

MINNESOTA EARLY INDICATOR AND RESPONSE SYSTEM IMPACT ON
GRADUATION RATES: AN ANALYSIS OF AN EARLY WARNING INTERVENTION
AND MONITORING SYSTEMS IN AN ALTERNATIVE LEARNING CENTER

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ABSTRACT

The purpose of this study was to examine the impact of the Minnesota Early Indicator Response System (MEIRS) on graduation rates, student attendance, behavior, and academic production in an alternative setting. The quantitative data was gathered using historical school and district stored data. Descriptive statistics used included frequencies, means, and standard deviations. Inferential statistics included independent sample *t*-tests to analyze the relationships of the differences for graduation rates prior to and during the implementation of MEIRS. Independent sample *t*-tests were used to analyze the differences for student data prior to MEIRS implementation and during the MEIRS implementation. Results of the study indicated that MEIRS did positively graduation rates. MEIRS's impact on-track indicators were mixed. Attendance was not significantly impacted; behaviors were impacted positively and credits earned were impacted negatively.

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CHAPTER I: INTRODUCTION

Introduction

High School graduation for many is a rite of passage, but it is so much more. Graduating from high school is an indicator of long-term success in life (Mac Iver et al., 2019). Due to the significance of high school graduation, there is a focus on the rate at which students graduate from high school. Although the US government has been collecting educational statistics, including high school graduation rates, for 150 years, the collection methods have changed. The US Department of Education first reported four-year adjusted cohort graduation rate (ACGR) in 2010-2011 was 79%, and it increased to 85% in 2017-2018 (NCES, 2019). Although the graduation rate continues to be on the rise, nearly one of six high school students do not graduate.

Success in high school is determined by passing classes, earning grades that put students on track for post-secondary training, and graduating from high school (Allensworth & Easton, 2005; Allensworth et al., 2014). If a student in grade nine earns less than two credits, attendance is below 75%, the student fails one or more core courses (English, math, social studies, science) or grade point average (GPA) is below 2.0 on a 4.0 scale, the student is considered at risk of dropout (Chau, 2009; Mac Iver & Messel, 2013; McKee & Caldarella, 2016; Neild et al., 2007).

Using early warning systems can help determine if a student is on-track towards graduation during their freshman year (Allensworth, 2013; Allensworth & Easton, 2005; Allensworth, et al., 2014). Early warning systems allow educators to identify which students are off-track and need support throughout high school. Implementing an Early Warning and Intervention System (EWIS) is designed to not only identify at-risk students but to also apply interventions to support students in finding success through high school. The goal of utilizing an

early warning system with or without interventions is to aid students in completing graduation and success in life beyond high school.

Statement of the Problem

Moorhead Area Public Schools' graduation rate for 2017-2018 was 76% which was comprised of Moorhead High School's 82.5 % graduation rate and Moorhead's Alternative Learning Center (ALC) graduation rate of 22.9% (MAPS, 2019). Moorhead Area Public Schools (MAPS) graduation objective was to improve the four-year graduation rate from 80.55% to 83.55% for the graduating class by February 2019. The four-year graduation rate for the graduating class of 2018 was 76% (MAPS, 2018). This graduation goal was maintained from 2018 into 2019 due to the graduation percentage for 2018. The goal is to continue to increase graduation rates, especially with the four-year cohort graduation rate. Although this is a local district-level goal, MAPS graduation objective is tied to the Minnesota of Department of Education's collaboration with the Minnesota Alliance for Youth that is working towards a four-year cohort graduation rate of 90% (MDE, 2020).

Moorhead's ALC graduation rates have a history of being low. The ALC graduation rate is low due to the at-risk nature of the students attending the school. Many of the students attending the ALC have been referred from Moorhead High School or from outside of the Moorhead Area Public Schools. Students attending the Moorhead ALC must be under the age of 21 and fit one of the Graduation Incentive Criteria used to identify at-risk students:

- performs substantially below the performance level on a locally determined achievement test
- is behind in satisfactorily completing coursework or obtaining credits for graduation
- is pregnant or is a parent

- has been assessed as chemically dependent
- has been excluded or expelled
- has been referred by a school district for enrollment in an eligible program
- is a victim of physical or sexual abuse
- has experienced mental health problems
- has experienced homelessness sometime within six months before requesting a transfer to an eligible program
- speaks English as a second language or is an English learner
- has withdrawn from school or has been chronically truant (Minn.Stat. #124D.68: Graduation Incentives Program, 2020).

Student referrals to the ALC are often due to students not finding success in their traditional high school. Students at the ALC often struggle with the traditional high school setting. By the time students are enrolled in the ALC, their academic successes are often deteriorating and they are often already credit deficient.

The Alternative Learning Center’s graduation rate has been identified as low by the state and is required to use data-driven intervention practice. To meet this requirement, they have adopted the Minnesota Early Indicator and Response System (MEIRS). The ALC MEIRS team uses attendance, behavior and course performance, the ABC, data sources setting thresholds which are used to identify students who are at-risk (MDE, 2018). The team discusses the identified students, determines individualized interventions that address the root cause of the issue at hand, and follows up to support students in finding success in high school. The MEIRS process utilizes a seven-step process of “1) Meet Regularly as a Team, 2) Review Data, 3) Discuss Individual Students, 4) Assign Interventions, 5) Ensure Interventions are Provided, 6)

Monitor Student Progress, 7) Evaluate, Refine and Report” (MDE, 2018, p. 15). The goal of the program is to identify, intervene and improve graduation rates by using Attendance, Behavior and Course Performance (ABCs) as indicators. Although this adoption began during the 2018-2019 school year, the focus of the first year was to gather information about the school, the staff and the students. MEIRS in the ALC during 2018-2019 did not identify students or their needs. The ALC MEIRS team was created during the summer of 2019. This team was trained on the process and data collection before school began in 2019. The ALC began the MEIRS process working with students in the fall of 2019. Although data is gathered, students are identified, and interventions are put into place, the impact of these processes on graduation rates and the key indicators has not yet been analyzed to determine the achievement of MEIRS implementation at the ALC.

Purpose of the Study

The purpose of this study was to examine the impact of the Minnesota Early Indicator Response System (MEIRS) on graduation rates, attendance, behavior and credits earned for students in Moorhead’s Alternative Learning Center.

Research Questions

1. How does the implementation of the Minnesota Early Indicator Response System (MEIRS) impact graduation rates in an alternative high school setting?
2. How does the implementation of the Minnesota Early Indicator Response System impact each on-track indicator attendance, behavior and credits earned for at-risk students in an alternative high school setting?
3. What data trends emerged in attendance, behavior and credits earned after implementation of MEIRS?

Significance of the Study

There is a significant amount of research on Early Warning Systems (EWS) as well as the implementation of Early Warning and Intervention Systems (EWIS) in urban areas, such as Chicago, Philadelphia and Milwaukee (Allensworth & Easton, 2005; Allensworth, 2103; Balfanz & Neild, 2006; Balfanz, Neild & Herzog, 2007). There are also studies on the impact of EWS or EWIS in some suburban areas in the Midwest and Southern states (Hartman et al., 2011; Norbury et al., 2012). Early Warning Systems utilize the same indicator ABC's, Attendance, Behavior and Credits earned, with similar predictive results regarding students that will and will not graduate from high school (Frazelle & Barton, 2013; Mac Iver et al., 2019). Much of the current research focuses on identification and does not focus on support for those students that have been identified. With implementation and intervention systems, the focus shifts to improving students' likelihood of high school graduation. These studies are based mostly in an urban setting or larger suburban schools. There is currently very little data to show the impact of implementing an EWIS such as MEIRS on improving the indicator ABCs or high school graduation rates in smaller urban schools.

Definition of Key Terms

At-risk– Students or groups of students that have a higher likelihood of failing academically or dropping out (Astbury, 2010).

On-track– “Student performance that meets the minimum performance to be able to graduate from high school on schedule without any major or unusual interventions” (Allensworth & Easton,2005, p.1).

Early Warning System (EWS) – “A set of indicators, data and reports used to monitor student progress and a process for using the data to inform and direct interventions or responses

when the data indicate students are in need of additional supports” (Rumberger et al., 2017, p.49).

Minnesota Early Indicator Response System (MEIRS) - “Minnesota’s Early Indicator Response System (MEIRS) is an Early Warning System that has been intentionally designed with flexibility to address the unique local needs of the various districts, charters, schools and programs that serve students in Minnesota” (MDE, 2018, p.3).

Graduation rate – “The percentage of students who have earned a regular diploma” (Rumberger et al., 2017, p.2).

Dropout rate – “The percentage of students who are not enrolled in school and have not earned a regular or alternative diploma” (Rumberger et al., 2017, p.2).

Summary

Chapter I contains an introduction to the implementation of Early Warning and Intervention Systems demonstrating the need to explore the impact MEIRS has on the ALC graduation rates and indicators. Chapter II includes a synthesis of the relevant literature related to the graduation rates, early warning systems, and indicators, the ABCs, specifically by examining attendance, behavior and earned credits. Chapter III contains a description of the methodology including the research questions, description of the population and sample to be studied, data collection and data analysis procedures. Chapter IV will present the research findings including a summary of the data. Chapter V will contain the analysis of the data, implications, conclusion, summary and recommendations for further research.

CHAPTER II: LITERATURE REVIEW

Introduction

This chapter provides a review of literature related to the use of early warning systems to aid students in finding success in completing high school. The chapter begins with an overview of an ongoing concern with graduation rates. Next, it addresses the use of early warning systems in the identification of students at risk of not completing high school. Finally, it tackles an exploration of key indicators in predicting high school graduation.

Graduation Rates

Education reform has long focused on high school graduation rates. There has been a long-standing concern with the quality and credits earned of public education (Johanningmeier, 2010). Many think that this focus began with the National Commission on the Excellence of Education's report *A Nation at Risk: The Imperative for Educational Reform*, but it was a synthesis of "claims and arguments that have been made since the end of World War II" (Johanningmeier, 2010. p.348). *A Nation at Risk* concluded that American students were not achieving at a competitive rate with international students. Although the report was not new information, the concerns became public and a stage was given to the concern with student achievement including graduation (Johanningmeier, 2010). This report gave an organized set of data that stemmed the conversation about high school performance. Since the 1990s, public and private investment in reforming high schools have grown specifically to address low-performing schools and to improve graduation rates (Balfanz & Letgers, 2004).

Educators have been delving into graduation rate concerns for more than 30 years. The United States public high school graduation rate has increased from nearly 70% in 1990-1991, using the average freshman graduation rate, defined as the percent of students that received their

diplomas in four years (NCES, 2018), to the 85% in 2017-2018 using an adjusted cohort grade rate (ACGR) (NCES, 2019). The ACGR is calculated by identifying the “cohort” of first-time 9th graders in a particular school year and this number is adjusted by adding students who transfer into the cohort after 9th grade and subtracting any students who transfer out, emigrate to another country or pass away (NCES, 2019). The public high school 4-year ACGR for 2013-2014 was 82% (NCES, 2018). Although the graduation rate has improved, approximately 567,000 students in the United States during the 2013-2014 school year did not receive a high school credential (McFarland et al., 2018).

As educators work to ensure that students graduate from high school, the first step has been to determine those that will not graduate from high school. For the past 30 years, correlations have been made between dropping out and demographic factors (Balfanz & Legters, 2004; Bowers et al., 2013). Although demographic characteristics, such as low income, race or ethnicity and gender, have been predictors of potential non-completion of high school, research has shown that there is a “vast range of factors” that predict drop-out across “varying ecologies of individuals’ lives” (McDermott et al., 2019, p. 270). Individuals have faced short-term and long-term experiences which determined students’ decisions to drop out (McDermott et al., 2019). Predictors of not graduating from high school are rooted in demographic characteristics such as more behavioral reports and differential treatment in the classroom. Unfortunately, schools that were in high poverty settings often lack resources and employ undertrained and inexperienced teachers who were more likely to report students for classroom behaviors (McDermott, 2019). Behavior reports have often ended with suspensions, transfers or expulsions which push students out of school (Balfanz & Legters, 2004; Legters & Balfanz, 2010; McDermott, 2019). Teacher quality has also impacted student engagement and the school

environment. Student engagement has been reviewed through students' struggles with academic performance, academic behaviors, such as attendance, suspensions, etc. and connections to course content (McDermott, 2019). Engagement and environment were the most common predictors or reasons students claim that they did not finish high school. Although students reported these as reasons for leaving school, multiple studies found that individuals who leave school may not have had experiences that are in alignment with characteristics of an Early Warning System (McDermott, 2019).

Emergence of Early Warning Systems

Faced with a record high school graduation rate of 85% in 2017-2018 and yet nearly half a million students dropping out, high schools across the country adopted different strategies to keep students in school and on track towards graduation (US Department of Education, 2019; US Department of Education, 2016). Research that began in urban school districts such as Philadelphia and Chicago, explored the concept of being able to identify students that were not on track towards graduation (Allensworth & Easton, 2005; Allensworth, 2013, 2014; Gwynne, De la Torre & Moore, 2014; Mac Iver & Messel, 2013; Neild & Balfanz, 2006). The indicators used in Chicago to determine if students were on track, meaning that students meet “the minimum performance to be able to graduate from high school on schedule without any major or unusual interventions” (Allensworth & Easton, 2005, p.1) became a model used in other locations (Hartman et al., 2011; Norbury et al., 2012). The U.S. Department of Education has developed a set of recommendations to address the challenges in classrooms and schools including monitoring student progress and addressing at-risk students (2017). These have become guides in the creation of early warning systems for many high schools across the nation. In 2014-2015, about half of public high schools had an early warning system implemented and

51% of those reported that the coordination between other services and the system was limited in nature (US Department of Education, 2016). Early warning systems only identified students in need of intervention. Identification was the crucial first step, but there was a need for structures and effective interventions to be carried out to shift students back on track or support those that were off-track (Davis et al. 2019; Mac Iver et al. 2019).

The ABC's Prediction Indicators

High school dropout research over the past twenty-five years has focused on the following elements which interconnect demographic characteristics, out-of-school behaviors, institutional factors, attitudinal factors and school-related behaviors (Rumberger & Lim, 2008). Research over the last decade has shown that disengagement with the school that ends with students dropping out can be seen through a combination of high absenteeism, behavior problems and course failures (Allensworth, 2013; Allensworth & Easton, 2005; Balanz, Herzog & Mac Iver, 2007, Mac Iver & Messel, 2013; Neild & Balfanz, 2006). Demographic characteristics are predictive, these are not effective in determining which students need intervention (Allensworth, 2013; Mac Iver et al., 2019). The ABCs of dropping out, attendance, behavior and course failure or credits earned, are the strongest predictors of students dropping out which are often interrelated (Frazelle & Barton, 2013; Mac Iver et al., 2019).

Attendance

Student attendance is a key indicator of student success during the critical freshman year and throughout high school (Allensworth & Easton, 2005; Benner & Wang, 2014; Neild, 2009). Struggling or at-risk students faced higher absentee rates (Cohen & Smerdon, 2009). The research completed by Neild and Balfanz (2006) in Philadelphia reported that ninth-grade students whose attendance dipped below 70% had at least a 75% likelihood of dropping out of

high school. Students that continued after ninth grade and attended less than 80% had over a 50% probability of dropping out (Neild & Balfanz, 2006). Benner and Wang (2014) explored the attendance trajectories from middle school to high school focusing on how attendance changed immediately before to immediately after the transition to high school. Students who experienced greater attendance disruptions during middle school to high school transition were more likely to shift to a lower attendance pathway (Benner & Wang, 2014). Thirty-eight percent of students shifted to poorer attendance line often signaling greater disengagement and continued problematic attendance trends (Benner & Wang, 2014).

Behavior

Student behaviors in schools and the resulting discipline, such as suspensions, increase the likelihood of students dropping out of high school (Baker et al. 2020). In 2011-2012, the nationwide suspension rate for secondary schools in the United States was 10.1% (CCRR, 2013). Students that have experienced suspensions are more likely to drop out (Baker et al, 2020; Balfanz et al. 2014; Rumberger & Losen, 2016). Balfanz et al. found that 75% of students with no suspensions graduated from high school while 16% dropped out (2014). With one suspension, the percentage of students that dropped out doubled to 32% (Balfanz et al., 2014). Rumberger & Losen (2016) found that the graduation rate dropped in Florida from 90% for tenth-graders with no suspension to 75% for tenth-graders with one or more suspension. The same study showed that in California tenth-graders without suspensions graduated at a rate of 94% while those with one or more suspensions graduated at a rate of 67% (Rumberger & Losen, 2016). Using a combined set of anonymous data, only eight percent of graduates had two or more suspensions (Jobs for the Future, 2014). Controlling for attendance, course failures and demographics, Balfanz et al., found that each additional suspension decreases the likelihood of high school

graduation by 20% (2014). Suspensions increase the risk of not graduating (Balfanz et al., 2014; Rumberger & Losen, 2016; Jobs for the Future, 2014). One in five ninth-graders suspended did not have attendance issues or course failures, but being suspended led to more suspensions as well as a decline in attendance and an increase in course failures (Balfanz et al., 2014).

Credits Earned (Course Failure)

Many high schools use the number of credits earned to identify student's current grade level. Ninth-grade enrollment numbers increased due to incoming freshmen and constriction of student progress between ninth and tenth grade (Wheelock & Miao, 2005). U.S. public school enrollment numbers show that there were more ninth-grade students than either eighth or tenth-grade students from 1980 through 2015 (NCES, 2017). Signals recognized during middle school aided in the development of an effective early warning system to mitigate the freshmen bottleneck and to provide intervention during the pivotal ninth-grade year (Allensworth et al., 2014; Allensworth, 2013; Neild, 2009).

In 2005, the Consortium on Chicago School Research (CCSR) published the on-track indicator as a predictor of high school graduation in which the authors defined on-track as “a baseline indicator of acceptable, though not necessarily strong, school performance” (Allensworth & Easton, 2005, p. 3). According to Allensworth & Easton (2005) to be on track students must have accumulated five credits and may not have failed more than one-semester course. The on-track system was developed because only using standardized test scores as indicators did not give the full picture for students. 22% of students whose test scores were in the top quartile still ended ninth grade off-track and 37% of those students did not graduate high school in four years (Allensworth, 2013). The research done by Neild and Balfanz (2006) in Philadelphia conveys that students that earned less than two credits during their ninth-grade year

had at least a 75% chance of dropping out of school. Failing a required course forced students to make up the credit impacting students' further studies. Students often did not have the base knowledge needed in later courses or courses were taken out of sequence which made it difficult to find success in subsequent years (Allensworth & Easton, 2005).

The on-track indicator developed by CCRS has been applied outside of the Chicago Public School system in Texas and the Midwest (Hartman, et al., 2011; Norbury, et al., 2012). In both research studies, the CCRS on-track indicator was predictive for the graduation of students that were on-track and those that were off-track at the end of the ninth-grade year (Hartman, et al., 2011; Norbury, et al., 2012). In 2000, 81% of freshmen students that were on-track at the end of grade nine graduated from high school in four years, while only 22% of those that were off-track graduated in four years (Allensworth & Easton, 2005). In 2005, 61.2% to 81.6% of first-time ninth-grade students that were on-track graduated in four years, while only 14.0% to 38.8% of the off-track students graduated in four years (Hartman, et al., 2011). In 2006, 79.8% of the on-track freshmen graduated in four years, while 29.9% of the off-track graduated in four years (Norbury, et al., 2012).

Table 1

Graduation Rates from High School in Four Years

	On-Track	Off-Track
2000*	81%	22%
2005**	61.2 – 81.6 %	14.0 – 38.8 %
2006***	79.8 %	29.9%

* Allensworth & Easton, 2005

** Hartman, et al., 2011

*** Norbury, et al., 2012

Students that were on-track were three times more likely to reach high school graduation within five years in comparison to those that were considered off-track (Allensworth & Easton,

2005). Students that were promoted to tenth grade but were not on track potentially have already missed the opportunity to get on pace for graduation (Kemple et al., 2005). Gleason & Dynarski (2002) found that one of the greatest drop-out risk factors is students being held back in ninth grade.

Summary

The review of the literature presented in this chapter provides the background for the development of this study. This study seeks to determine the impact of MEIRS on the graduation rates for the Alternative Learning Center in Moorhead Area Public Schools. The effectiveness of the implementation of an Early Warning and Intervention System by analyzing student indicators used in MEIRS, attendance, behavior reports and credits earned, before and after the implementation of the early warning system. The next chapter will describe the methodology that will be used in the data collection and analysis.

CHAPTER III: METHODOLOGY

Introduction

This chapter includes the research questions, description of the population and sample to be studied, research procedures including data sources, collection and analysis procedures for the study are presented in this chapter.

Purpose of the Study

The purpose of this study was to examine the impact of the Minnesota Early Indicator Response System (MEIRS) on graduation rates, attendance, behavior and credits earned for students in Moorhead's Alternative Learning Center.

Research Questions

1. How does the implementation of the Minnesota Early Indicator Response System (MEIRS) impact graduation rates in an alternative high school setting?
2. How does the implementation of the Minnesota Early Indicator Response System impact each on-track indicator attendance, behavior and credits earned for at-risk students in an alternative high school setting?
3. What data trends emerged in attendance, behavior and credits earned after implementation of MEIRS?

Population

The identified population for this study was the students that attend the Alternative Learning Center (ALC) in Moorhead, MN. Moorhead is a community with 38,065 people recorded during the 2010 census (City of Moorhead, 2021). Moorhead Area Public Schools (MAPS) consists of four elementary schools (K-4), one middle school (5-8), one comprehensive

high school (9-12) and one alternative learning center (7-12). In January 2021, enrollment was 8,444 students with 1,878 at Moorhead High School and 101 at the ALC.

Table 2

Moorhead Public School District Racial/Ethnic Breakdown

Dependent Variable	Independent Variables						
	White	Hispanic	Black	Two or More	Asian	American Indian	Pacific Islander
2014- 2015	76.80%	8.60%	7.40%	*	1.80%	5.40%	*
2015- 2016	75.00%	8.80%	9.10%	*	1.70%	5.40%	*
2016-2017	71.90%	8.90%	8.30%	6.38%	0.90%	3.50%	0.06%
2017-2018	70.09%	8.89%	10.15%	6.47%	0.94%	3.72%	0.05%
2018-2019	67.75%	9.32%	11.29%	6.90%	1.03%	3.68%	0.04%
2019-2020	68.52%	7.26%	11.36%	5.8%	1.66%	5.4%	0.05%
2020-2021	66.96%	7.33%	11.74%	6.81%	1.58%	5.57%	0.04%

*Not collected data

Moorhead Area Public Schools continues to become more diverse. Table 2 shows that the racial breakdown of the district has steadily changed over the past seven years. The percentage of white students has dropped nearly 10% in the past seven years, while the percentage of black students has increased by nearly four percent. Beginning in the 2016-2017 school year, students were able to identify as two or more races and Pacific Islander was recorded as a demographic identifier. Over the last seven years, the Hispanic percentages have experienced growth and then a relatively sharp drop leaving the current percentage nearly 2% lower than it was in 2018-2019 and 1.27% lower than it was seven years ago. American Indian student population percentage has stayed about the same over the past seven years facing a drop to 3.68 % in 2016-2017 and then an increase back to 5.57% in 2020-2021. Asian percentage is the second-lowest student population represented with a low of 0.90% in 2016-2017 and a high of 1.80% in 2014-2015. It too has remained near where it started seven years ago, but with fluctuations in the middle years.

Sample

The researcher explored the impact of the implementation of MEIRS on graduation rates for students attending the ALC. The students that attend the ALC are referred from Moorhead High School, one of three other partnering high schools, by families or by outside agencies. Once students are referred and approved to attend the ALC, students from outside of MAPS complete open enrollment paperwork so that the students become MAPS students. The participants in the study were students that have taken part in the ALC program before (2014-2018) and during (2018-2021) the implementation of MEIRS. The number of students enrolled and attending the ALC fluctuates throughout the school year and between school years. The resulting sample size for this research study was 1,338 students.

Table 3

Moorhead Alternative Learning Center Racial/Ethnic Breakdown

Dependent Variable	Independent Variables						
	White	Hispanic	Black	Two or More	Asian	American Indian	Pacific Islander
2014- 2015	54.30%	21.00%	13.20%	*	1.10%	10.4%	*
2015- 2016	49.57%	20.21%	16.38%	*	1.49%	12.34%	*
2016-2017	50.97%	18.66%	13.92%	7.24%	0%	9.19%	0%
2017-2018	43.57%	20.70%	10.00%	13.20%	0.07%	11.78%	0%
2018-2019	44.81%	18.31%	13.93%	10.66%	0.81%	11.48%	0%
2019-2020	38.83%	22.33%	13.59%	12.62%	0.97%	11.65%	0%
2020-2021	34.51%	21.24%	12.39%	15.04%	0.88%	15.93%	0%

*Not collected data

In a school district, each school should be nearly on par with the demographic breakdown of the district, especially the secondary schools into which all elementary feed. The Alternative Learning Center’s (ALC) student population racial demographics do not reflect that of the school district. As can be seen in Table 3, the greatest racial group at the ALC is still white, 34.51% in 2020-2021, but it is much lower than that of the district, 66.96% in 2020-2021. In addition, to

this difference, the Hispanic percentage at the ALC is much higher at 21.24% in 2020-2021 while the district's percentage of the Hispanic student population was 7.33%. The American Indian percentage is much higher at the ALC 15.93% in 2020-2021 while the district's percentage was 5.57%. More students identify as two or more races at the ALC (15.04%) than at the district level (6.81%).

Procedure

This quasi-experimental, nonequivalent group design is structured to assist in comparing graduation rate and on-track indicators prior to MEIRS implementation and during MEIRS implementation. The researcher gathered the needed information through historical data collection using the School Information System, PowerSchool, for the Moorhead Area Public School district, annual reports for the school district, and Disciplinary Incident Reporting System (DIRS).

Data Sources

The data sources for this research study were historical data that was gathered with the consent and approval of Moorhead Area Public Schools. The data was used in an aggregated manner rendering the data anonymous.

Graduation Rates

The impact of the implementation of MEIRS (independent variable) on graduation rates was be measured through the percent of graduates for each school year for the district, the comprehensive high school and the alternative learning center. The graduation rates were collected through the annual report and Minnesota Automated Reporting Student System (MARSS).

Indicator Data

The impact of MEIRS implementation (independent variable) on each indicator data was measured through student attendance, behavior and academic credits earned. Data was gathered from MAPS' Student Information System and PowerSchool for yearly attendance and credits earned while behavior data was gathered from the Disciplinary Incident Reporting System (DIRS) report for the ALC. Attendance data was collected as the number of days attended compared to the number of days the student was enrolled in school. It included both excused and unexcused absences. Yearly academic credits earned included the number of credits earned during the school year inclusive of summer school. Behavior data gathered was the number of suspensions or other major behavior violations for the school year.

In addition to submitting all required materials to the Institution Review Board (IRB) for approval by North Dakota State University, this study required district approval of access to and use of de-identified student information. To complete this, the researcher was given a letter of consent by the school district.

Data Analysis Procedures

Data analysis for this research study included both descriptive and inferential statistics. Inferential statistics were used to understand the impact of MEIRS on the graduation rates in an alternative setting. The researcher completed an independent sample *t*-test to compare the graduation rates for the Alternative Learning Center prior to MEIRS implementation (Control) and the graduation rates during and after MEIRS implementation (Treatment). An independent sample *t*-test was used to compare the difference score between graduation rates during MEIRS implementation (treatment) and graduation rates prior to MEIRS (Control). This data analysis aided in understanding the impact of MEIRS implementation on graduation rates and aided in

answering the first research question: How does the implementation of the Minnesota Early Indicator Response System (MEIRS) impact graduation rates in an alternative high school setting?

Descriptive statistics included analysis of on-track indicators, academic production, attendance rates, and behavior including means and standard deviations. The information gathered in the descriptive statistics was used to better answer the research questions: How does the implementation of the Minnesota Early Indicator Response system impact each on-track indicator: attendance, behavior and credits earned for at-risk students in an alternative setting?

Limitations

During the 2019-2020 school year, the world faced a pandemic that greatly impacted schools across the world. Within the ALC, students experienced distance learning utilizing technological resources. This drastically changed the second year of implementation of MEIRS. Although the ALC was making great strides in its protocols, data collection and processes, the sudden change to distance learning in March 2020 impacted the continuation of MEIRS. The focus of schooling in the spring was supporting students during the radically changing teaching and learning methodologies. The Corona Virus pandemic considerably changed schools and therefore significantly changed the data used in this research study.

Summary

This chapter reviewed the purpose of the study and the research questions. It described the population and sample for which data was collected. This chapter depicted the data sources, collection methodologies and analysis procedures. The data portrayed in chapter 3 is expressed in chapter 4 through descriptive findings, data analysis procedures and the results.

CHAPTER IV: DATA ANALYSIS AND RESULTS

Introduction

The purpose of this study was to examine the impact of the Minnesota Early Indicator Response System (MEIRS) on graduation rates, attendance, behavior and credits earned for students in Moorhead's Alternative Learning Center. The data for this study was gathered from historical data sources in an aggregated manner rendering it anonymous with the consent and approval of Moorhead Area Public Schools. Descriptive and inferential statistics were used to answer the following research questions:

1. How does the implementation of the Minnesota Early Indicator Response System (MEIRS) impact graduation rates in an alternative high school setting?
2. How does the implementation of the Minnesota Early Indicator Response System impact each on-track indicator attendance, behavior and credits earned for at-risk students in an alternative high school setting?
3. What data trends emerged in attendance, behavior and credits earned after implementation of MEIRS?

Chapter IV will report the descriptive findings including pertinent demographic data, the data analysis procedures, and the results of the data collection.

Descriptive Findings of Demographic Data

The population at the ALC comes from Moorhead High School or three surrounding school districts. The ALC population should be representative of the districts from which the students were referred and the district in which they are attending. This representative distribution should include both racial/ethnic identifiers and demographic identifiers such as English Learners or Free and Reduced Lunch.

The racial and ethnic breakdown for the ALC was not representative of the rest of Moorhead Area Public Schools (Tables 2 &3). Consistently the American Indian and Hispanic percentages were much higher at the ALC when compared to the rest of the district. The greatest disparity was seen in 2020-2021 in which the school district Hispanic population was 7.33% while the ALC was 21.24%. In 2020-2021, the American Indian population for the district was 5.57% while the ALC was 15.93%. The White percentage in the district during 2020-2021 was 66.96% while the ALC’s percentage was 34.51%.

Table 4 showed the English Learners (EL) being served and the students that qualified for free and reduced lunches. MAPS consistently had nearly 40% of their student population qualify for free and reduced lunches. Low-income students were eligible to receive free or reduced-price meals at school if the income of their household falls below 130 to 185% of the poverty line. During the 2020-2021 school year, 63.6% of the ALC qualified for free and reduced lunches. While this is the lowest percentage that has qualified in the past seven years, the ALC consistently had more than 63% of their student population qualify for free and reduced lunches during the seven years of this study with the 2016-2016 school year being the highest at 75.3%.

Table 4

Moorhead Public School District Demographic Data

Dependent Variable	Independent Variables			
	District		ALC	
	EL	Free & Reduced	EL	Free & Reduced
2014-2015	14.8%	39.6%	2.36%	72.3%
2015- 2016	16%	39.5%	3.25%	75.3%
2016 - 2017	20%	40.7%	4.74%	67.6%
2017-2018	12.62%	41.4%	2.18%	63.4%
2018-2019	15.49%	39.87%	4.50%	67.4%
2019-2020	*	40.5%	5.40%	63.7%
2020-2021	*	35.0%	6.19%	63.6%

*Not available at this time

English Learner (EL) populations in Moorhead continue to expand. The need to serve this growing population requires ongoing programming. EL populations for the district ranged from its low of 12.62% in 2017-2018 to its highest of 20% in 2016-2017. The EL population served by the ALC continues to increase, but the percentages were low ranging from the lowest 2.18% in 2017-2018 to the highest 6.19% in 2020-2021. The EL population served at the ALC currently has a score of three or higher on the ACCESS test. If students scored at a two or below on the ACCESS test, they remained at the traditional high school for more intensive EL programming.

Table 5

Moorhead Alternative Learning Center Enrollment by Grade and Gender

Dependent Variable	Total	Independent Variables											
		12 th	%	11 th	%	10 th	%	9 th	%	Male	%	Female	%
2014- 2015	93	28	30%	29	31%	24	26%	12	13%	39	41%	55	59%
2015- 2016	81	14	17%	27	33%	19	23%	18	22%	36	44%	43	53%
2016-2017	109	37	34%	29	27%	30	28%	13	12%	60	55%	49	45%
2017-2018	84	34	40%	16	19%	16	19%	18	21%	39	46%	45	54%
2018-2019	72	18	25%	15	21%	19	26%	20	28%	34	47%	38	53%
2019-2020	93	28	30%	22	24%	24	26%	19	20%	49	53%	44	47%
2020-2021	109	40	37%	29	27%	22	20%	13	12%	53	49%	53	49%

The ALC population changes depending on the school year. Most consistently the greatest student numbers are found in grade 12 which means that the students' ages range between 17 and 21 years old. Consistently the lowest student numbers are found in grade 9 with an age range of 14 – 16 years old. Overall, the number of males and females in the ALC is relatively balanced. There are a few more female ALC students than male ALC students, but the numbers are closely balanced. There is not a large discrepancy in the number of male students versus female students.

Data Analysis Procedures

How Does the Implementation of the Minnesota Early Indicator Response System (MEIRS) Impact Graduation Rates in an Alternative High School Setting?

The impact of the implementation of MEIRS (independent variable) on graduation rates was measured through the percent of graduates for each school year for the district, the comprehensive high school and the alternative learning center. The graduation rates were collected through the annual report and Minnesota Automated Reporting Student System (MARSS).

Table 6 illustrates the graduation rates from the ALC, traditional high school and school district. The traditional high school demonstrated a trend of increasing graduation rates. Although there were a few anomalies in the data, the overall graduation rate at the traditional high school was above 80% and had an increasing trend. The ALC graduation rate fluctuates from year to year. There is only one year in the past seven years in which the graduation rates at the ALC were greater than 30%, 2016-2017. The ALC and traditional high school data were combined to create the school district’s graduation rate. The overall graduation rate was above 74% during the timeframe of 2015-2019.

Table 6

Moorhead Public Schools Four Year Graduation Rates

Dependent Variable	School District	Independent Variables	
		Traditional High School	ALC
2014-2015	77.3%	82.7%	27.9%
2015-2016	74.3%	80.3%	26.1%
2016-2017	80.3%	88.3%	31.3%
2017-2018	75.7%	82.5%	22.9%
2018-2019	81.5%	86.5%	25.6%
2019-2020	*	*	*

*Not available for 2019-2020

The graduation data from Table 6 was then used to find an average graduation rate for the ALC prior to and after MEIRS implementation. The graduation rates for 2014-2018 were used to calculate an average prior to implementation while 2018-2020 were used to calculate an average during MEIRS implementation. The average graduation rate prior to MEIRS was 27.05% while during MEIRS the average graduation rate was 25.6%. The information represented in Table 6 and the averages were used to complete an independent *t*-test to compare graduation rates before and during MEIRS implementation to determine the impact MEIRS has on graduation rates for the ALC shown in Table 7. The graduation rate prior to MEIRS implementation ($M=27.05$, $SD = 0.23$) compared to the graduation rate during MEIRS implementation ($M=25.60$, $SD=0$) demonstrated graduation rates $t(5)=12.40$, $p=.00$ significantly decreased.

Table 7

Comparison of MEIRS on Graduation Rate

Dependent Variable	Independent Variables				Mean Difference	<i>t</i>	<i>df</i>	<i>P</i>
	Prior to MEIRS		During MEIRS					
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>				
Graduation Rate	4	27.05 (0.23)	2	25.60 (0)	1.45	12.40	5	0.00*

* $p < .05$

How Does the Implementation of the Minnesota Early Indicator Response System Impact Each On-track Indicator Attendance, Behavior and Credits Earned for At-risk Students in an Alternative High School Setting?

The impact of MEIRS implementation (independent variable) on each indicator data was measured through student attendance, behavior and academic credits earned. Data was gathered from MAPS’ Student Information System and PowerSchool for yearly attendance and credits earned while behavior data was gathered from the Disciplinary Incident Reporting System (DIRS) report and the Civil Rights Data Collection (CRDC) report for the ALC. Table 8 shows

the attendance for all students enrolled at the ALC during each school year between 2014-2020 and for the first semester of 2020-2021. Credits earned were gathered by using all students that attended during the school year represented in Table 8. The number of credits students earned was for the entire school year meaning that the student may have earned the credits from the ALC, summer programming or the school from which they transitioned. Behavior incidents were gathered through DIRS and the CRDC report. The researcher was able to determine the number of incidents that were reported to the state as disciplinary events.

Table 8

MEIRS On-track Indicator

Dependent Variable	Independent Variables			
	Attendance (days attended/total days enrolled)	<i>M</i>	Credits Earned (number of credits earned)	Behavior (number of reported incidents)
2014-2015	61.07/94.24	64.80%	3.05	46
2015- 2016	54.99/79.70	68.70%	2.77	**
2016-2017	65.33/89.89	72.68%	2.59	40
2017-2018	60.36/84.81	69.41%	1.76	**
2018-2019	60.36/84.81	71.17%	1.16	**
2019-2020	59.61/100.48	59.32%	1.79	20
2020-2021	52.30/70.76*	73.91%	0.60*	3*
Prior to MEIRS	60.44/87.16	69.41%	2.54	43
During MEIRS	74.86/108.97	68.14%	1.38	12

*Semester 1

** CRDC Report gathered 2013, 2015, 2017

The lowest attendance rate was 2019-2020 at a rate of 59.32% and the highest attendance rate of 73.91% during semester one of 2020-2021. Students attended an average of 59.14 days of school while they were enrolled in an average of 86.38 days of school. Over the past seven years, the average attendance percentage was 68.47%. The attendance numbers were used to calculate the average percentage that students attended during the school year. This was further used to

calculate an average attendance rate of 69.41% for the years prior to MEIRS (2014-2018) and 68.14% during MEIRS implementation (2018-2021) which is shown in Table 8.

The average number of credits earned decreased from 3.05 during the 2014-2015 school year to 1.16 during the 2018-2019 school year. During the 2019-2020 school year there was an increase in the average number of credits earned by students to 1.79. Credits earned were gathered through PowerSchool and then the mean was calculated for each school. The information from this table was then used to calculate the mean for credits earned by ALC students for the years prior to MEIRS (2014-2018) and during MEIRS implementation (2018-2021) which is shown in Table 8.

The number of incidents decreased from 46 in 2014-2015 to the current 2020-2021 half of a school year with three incidents. Students took part in distance learning from October 27, 2020 – January 4, 2021, limiting interactions and behaviors on school grounds. Behavior data were collected by the number of behavior incidents with disciplinary actions reported through DIRS and the CRDC report. All of the incidents for each school year were used to develop the mean for behavior shown in Table 8 before and after MEIRS implementation.

To fully answer the research questions regarding the impact MEIRS had on graduation rates and on the ABC indicators (attendance, behavior and credits earned) it was necessary to know how the data compares prior to and after MEIRS implementation. Table 9 depicts an independent *t*-test that was used to compare rates before and after MEIRS implementation. The calculations were completed using the data gathered and stored in the tables listed above. This analysis demonstrated the impact that MEIRS had by comparing before and during the implementation of the MEIRS process.

Table 9*Comparison of MEIRS on Attendance, Credits Earned & Behavior.*

Dependent Variable	Independent Variables				Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
	Prior to MEIRS		During MEIRS					
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>				
Attendance	4	69.41 (2.96)	3	68.13 (6.33)	1.28	0.08	5	0.33
Credits Earned	4	2.54 (0.48)	3	1.38 (0.28)	1.16	3.97	5	0.00*
Behavior	2	43 (3.00)	2	12 (8.00)	5.00	5.13	3	0.01*

* $p < .05$

The first MEIRS indicator was attendance rates measured through the number of days students attended out of how many days they were enrolled at the ALC. There was no significant impact on the attendance rate, $t(5)=0$, $p=0.33$. Prior to MEIRS implementation ($M=69.41$, $SD=2.96$), there was a higher attendance rate than the attendance rate during MEIRS implementation ($M=68.13$, $SD=6.33$). The second indicator used was credits earned. The credits earned prior to MEIRS ($M=2.54$, $SD=0.48$) compared to the credits earned during MEIRS ($M=1.38$, $SD=0.28$) demonstrated that the students' credits earned $t(5)=3.97$, $p=0.00$ significantly decreases by earning fewer credits during MEIRS than prior to MEIRS. The last indicator used in MEIRS was behavior measured by the number of disciplinary incidents. The behavior incidents prior to MEIRS ($M=43$, $SD=3.0$) compared with the behavior incidents during MEIRS ($M=12$, $SD=8.0$) demonstrated that MEIRS had significantly improved the number of behavior incidents $t(3)=5.13$, $p=0.01$.

What Data Trends Emerged in Attendance, Behavior and Credits Earned After Implementation of MEIRS?

Attendance rates fluctuate, but there was no real trend. The highest attendance rate (73.91%) was during MEIRS implementation as was the lowest attendance rate (59.32%). There is no real trend in attendance before MEIRS implementation (69.41%) and after the

implementation of MEIRS (68.14%). In addition to the rates fluctuating, the data demonstrated that the average total number of days that students were enrolled also fluctuated. There was a trend that since the implementation of MEIRS that students remained enrolled in the ALC longer with an average enrollment of 108.97 days than they did prior to MEIRS with an average enrollment of 87.16 days. The average number of days enrolled during the 2019-2020 school year was 100.48. This was the first year that students were enrolled for an average of more than 90 days. The school year 2020-2021 showed that it was trending towards having another school year with an average number of days enrolled above 90.

Credits earned showed a definite trend. Prior to MEIRS the average number of credits earned was greater than after MEIRS. Prior to MEIRS, there was a drastic decrease in credits earned. Each school year, from 2014-2015 (3.05 credits) until 2018-2019 (1.16) the credits earned decreased. Beginning in 2019-2020, there was an increase in the average number of credits earned by students from 1.16 during 2018-2019 to 1.79 during 2019-2020. There was not enough information to determine if this was a continuing upward trend due to not enough data during the 2020-2021 school year.

Behavior trends have changed over the past seven years. Prior to MEIRS implementation, there was an average of 43 incidents while after MEIRS implementation there was an average of 12 incidents. Although the data showed a decrease in incidents from 2015 (46) to 2017 (40) prior to MEIRS, the drop from 2017 (40) to 2019 (20) was a drastic drop with this trend continuing through the first half of 2020-2021.

Summary

Chapter IV illustrated the pertinent data used to determine the impact of MEIRS on graduation rates and the ABC indicators at the ALC. To fully understand the district and the

ALC, descriptive demographic data was gathered and analyzed. Graduation rate data collected through annual and MARSS reporting was analyzed by comparing the graduation rates prior to and during MEIRS implementation to determine the impact of MEIRS on the graduation rate. Attendance rates and credits earned gathered from PowerSchool were both analyzed through a comparison of prior to MEIRS to that of during MEIRS to determine the impact on these indicators. Behavior incidents reported in the state DIRS and CRDC report were gathered to examine the impact of MEIRS on behavior. This was determined by comparing behavior incidents prior to and during MEIRS implementation. The data demonstrated that MEIRS had a positive impact on behavior incidents, no significant impact on attendance rates, negative impact on credits earned and graduation rates. In addition to the impact MEIRS has on attendance, behavior and credits earned, definite trends were showing an increase in the number of days students are enrolled, a shift to an increasing amount of credit being earned and a drastic decrease in behavior incidents. Although the data showed these impacts and trends, Chapter V summarizes the study, explores the findings, determines conclusions, delves into implications and makes recommendations based on the data depicted in Chapter IV.

CHAPTER V: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Chapter V is represented in six sections. The first section underwrites an overall summary of the study followed by the summary of the findings, the implications of the study, recommendations for further research, limitations and the overall conclusion complete this chapter.

Summary of Study

With the low graduation rates at the Alternative Learning Center (ALC), the implementation of a data-driven early warning system obliged the ALC to collect data regarding indicators leading to graduation, attendance, behavior and credits earned. The purpose of this study was to examine the impact of the Minnesota Early Indicator Response System (MEIRS) on graduation rates, attendance, behavior and credits earned for students in Moorhead's Alternative Learning Center through the following research questions:

1. How does the implementation of the Minnesota Early Indicator Response System (MEIRS) impact graduation rates in an alternative high school setting?
2. How does the implementation of the Minnesota Early Indicator Response System impact each on-track indicator attendance, behavior and credits earned for at-risk students in an alternative high school setting?
3. What data trends emerged in attendance, behavior and credits earned after implementation of MEIRS?

The first research question identified the impact MEIRS has had on graduation rates during its implementation through data collected from district annual reports. The second research question explored how the implementation of an early warning system that focused on

attendance, behavior and credits earned influenced each of the identified indicators through data collected from PowerSchool, the CRDC report and Disciplinary Incident Reporting System (DIRS). The third research question explored the trends that emerged in attendance, behavior and credits earned utilizing the same data sources as listed above.

Summary of Findings

How Does the Implementation of the Minnesota Early Indicator Response System (MEIRS) Impact Graduation Rates in an Alternative High School Setting?

The findings show that implementing MEIRS did not have a positive impact on the Alternative Learning Center's (ALC) graduation rates during this study period. The graduation rate prior to MEIRS implementation ($M=27.05$, $SD = 0.23$) compared to the graduation rate during MEIRS implementation ($M=25.60$, $SD=0$) demonstrated graduation rates $t(5)=12.40$, $p=0.00$ was significant but not as a positive impact.

The first step in improving graduation rates is identifying students that are off-track for graduation. Predictors of graduation were rooted in demographic indicators (McDermot et al., 2019). Early warning systems were developed to identify students that are not on-track towards high school graduation (Allensworth, 2013, 2014; Gwynne, De la Torre & Moore, 2014; Mac Iver & Messel, 2013). The ALC adopted MEIRS during the 2018-2019 school year and began identifying students through the ALC's personalized thresholds for on-track indicators in the areas of attendance, behavior and credits earned in 2019-2020. Identification alone did not guarantee that students would graduate. Studies showed that an implementation of an Early Warning System improved graduation rates (Allensworth & Easton, 2005, Hartman et al., 2011; Norbury et al., 2012). The ALC has not yet seen an improvement in its graduation rate. With improvement in the indicator areas, the graduation rate will improve.

How Does the Implementation of the Minnesota Early Indicator Response System Impact Each On-track Indicator Attendance, Behavior and Credits Earned for At-risk Students in an Alternative High School Setting?

In answering research question two the data for each indicator was examined to determine the impact of MEIRS on each of the on-track indicators.

Attendance

The analysis of the second research question led to the findings that MEIRS did not have a significant impact on the indicator of attendance. The ALC attendance rate was measured through the number of days students attended out of how many days they were enrolled at the ALC. There was no significant impact on the attendance rate, $t(5)=0$, $p=0.33$ even though prior to MEIRS implementation ($M=69.41$, $SD=2.97$) was a higher attendance rate than the attendance rate during MEIRS implementation ($M=68.13$, $SD=6.33$). The attendance rates for the ALC ranged from a low of 59.32% during the 2019-2020 school year to a high of 73.91% during the 2020-2021 school year.

Attendance was considered a key indicator regarding students being successful in making it through high school graduation (Allensworth & Easton, 2005; Benner & Wang, 2014; Neild, 2009). MEIRS did not have a significant positive impact on attendance. The attendance rate as an indicator for graduation was supported by the ALC data. Student attendance that dipped below 70% had at least a 75% likelihood of not completing high school (Neild & Balfanz, 2006). The ALC data from the past seven years used in this research study directly supported this when the graduation rates to the attendance rates were examined for the students in this alternative high school setting. Prior to MEIRS, the average attendance rate was 69.41% while during MEIRS the average attendance rate was 68.13%. Both prior to and after MEIRS the attendance

rates for ALC students fell below the 70% attendance rate increasing the likelihood of students not completing high school. All of the students attending the ALC were considered at-risk. By the definition provided by Astbury, at-risk students are those that have a higher likelihood of failing academically or dropping out (2010). ALC students qualified in at least one category of Minnesota's Grad Incentive Criteria (Minn.Stat.#124D.68: Graduation Incentives Program, 2020). The most common categories for referral to the Moorhead ALC were attendance issues, deficiency in course work and mental health. The attendance rates depicted by the ALC data supported Cohen & Smerdon's (2009) findings showing that struggling or at-risk students faced higher absentee rates.

Behavior

MEIRS did have a significant positive impact on the indicator of behavior. The behaviors prior to MEIRS ($M=43$, $SD=3.0$) compared with the behaviors during MEIRS ($M=12$, $SD=8.0$) demonstrated that MEIRS has significantly improved the number of behaviors $t(3)=5.131$, $p=0.007168$. Behavior data were collected through Disciplinary Incident Reporting System and the Civil Rights Data Collection reports. The highest number of incidents was reported in 2014-2015 with a total of 46 while the lowest number of incidents was semester 1 of 2020-2021 when there were three incidents.

Behaviors that result in suspensions were of great concern as suspensions increase the risk of students not graduating (Balfanz et al., 2014; Rumberger & Losen, 2016; Jobs for the Future, 2014). The behavior numbers significantly decreased. There should be a positive impact on graduation rates. Although the number of suspensions decreased beginning in 2019 at the ALC, many of the students at the ALC experienced the effect of suspensions prior to entering the alternative learning center. These prior suspensions impacted student progress towards

graduation. The significant decrease in behaviors has not yet been reflected in graduation rates as many of the students that were impacted by the shift in behaviors were freshman, sophomores and juniors. The graduation rates for 2020 and 2021 will give a better picture of the impact that the shift in behaviors has on graduation rates by examining the graduation rates for the freshman and sophomores during the 2019-2020 school year would be a test of the impact of the behavior shift that the ALC experienced.

Students that experience repeat suspensions were less likely to graduate from high school. Only 8% of high school graduates had two or more suspensions (Jobs for the Future; 2014). When the behavior data was broken down, the students that have been referred to the ALC due to behavior issues often continue to have behavior issues at the ALC. Students with repeat suspensions from 2019-2020 also had suspensions in 2018-2019. Some of these students were still enrolled in school while others had already left the ALC. Many of the students with repeated suspensions were behind in credits and had other attendance issues. The suspension did not improve students' academic performance or attendance rates which supported Balfanz et al.'s findings that being suspended led to more suspensions as well as a decline in attendance and an increase in course failures (2014).

Credits Earned

Credits earned by students were not positively impacted by MEIRS. Credits earned prior to MEIRS implementation ($M=2.54$, $SD=0.4806$) compared to the credits earned during MEIRS ($M=1.38$, $SD=0.2880$) demonstrated that with credits earned $t(5)=3.967$, $p=0.005334$ student performance had been significantly negatively impacted. The lowest number of credits earned by students was an average of 1.16 during the 2018-2019 school year which occurred during the

beginning phases of MEIRS. The highest number of credits earned by students was an average of 3.05 during the 2014-2015 school year which occurred prior to MEIRS implementation.

Although there were individual students that would be considered on-track, the average credits earned for students before and after MEIRS demonstrated that nearly 90% of ALC students were not on-track. Students earning less than two credits during their freshman year had a 75% chance of dropping out of high school (Allensworth & Easton, 2005). The highest average of credits earned in Moorhead's ALC over the past seven years is 3.05 in 2014-2015. There are many ALC students within this highest average group that did not earn two credits during their freshman or subsequent years. Students attending the ALC were usually referred from the traditional high school and were credit deficient by the time they enrolled at the ALC. These students were already considered off-track. The goal was of the ALC is to provide credit recovery opportunities and to provide opportunities to get back on track. Students that were off-track after their freshman year had a much lower percentage chance of graduating from high school (Allensworth & Easton, 2005; Hartman et al., 2011); Norbury et al., 2012). The data for credits earned and graduation rates at the ALC reflected these studies. There had been more credit earned at the ALC before the implementation of MEIRS than after its implementation which implies that the students after MEIRS implementation were facing a lesser likelihood of graduating from high school than prior to MEIRS.

What Data Trends Emerged in Attendance, Behavior and Credits Earned After Implementation of MEIRS?

The trends showed that students were enrolled longer at the ALC during MEIRS implementation. This gives the ALC staff greater opportunity to implement interventions in any of the indicator areas. There is a trend of an increase in overall attendance during

implementation. This showed that there was a trend of increased days of enrollment with the implementation of MEIRS students are enrolled in school longer than prior to MEIRS.

Although MEIRS may not have had a significant impact yet there is a movement towards the 70% percent attendance rate decreasing the likelihood of not completing high school (Neild & Balfanz, 2006). The longer students are enrolled often implies that these students were attending more as well. The opportunity to earn more credit is related to students earning credit.

Credits earned were on an upward trend during the MEIRS implementation. The average number of credits earned reached 1.16, an all-time low during the first year of MEIRS. During the first year of MEIRS, staff spent time exploring data to determine the next steps. The increase in credits earned to 1.79 during 2019-2020 took place during the first year that staff worked to implement the MEIRS thresholds, procedures and interventions. There was not enough information to determine if the increase in credits earned was directly related to interventions. As part of getting students back on track to graduate one integral step is integrating an Early Warning System (EWS) linked to a tiered response system (Balfanz, 2011). MEIRS has given the ALC staff the ability to quantify students that are not making academic progress and are at risk of dropping out. Academic support is a MEIRS intervention, which is one of the top interventions used by high schools that have improved their graduation rates (Robertson, Smith & Rinka, 2015).

The drastic change in behavior incidents is the most significant trend seen at the ALC. The number of suspensions has drastically dropped from the high of 46 prior to MEIRS to the low of semester one for 2020-2021 with three incidents. Changes in student behavior were related to school and/or classroom environment modifications (Robertson, Smith & Rinka,

2015). The school climate and culture shift has acted as an intervention for the student behaviors at the ALC.

The findings in the study demonstrate that MEIRS overall had not yet had a positive impact on graduation rates or credits earned, but it had positively impacted behavior incidents. MEIRS has had no significant impact on attendance.

Implications

The implications for the first two research questions on the impact of implementing MEIRS are based on successful interventions for indicators of early warning intervention systems while the third research question determines trends utilizing the indicator data. These implications are directly linked. Graduation rates are contingent on students staying on track towards graduation (Allensworth & Easton, 2005). The best predictors of high school dropout can be seen through a combination of high absenteeism, behavior problems and credits that are not being earned (Allensworth, 2013; Mac Iver & Messel, 2013).

Graduation Rate

Moorhead's ALC population has a low graduation rate that has not yet increased as a result of the MEIRS process. The demographics at the ALC in Moorhead are disproportionate in comparison to the rest of the school district. Although there is a correlation between demographics and graduation, there is not a direct link between the two. It is necessary to take into consideration the population being served at the ALC from the racial and ethnic perspective as well as the socio-economic perspective. The interventions as part of the MEIRS process do need to be implemented cognizant of the impact from an equity standpoint. Graduation rates for the ALC are linked to the ABC indicators. Students finding attendance, academic and behavioral successes should be graduating. The intersections between attendance, credits earned and

behavioral and graduation rates will be more visible as more data is collected to determine trends. The current trends on graduation are difficult to see with graduation rates for 2020 not yet determined and with 2019 graduates without a true implementation of MEIRS.

Attendance

The implementation of MEIRS did more than identify off-track students. The seven-step process did push the MEIRS team to execute interventions that will aid students in finding success. Although the attendance rate was not significantly impacted by the implementation of MEIRS, if the trend of the data continues throughout the 2020-2021 school year and beyond that will aid in improving the chances of the ALC students graduating from high school through the indicator of attendance. In addition to the overall attendance rates increasing, the average total number of days that students enrolled in the ALC is also increasing with the commencement of MEIRS. The greatest focus for the second and third years of MEIRS implementation is on student attendance. Both behavior and credits earned are contingent on attendance. Without attending school, very little credit can be earned. Behavior issues were less likely to occur when students are present and engaged. Although MEIRS is not considered a significant positive impact, student attendance is becoming more consistent. Attendance in 2019-2020 has been greatly impacted by the Corona Virus pandemic forcing the ALC to shift into a distance learning model. For students that were already at-risk, this put them further at risk due to the need to attend classes virtually without the students' usual support from teachers, counselors, social workers and even family. The MEIRS process was not employed during the spring of 2020 during distance learning. This greatly influenced the decision to continue to focus on tracking student attendance during the fall of 2020. The 2020-2021 school year still faced the pandemic, but the MEIRS process is employed whether students and/or staff are meeting face-to-face or

virtually. The continued work of the MEIRS team is evident through the data showing in the first semester of the 2020-2021 school year. This demonstrates the impact that the MEIRS process can have when looking at current trends and projecting how that could look beyond the 2020-2021 school year. The continued focus is on the positive trend that has begun to be established during the MEIRS process.

Behavior

Student behavior incidents were significantly impacted by the onset of MEIRS. The number of disciplinary behaviors dropped during the implementation of MEIRS. As the behavior incidents decrease the fewer students experience suspensions which create fewer barriers for students on the road to graduation. With the lower number of incidents and fewer students experiencing suspensions, the ALC students' likelihood of dropping out is not increasing due to the behavior indicator. This is supportive of the research by Balfanz et al (2014) and Rumberger & Losen (2016) which shows suspensions decrease the likelihood of high school graduation. Although the amount of time that students are not onsite due to the Corona Virus pandemic could have impacted the behaviors, the majority of the incidents occurred within the first two months of school during the 2019-2020 school year.

Although there has been a shift in behaviors and suspensions, the impact is not yet visible through ALC graduation rates. The fewer behavior issues and fewer suspensions should over time remove barriers and increase graduation rates. The impact of these shifts may not be visible until the ALC underclassmen, freshman and sophomores, get closer to graduation. Prior to 2020, behavior is one of the factors that has resulted in a referral to the ALC. This means there are students enrolled in the ALC that have experienced suspensions prior to being part of the ALC community. Although the faculty and staff work to mitigate previous school experiences through

relationships and school culture, there is still an impact from previous behavior referrals and suspensions.

The shift in behavior stems from a culture and climate shift for the ALC. The implementation of interventions for all students in a supportive school community school has created an atmosphere in which student behaviors are not experienced as they had been in the past. This shift in culture does have an impact on all students and not just those close to graduation. The impacts of behavior on graduation will be something that will become more visible over time as the culture of the school community continues to develop practices that support the values and vision for the ALC.

Credits Earned

The indicator, credits earned, has been significantly negatively impacted by MEIRS. Although the data illustrate this, there is more to the story. Credits earned have demonstrated a downward trend from 2014-2018. During the 2019-2020 school year there was a rebound in the amount of credit being earned throughout the school year. The ALC data directly supports the use of on-track and off-track indicators as shown in studies by Allensworth & Easton (2005), Norby et al (2012) and Hartman et al (2011).

By the time students get to the ALC, they are often credit deficient so much of the focus of the ALC is credit recovery. Nearly 90% of the students attending the ALC are credit deficient by the time they are entering the ALC which means the students are already considered off-track. The goal of the ALC is to support students in their high school experience. This includes programming that allows students to move out of classes as they complete them and into new classes to complete required credits. The focus is not on time in classes, but on completing content. Students can work at a faster pace to recover credit from past credit deficiencies.

Supporting students in credit recovery and getting back on track is an immense focus for the staff at the ALC. Although credit recovery is often the focus, there are a small number of students that begin their high school career at the ALC. These and an additional few students are considered on-track at the beginning of a school year. Due to their history in past school experiences, it is critical to track their credits earned to work to keep them on track towards graduation.

Since the focus of the ALC must be credit recovery for students, it is imperative that progress in courses is being tracked. Progress and credits earned correlate to student attendance. It is very difficult for students to make progress and earn credit if they are not present at or engaging in school. As attendance rates continue to become more consistent for students, there is a greater opportunity for students to supervise their progress towards earning credit. Progress towards credits earned needs to be accessible to students. Students need to know where they are on their journey towards earning credit. This is an intervention for all students allowing them to see how they are doing and where they need to go to accomplish their goals in the credit recovery process. For some students and families, the ALC is temporary to recovery credit with a plan to return to the traditional high school. The continued communication between the ALC and the traditional high school is critical in that transition for students. The MEIRS process has increased the visibility of student progress for staff and utilizing the Student Information System, PowerSchool, as a progress tracker has increased visibility for students and families. The need for students and families to know the progress of students demonstrates the continued need for transparency and consistent communication.

The findings of this study have contributed to the understanding that graduation rates do not change without significant changes in the early warning system indicators. The findings demonstrate the importance of attendance rates, behavior incidents and credits earned in the

journey towards high school graduation. Although demographic data does have a role in the students reaching high school graduation, the data clearly shows that the indicators play heavily on the graduation rate for the ALC.

Recommendations Further Studies

This study has contributed to the understanding that the graduation rate for the ALC is very tied to student attendance rates, student behavior and credits earned. As the study progressed, a few areas surfaced as possible areas for future studies. The first is related to the number of years being studied. MEIRS began the implementation process in 2018-2019, but the team did not begin working with students until 2019-2020. As a result, a better picture could be presented if the number of years that were prior to MEIRS implementation and the number of years with MEIRS were equal.

Throughout this study, attendance rates have shifted over the years. With the trend of an increasing attendance rate, it would be beneficial to learn what kind of impact the executed interventions have on attendance rates. Attendance seems to be the critical indicator as it is nearly impossible for students to earn credit if they are not present and it is also very difficult to have behavior incidents if students are absent from school. It would be beneficial to determine the impact that attendance has on credits earned and to determine if there is any connection between absences and behaviors.

The demographics of the ALC are not representative of the school district. Although demographics are not a good indicator of high school graduation, they can play a role in student engagement. It would be beneficial to explore the MEIRS data collection to determine the rate at which students are identified as at-risk by one or more indicators. It would be important to

determine the role of demographics in this proposed extension to determine if the indicators are equitable and looking at student actions through a culturally relevant lens.

Limitations and Future Research

The greatest limitation of this study is the timeline of implementation. Although MEIRS was adopted in 2018-2019, this was not truly an implementation year. The implementation of MEIRS with true protocols and interventions did not begin until 2019. This implementation was cut short due to the onset of the Corona Virus pandemic. The MEIRS team did not meet or intervene with students during the spring of 2020. Indicators were impacted by distance learning as a result of the Corona Virus pandemic. The switch to distance learning put already at-risk students at further risk. Attendance rates dropped during the spring of 2020 directly impacting students' ability to earn credit.

Another limitation of this study is that the information gathered is not generalizable due to the small population and sample size. The size of the ALC tends to create a smaller sample size. Data would need to be gathered over a longer period of time to make the results clearer and for the implications to be more generalizable.

Future research should focus on the impact of MEIRS after at minimum three years of true implementation to represent the impact that interventions have on the on-track indicators and as a result graduation. The current trend of increasing credits earned since the implementation of MEIRS is promising and should be further explored as more time passes to determine the impact MEIRS has on credits earned and graduation rates by way of credits earned. It would be beneficial to further dissect the impact of behavior and suspensions on students' graduation rates by looking deeper into when suspensions occurred and the number of students with repeating offenses.

Another area for further research would be to explore the demographics, such as race, for the students identified for each MEIRS indicator. This area of further research could look at the data through an equity lens determining the proportionality of students identified as off-track or further at-risk. With the disproportionate racial and ethnic and demographic indicators found in the ALC population, exploring the indicators through an equity lens would benefit the students, the ALC structure, academic programming and the overall impact the ALC has on the district while serving at-risk students.

Conclusion

The focus of this study was to determine the impact of MEIRS on graduation rates and on the ABC indicators (attendance, behavior and credits earned). MEIRS did not have a positive impact on graduation rates, attendance or credits earned, but it did have a significant positive impact on behaviors. MEIRS was adopted in 2018-2019 and was truly implemented during the 2019-2020 school year. Some strong trends are demonstrating a shift in attendance. Both the length of time a student is enrolled in the ALC and the average attendance rate are showing increasing trends. The MEIRS process has forced tracking and transparency to show student academic progress. Credits earned by students have shifted so that it is once again trending as increasing the average number of credits earned by students. Behaviors have significantly decreased after the implementation of MEIRS. This along with the shift in culture and climate in the ALC will shift student trajectories. Although the current data does not overwhelmingly show that the implementation of the Minnesota Early Indicator Response System increased graduation rates and positively impacted indicators, it does show that the current trends are moving in the right direction to continue to support struggling students in finding success in high school.

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