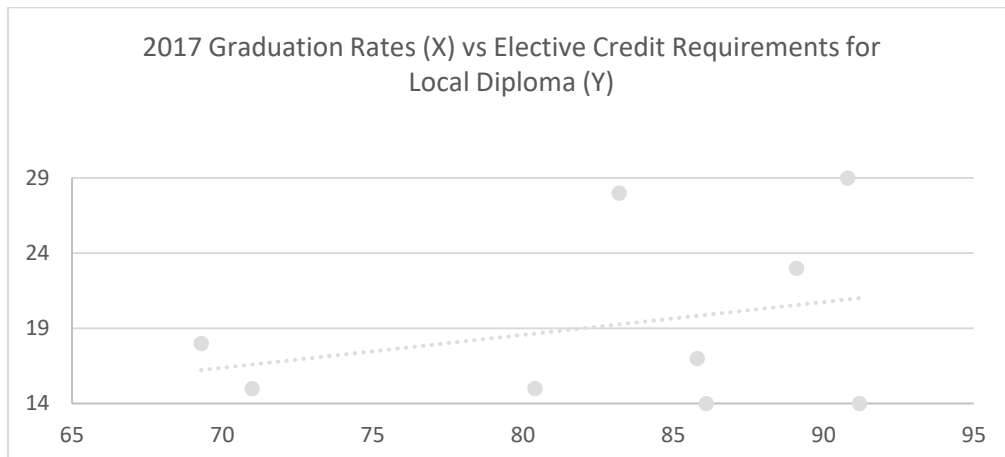
2019 Graduation Rates vs Elective Credit Requirements for Local Diploma



The 2018 graduation rates have a similar R value of 0.065439223. The 2017 graduation rates have a higher positive R value of 0.297110011, and can be viewed below:

Table 5

2017 Graduation Rates vs Elective Credit Requirements for Local Diploma



Do more elective course options increase a student's likelihood to graduate? Would replacing the amount of required core courses, such as English, Science, and Math with elective courses provide more intrinsic motivation for students to not only be attending school more, but thrive? Table 6 displays the 2017, 2018, and 2019 graduation rate in comparison to the number of elective course options a student may select from:

Table 6

Graduation Rates in Percentage vs Elective Credit Classes to Select From

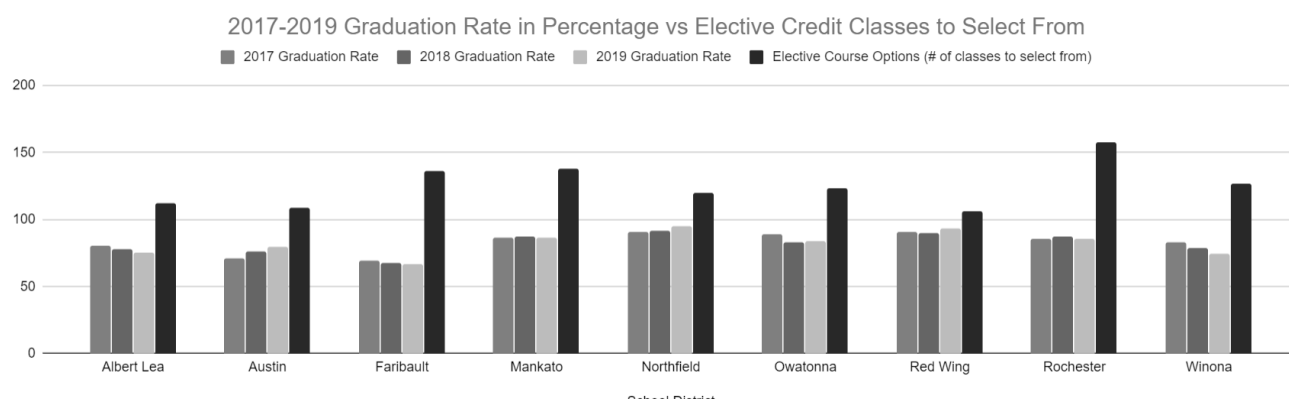
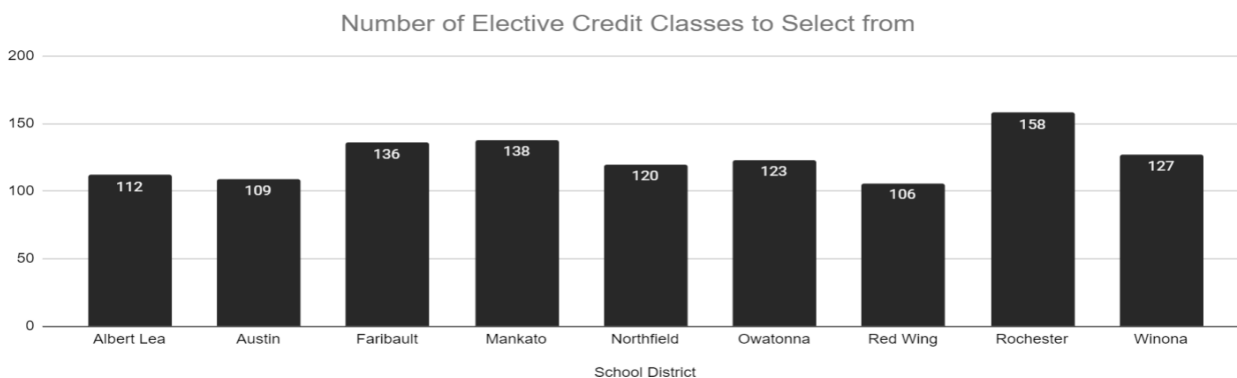


Table 7 displays a closer look at the number of elective courses each district offers:

Table 7

Elective Course Opportunities in each District

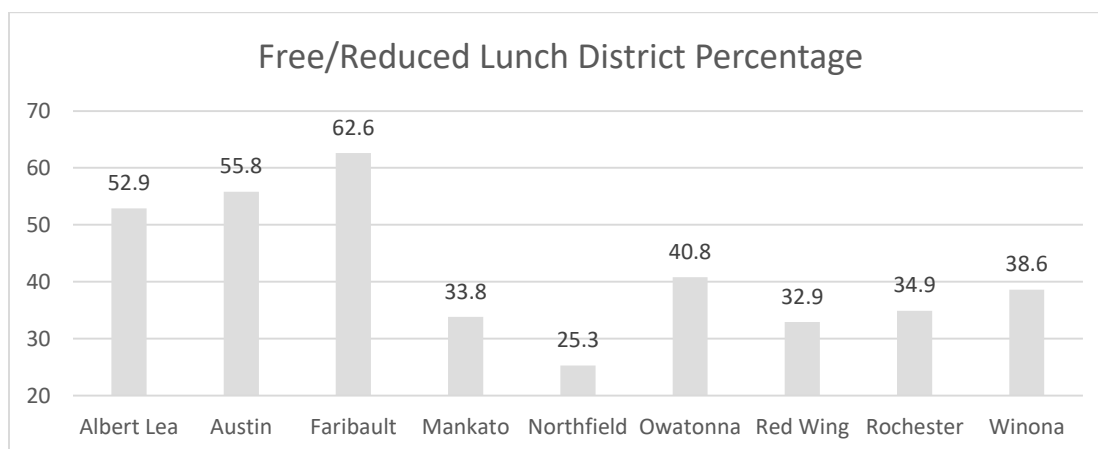


As you can see, there is a wide variety of elective course offerings throughout the Big 9 Conference as well as a wide range of graduation rates. The r of course offerings in comparison to graduation rates for 2017 is 0.00639714. For 2018 the r is 0.022827784, and for 2019 is -0.125681389.

Looking at the data regarding Free and Reduced School Lunch percentages as a district, the following can be seen in table 8:

Table 8

Free and Reduced Lunch Percentage by District



The r in comparison to graduation rates range from -0.865532427 to -0.952311817.

Summary

In summary, the results of this data reflect the data collection methodology. Different data points were considered and include a three-year range of graduation rates to better display the accuracy of the districts graduation rates. Although high school counselors were communicated with to help with the accuracy of the elective course count through email, no counselors provided a specific number for how many elective courses their district offers.

Because of this, each course catalog was consulted and each elective course was recorded. The graphs here reflect the findings of that data, as well as that of the Minnesota Department of Education's graduation rates.

Discussions and Conclusions

The purpose of this study was to better understand the effect that elective courses have on a student's academic success, which in this case was measured by a school district's overall graduation rate. It also aimed to further understand whether Minnesota's current coursework requirements allow for students to be prepared for a 21st century future and career by considering the amount of choices students are given in their local high school. This final chapter will be organized by looking at the research questions in comparison to the data. It will cover the discussion and conclusions given from the research as well as its relationship with other studies. The leadership implications will be considered through the lens of multiple stakeholder group, such as policy makers, legislators, and educators. Finally, it will discuss recommendations for future research.

Discussions

The research of this paper aimed to answer a multitude of questions regarding elective course opportunities and student choice. The main question being, do more elective course options increase a student's likelihood to graduate? Within that, does the number of elective courses that a school district requires, beyond the state minimum of 14 credits, impact the graduation rates of that district in a positive or negative manner? Beyond the data, what methods have proven successful that districts could implement to award credit?

Looking at the data of graduation rates in comparison to elective course opportunities, a few conclusions can be found. First, the amount of elective courses offered ranged drastically between districts, with the smallest number being Red Wing at 106 and the highest being

Rochester with 158 courses. As discussed previously, the reasoning for this could be due to resources, student population, and/or city dynamics and opportunities available locally. When looking through the course catalogs for this data, it was shown that about 30-50% of the classes required to graduate were elective courses. Because of these percentages, it can be concluded that most high schools offer around 300 courses minimum to their students within the Big 9 School Districts. When considering the correlation coefficient between these figures, the 2017 and 2018 had positive r values, however, these values were extremely small and displayed little positive correlation. The 2019 graduation rates in comparison to course options had a r value of -0.125681389 and is the only negative number of the three years. Because of the r value, the conclusion found from these three sets of data indicate that the number of course offerings in a district does not increase a district's graduation rate and no relationship is seen.

When considering the question of elective courses required to graduate within each district, more clarity is seen. The r value for the year 2017 was 0.29711011 , 2018 was 0.065439223 , and 2019 was 0.029923658 . All three years display a moderate positive relationship. The range of elective credits required per district also ranged significantly from the state minimum of 14 to the highest of 29, located in the Red Wing School district. Upon further research it is unknown why Red Wing's district has such a higher number of elective courses required to graduate in comparison to many of the other Big 9 schools. That being said, there is an overall positive relationship between a district having a higher amount of required electives and in turn having higher graduation rates. Findings of this nature are similar to studies such as Ferrer-Caja and Weiss' 2010 research, where they concluded that students who are able to select an elective course themselves have increased intrinsic motivation. This would support the findings that even though the number of required elective courses may be higher in certain

districts, students who felt they were in control of selecting those courses were successful and graduated within their four-year cohort. The study by Zaff et al (2016) found similar factors in predicting student success in their study “Factors that Promote High School Graduation”. The locus of control, that being the amount of how strongly someone believes they have control of their decisions, played a role in students feeling empowered in their academic outcomes. Zaff’s study also saw a positive relationship with students taking Career and Technical Education (CTE) courses and staying in school. CTE courses are almost exclusively elective courses and provide real-world skills for students who may not be interested in further education after high school. Oftentimes CTE courses also collaborate with local technical colleges to showcase the opportunities available to students after high school. Although the findings of this study were very unique to the state of Minnesota and Southeast region, the positive findings of increased elective requirements for a local diploma correlates with current research on student choice and positive educational outcomes. What was found from this study is that the number of electives required had a higher positive impact than the actual number of elective course options a student may select from. This was concluded by all R values being positive when comparing elective requirements versus the minimal and negative values of comparing elective course options.

When considering high school graduation rates, there are a multitude of factors that play a role in the outcome of district success. The data available on the Minnesota Department of Education report card also provided the opportunity to look at the population of Free and Reduced Lunch percentages. As noted in the results chapter comparing the graduation rate with free and reduced lunch percentages, the R value for 2017 was -0.922454027. The 2018 R value was -0.952311817 and the 2019 R value was -0.865532427. This tells us that these two factors consistently have a negative relationship with each other, and that when one factor goes down,

the other goes up. If graduation rates were to increase, the data would tell us that Free and Reduced Lunch percentages should decrease. If the Free and Reduced Lunch percentages should increase, the graduation rates should decrease. This data helps provide insight to understanding that there are many factors to consider when looking at graduation rates and the challenges in uncovering what influences the outcomes the most.

Leadership Implications

The leadership implications for this research help support the idea that elective courses are beneficial to schools. Since we know that schools have many stakeholders, governing forces, and school boards, this information would then be relevant to those bodies as well. The initial basic requirements to graduate with a high school diploma in the state of Minnesota is enforced by Minnesota Statutes, section 120B.024. This was most recently in effect for students entering the 9th grade during 2011-12 school year, making this legislation almost ten years old (Minnesota Legislature, 2019). Currently the legislature has a full plate dealing with the implications of the Covid-19 pandemic during the spring of 2019, as well as how to reconcile student growth with almost 25% of an academic school year switching to distance learning through online means. This research suggests that increasing elective credit requirements at the state level, even by 1.0 credit, would help positively impact student achievement. It is suggested that a ten-year cycle would benefit the legislation of Minnesota Statue 120B.024, with an updated state requirement done in the 2021-22 school year.

Even if the legislature does not act, the statue does provide flexibility and autonomy for school boards. Minnesota Statue 120B.024 states that students are required to also “satisfactorily complete all state academic standards or local academic standards where state standards do not apply” (Minnesota Department of Education, 2019, para 1). This would provide the opportunity

for school boards to increase the number of electives beyond the state minimum of 14 on their own. Out of the nine school districts selected in this research, Mankato and Owatonna were the only two districts that required the minimum of 14 credits. Albert Lea and Austin required 15 credits, and all others required 17 or more. The finding of this research suggests that increasing electives opportunities is important, but considering how those elective courses are provided to students is also important. It would be highly valuable for superintendents, principals, and associate principals to have discussions with their elective departments in surveying student interest on future course requirements. Their findings may help better streamline the process for teachers to create new courses that meet multiple state standards. Professional development and trainings such as Project-Base Learning may help teachers better understand how to achieve this. Zaff's (2016) research on positive graduation factors include the idea that communities surrounding the school provide critical resources as well. This suggest that leaders from all aspects of the community play a valuable role in collaborating with their local schools to provide partnerships in community engagement. As discussed in Chapter I, school boards are provided the opportunity to award credit to students who participate in community service opportunities. The strength in partnerships between local businesses, volunteer organizations, and schools would help positively impact student engagement within their community and provide valuable credit opportunities for students in the process.

Recommendations for Future Research

Graduation rates are a culmination of many factors. This research chose one specific area, elective course requirements and opportunities, and aimed to further understand their relationship. We know there are many factors other than just the classes students are enrolled in that influence their educational experience in a positive or negative manner. Valuable research

for the future would cover the topics of after-school activities such as clubs and organizations in relation to student graduation rates and engagement. Another very influential factor is student athletics and its relationship with student achievement. Further research is needed to better understand the relationship these areas have on student success, as well as the effectiveness of regulations some schools have for sport participation. For example, does requiring students to be passing all their classes in order to participate in a sport increase or decrease their motivation to improve their grades? What organizational systems are in place to ensure that students are being properly monitored, and how are those systems communicated to teachers? The research of this paper sheds a small amount of light on a much larger and broader topic of student graduation and achievement. Further research should involve students themselves, including surveys, interviews, and dialogue opportunities. This would increase the rationale and knowledge of understanding that students may be feeling when participating in course registration and the level of autonomy they are given in their own educational experience.

Summary

This study has attempted to better understand the relationship that elective courses have on student achievement as measured by graduation rates. The elective courses were considered both as a numerical requirement for each district to graduate their students, as well as the scope of opportunities available to students to select from when registering for classes. The findings indicated that there is little correlation between the number of courses available for students to select from. Somewhat unexpectedly, it did find a moderate positive correlation between the local elective course credit requirements a student needs to complete and the graduation rates of that school district.

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