TEACHER FREQUENCY PERCEPTIONS OF DATA-DRIVEN INSTRUCTION
UTILIZATION AND THE IMPACT ON EARLY CHILDHOOD STUDENT
ACHIEVEMENT

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ABSTRACT

This study analyzed teacher perceptions of data frequency and the impact on student achievement. The purpose of this study was to gather and analyze teacher perceptions of data-driven instruction. Based on the teacher frequent and infrequent perceptions of data utilization, the study examined the correlation of student gain. The study investigated teacher’s utilization of data-driven decision-making, recording, planning, and instruction implementation. The frequency assessed daily, weekly, monthly and quarterly intervals. Correlations determined the relation between frequency perceptions and student gain. The study also determined if teachers were prepared for the information data provided, if teachers felt competent with data-driven instruction, if teachers liked data, if time was sufficient for data-driven instruction, if collaboration time was sufficient, if teacher responses are significantly different from one another, and if student gain was significantly different. The study group consisted of Title 1 teachers from an Early Childhood Center and 3, 4, and 5 year old Title 1 and Special Education students. This comparative study digested student achievement data from math common formative assessments during the 2011 – 2012 school year. Data was collected from a one-shot, non-experimental survey. There were two non-experimental surveys; the first assessed perceptions of data and the second assessed utilization and frequency practices.
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CHAPTER ONE
INTRODUCTION TO THE STUDY

Introduction

This study examined teacher frequency perceptions regarding data. A one shot, non-experimental survey collected teacher perceptions according to the degree of data perceptions regarding purpose, competency, certification preparation, professional development, and time. Additionally, a separate one shot, non-experimental survey assessed teacher perceptions of data-driven instruction frequency regarding decision-making, recording, planning, and instruction information. The frequency assessed daily, weekly, monthly, and quarterly intervals. Teacher frequency perceptions were examined using chi-square research method. Teacher frequency perceptions, as nominal frequent and infrequent categories, were compared to the results of student achievement. Student achievement was tracked using math common formative assessments to determine student gain. The goal was to determine if teacher perception of data influenced learning results demonstrated by student gain.


Background, issues and concerns.

Student achievement is under scrutiny. The push for children to perform proficient has increased pressure on teachers. The implementation of No Child Left Behind and the amended Elementary and Secondary Education Act placed substantial accountability on teachers.
Therefore, teachers spend an exorbitant amount of time assessing students and collecting data with little time to analyze and respond to the data gathered. The reform has stressed data throughout the education system. Data utilization and frequency may be inconsistent. Inconsistent utilization may result in ineffective instruction or incomplete student learning goals.

*Practice Under Investigation*

The practice under investigation is data-driven instruction. The ability for teachers to collect, analyze, interpret, and act upon data varies based on the individual teacher perceptions, background, and experiences. Educational research regarding student achievement and instruction is historic. The research that applies data-driven practices to drive instruction is under conceptualized. In fact, data-driven literature specific for data-driven instruction is difficult to isolate; data is a diverse and deeply integrated concept in education. Data-driven goals, individualized student progress, effective teacher evaluations and professional development are related to the topic of data-driven instruction. Therefore, practitioners in education need to understand the data-rich environments, the audience and purpose data serves, and that data drives classrooms, schools, districts, states, and federal reforms throughout the educational system.

*School Policy*

The school studied was a Professional Learning Community (PLC). The school began the cultural shift in the year of 2008. Upon beginning the PLC process, the building leadership team evaluated the school overall. The school reported that data was not a common practice. The Early Childhood program heavily relied on student work examples to demonstrate learning
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progression. The PLC systematic approach to learning required quantified information. The school had to improve its efforts to demonstrate student achievement with numerical data. The shift in thinking about what students learn, how they learn it, what you do when they don’t learn, and what you do when they do learn focused on student learning results began. Teachers discussed a guaranteed, viable curriculum by quantifying learning standards. The collaborative work to unwrap standards created common learning objectives and assessments, creating a data-rich school. The results created quantified 4 point curriculum guides in 2010. Consequently, the shift also created data-rich instructors.

During the PLC process, the school created a mission, norms, belief statements, and a general vision. When teachers were invested in the learning community, SMART (strategic, measurable, achievable, results driven, and time bound) goals were established. The school began with 3 goals in Social, Math, and Language. The goals were selected by looking at the standardized screenings that the teachers used prior to the 2011-2012 school year. It identified lower areas of performance; a trend in the school for all classrooms. The lack of gains demonstrated the need for teachers to strive for improvement of instruction in the core learning areas of math, language, and social curriculum. Once established, the school-wide goals were assessed and reported 3 times per year: beginning, middle, and end-of-the-year. The school also adapted routines that discussed the smart goals monthly during staff meetings. The reporting periods, the monthly collaboration, and professional development created common practices.

Conceptual Underpinnings

Systematic, frequent utilization of data result in quality instruction and result in student gain. Multiple and various forms of assessment provide direct, time-sensitive information that
improves instruction. Schools and educators must understand the data, the purpose of the data, and the actions that inform change using the data.

Statement of the Problem

Educational reform has brought about heighten pressure and accountability for teachers and students to perform. The reform has spread across federal, state, and local educational entities. Recent reform policies include the 2001 No Child Left Behind, the amended Elementary and Secondary Education Act (ESEA), Response to Intervention, and the Common Core movement. The forces driving the reform are educational funding and student achievement; the funding is dependent upon data demonstrating student proficiency. Therefore, reform required a heighten emphasis on data-documentation at the teacher level, administrative level, and the state level all with student achievement as the focus. Ergo, data-driven instruction directly begins in the classroom and impacts the collective grade-level, school building, school district, state programs and state/district funding. Educators are under pressure to perform.

Purpose of the Study

The purpose of this study was to determine if frequency response to data increased student performance. The study determined if teachers were prepared for the information data provided, if teachers felt competent with data-driven instruction, if teachers liked data, if time was sufficient for data-driven instruction, if collaboration time was sufficient, if teacher responses are significantly different from one another, and if student gain was significantly different. If frequency and utilization of data-driven instruction was successful at the classroom and building level, it did impact the outcomes of student achievement. Student achievement
results create a ripple-effect throughout the educational system, expanding to state and federal levels.

Research Questions

RQ1: To what degree do teachers perceive they were adequately prepared, or trained, for data-driven instruction?

RQ2: To what degree do teachers perceive competency using data-driven instruction?

RQ3: To what degree do teachers like data?

RQ4: To what degree do teachers perceive there is sufficient time for data-driven instruction?

RQ6: Is there a significant difference in teacher’s response regarding frequency of data-driven instruction?

RQ7: Is there a difference in student achievement?

Null Hypothesis alpha level

Ho1: According to Table 1, there was no significant difference between the frequency and response times of data-driven decision-making. According to Table 2, there was no significant difference between the frequency and response times of recording data to monitor student progress. According to Table 3, there was significant difference between the frequency and utilization of data tools: formative and informative assessments. According to Table 4, there was no significant difference in the perception of data impact regarding time and instruction in the classroom.

Ho2: According to Figure 1, there was no significant difference between responding to data within a weekly frequency regarding decision-making and student gain. According to Figure 2, there was no significant difference between responding to data within a weekly frequency
regarding common formative assessments and student gain. According to Figure 3, there was no significant difference between responding to data within a weekly frequency regarding standardized assessments and student gain. According to Figure 4, there was no significant difference between responding to observations regarding weekly frequency and student gain. According to Figure 5, there was no significant difference between weekly data frequency regarding data-driven decision making and student gain. According to Figure 6, there was no significant difference responding to weekly recording frequency and student gain.

**Anticipated Benefits of the Study**

The anticipated benefits of this study were expected to inform educators that systematic, routine based frequency of data impact student gains. The frequency perceptions of individual teachers are found to be less influential than the common practices that drive school-wide goals and gains. The benefits of the study were expected to begin at the individual learner level and expand throughout the system. One format of data: standardized or state tests, do not adequately or accurately portrait student achievement. Multiple methods to collect and analyze meaningful data are beneficial to meet the needs of data-driven instruction related to student learning. School districts may use this study to examine data-driven instructional practices regarding frequency, perceptions of frequency, and utilization to impact student achievement at all levels of education. The study is specific to an Early Childhood setting, which is unique. Therefore, a school applying data-driven practices (MAP, DAR, etc) would potentially achieve greater results than the limitations exemplified within this study.
Definition of Terms

*Student Achievement* – refers to the numeric increase, or decrease, in performance obtained by a child or children; this is demonstrated by regression, no growth, or progress. References to student gain or growth are interchangeable with student achievement.

*Frequency* – refers to the number or interval that practices occur. This study looks at frequent and infrequent intervals specific to daily, weekly, monthly and quarterly timeframes.

*Degree* – a unit used to determine agreement or disagreement; buy-in or opposition.

*Perceptions* – refers to degree that teachers identify with subjects within their professional context and practices.

*Data-Driven Instruction* – refers to the ability to collect, or gather, information and act upon the results of the information; actions include recording results, interpreting results, decision-making, planning, and implementing instruction based on the data.

*Assessment of Learning* – Data used to inform an audience of overall learning and performance.

*Assessment for Learning* – Data used to inform educators and students of growth toward learning standards and goals.

*Assessment as Learning* - Data used to inform educators and students of growth and help form actions and decisions based on learning.

*Utilization* – refers to the extent that practices are implemented.

*Professional Development* - refers to further learning or education of professional subjects and practices; this encompasses acquiring skills, refining skills, and mastery of skills in professional placements.

*No Child Left Behind (NCLB)* – a 2002 federal law encompassing all public schools
receiving federal funding; this law states that all children in the public education system will be proficient in the areas of reading and math on state standardized tests by the year 2014.

*Elementary and Secondary Education Act* – a 1965 enacted federal law emphasizing the equal access of public education for all students, in particular providing fair and equal opportunities regardless of economic background and experiences; this law was intended to close the gap and aimed to hold high standards for all learners specifically tied to Title 1 funding

*Response to Intervention (RtI)* – a method of intervention for general-education that is timely, specific, and systematic to learners needs based on data, progress monitoring, and data-driven educational decisions

*Professional Learning Communities (PLC)* – collaborative, systematic-common goals and objectives implemented building-wide result in student learning. The systemic goals and objectives are measured using specific, time-bound results. The practice for results driven data is referred to as SMART goals.

*SMART goal* – Specific, Measurable, Attainable, Results oriented, Time-bound goals

*Common Core State Standards* – refers to an educational initiative to align state standards resulting from standards-based learning reform propelled by No Child Left Behind.
 CHAPTER TWO

Review of Literature

Influence of Data

Data has been a recent buzzword in education. The push for data has been felt since the implementation of No Child Left Behind (NCLB). “NCLB created a new set of accountability requirements, which have funding implications for schools beyond the resources needed to implement them.” NCLB underpinnings require data-driven practices to analyze, interpret, and use data to impact instruction and decisions in the realm of education (Wohlstetter et al, 239). Meaning, data-driven educational policy expand throughout the federal, state, district and classroom levels.

Data has driven federal, state, local, and district allocation of funding and programs. Funding has driven educational programs at the state and local levels. Programs have driven classroom implemented practices and instruction. Classroom implemented practices and instruction have driven learning and achievement. Student learning and achievement provided data that informed the district, state, and federal government of educational performance. Educational performance information has been drafted into policy or reform and the process has continued. Policy has been a trickle-down initiative or effect. Data at the policy level has not created direct student achievement change; yet, change has happened within the classroom where students and data-rich environments exist. “A common contention is that educators are data rich and information poor (NSDC, 110).”

As a result of policy reform, schools have reacted. Schools have formed teams that specifically look at data. Teachers are being expected to collect, analyze, and use data more frequently. This means teachers must understand how to gather data that is needed. “Teachers typically have access to multiple types of data. They may want to determine in advance what
kind(s) of data are appropriate to examine (NSDC, 112).” “Teaching is a science-informed art (ASCD, 8). Lorna Earl (2003) distinguishes between the assessment of learning, assessment for learning, and assessment as learning (ASCD, 13).”

Interpretation of Data

Data audience and purpose must be considered when looking at student progress. Typically, assessment of learning is summative. The purpose is to inform others about student learning. A summative assessment occurs with less frequency and after the learning has occurred. Assessment of learning and assessment as learning is formative. The purpose is used to enhance, guide instruction based on actions related to instruction and student engagement. A formative assessment is typically immediately available, in real-time.

For example, annual assessments that began in the 3rd great required schools to perform at “adequate yearly progress” (AYP). The AYP measured state-established student achievement standards in curriculum areas designated by grade level and subject area. It also desegregated information by subgroups of the population including English Language Learners, students with disabilities, and low socioeconomic families. The problems with data from such standardized tests have been the data is collected, synthesized, and analyzed hindsight; it is not available to schools, teachers, and direct educators to impact instruction in a timely fashion that can impact learning results. This form of data is valuable; however, the frequency is insignificant for student achievement. The purpose of this study was to look directly at data-driven instruction that impacted student learning immediately. This annual frequency would be beneficial to study school trends. There has been value in assessment of learning. “Using measures of student
Data-driven instruction in the classroom is assessment for learning and assessment as learning. Assessment for learning and assessment as learning are formative data. Results are used to inform the teacher and the student of learning. Learning is used to improve results in real-time. Assessment for learning and assessment as learning is data-driven; meaning, learning is assessed, it is analyzed, and reflection or feedback is provided to inform further actions related to learning. Therefore, classroom data-driven instruction directly impacts student learning. “The closest to the students are in the best position to judge their needs and abilities and hence to choose the most suitable methods and technologies for successful learning (P. Wohlstetter et al. p 240).” The initiative to implement data-driven instruction begins with teachers; teachers granted the authority to identify student-needs, instruct based on needs, and execute interventions as needed.

To directly impact student learning and achievement, the audience targeted is similar to backward designed assessment. The audience should be teachers and students in the classroom. This study targeted the perception and utilization of data for teachers. If results are the purpose or intended outcome, then data must be real-time and teachers are the intended, targeted decision-makers. It will begin in the classroom and expand systematically. Data cannot be a quarter, semester, or year old like summative, assessment of learning data. Outdated information is insignificant; the students have learned new standards and the window of opportunity for instruction has past. Growth in student achievement must begin at the individual student level. Teachers must understand how to manage and interpret data where it will impact the student
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achievement most. For years, the buzz was differentiated instruction. Data-driven instruction brings true differentiated instruction and standards-based learning to light.

Best practices are essential to assessment for learning and assessment as learning. Current best practices include systematic change. What are current best practices? According to current research, Professional Learning Communities, Standards-Based Learning, Common Core State Standards, and Response to Intervention are best practice. The aforementioned best practices share common themes. For example, all address targeted, specific, and shared goals; simultaneously, all focus on student results. The best practice themes correspond with data-driven instruction elements. Goals and results are reform foundations. Learning reforms have thrust individual student data into the forefront of teacher’s data-rich environments. The educational movement toward PLCs, standards-based learning, RtI, and CCSS are pushing individualized learning and instruction; for a teacher to manage student learning data-driven instruction and decision practices are shoved into the limelight of education.

According to Marzano, using measures of student learning that are not sensitive to the actual learning occurring in the classroom is the first mistake. He reported that a school might produce impressive student gains, but the tests data do not pick them up (56). We must embrace there is a need for deeper, developed data understanding.

Education researcher, Robert Marzano, believes reform begins in the classroom with students and teachers. This reform level is a commitment at the district, building, and classroom levels. Marzano’s suggested rate to review data regarding progress is “at least every two weeks (Dessoff, p79).” Marzano’s approach is supportive of a learner-centered approach; simultaneously, PLCs and RtI focus on student results. Professional Learning Communities enable the schools the authority to determine SMART: Strategic, Measurable, Attainable,
Results Oriented, and Time-bound routines and practices. Therefore, the teachers determine the reporting intervals within a timeframe that the school agrees upon. Mike Mattos, the RtI guru, instructs data to be analyzed and interpreted to drive instruction every 4 – 6 weeks.

The aforementioned practices and researcher also emphasize that a teacher must understand what objectives a student is expected to learn and what data can do to assist instruction to meet the demanded expectations. Do we implement instruction based on data-driven decision making? What do students NEED to know? How do we know what students know? What do we do when students do not learn? What do we do when students have learned? These corollary questions guide educational practice and were prescribed for PLCs. Earl and Katz reported that teachers are not actively using data to plan data-driven instruction (2006).

This is problematic, data is multifaceted and may be utilized to evaluate progress, monitor performance and growth, determine assessment congregation and deviation, and determine guaranteed, viable curriculum (Crommey, 2000).

Herein, how do we apply data-driven instruction using best practice? What teacher practices and perceptions demonstrate our current status in this educational reform?

Data-Driven Instruction Conclusion

Data is embedded in the educational system. Data is available from multiple forms of assessment in the realm of education. Assessments, nor data, are new educational concepts. Assessment provides data for educational decision-making and expenditures. It is the data that the assessments produce that has become central to education. There has been a shift in education to focus on the results, or data, to inform practices and best teaching. The use of data is under examination; we see it in NCLB, ESEA, PLCs, Standards-Based Learning, RtI, and
CCSS initiatives. Data is a sustainable trend unlike other educational buzz. Seasoned teachers know the pendulum swings; data is information that is and has always been available in the classroom.

Data has hit education system-wide. Teachers have felt the pressure and performance expectations for students to demonstrate proficiency. Data-driven instruction required true learning results. Students that began below-grade level and performed at a Below Basic level will be hard-pressed to reach proficiency. However, a teacher that demonstrated learners reaching Basic provide data that will continue to propel the student to proficiency. This logic returns reform practices back in the direction of the classroom. Teacher knowledge drives instruction, instruction drives ongoing assessment and decisions based on data, and data drives student outcomes. “What educators need is real-time information – data that can help them answer questions while their students are still in their classrooms. What’s more, the data and analyses must be individualized.” Data-driven instruction begins in the classroom if results are to impact student achievement.

Consequently, a shift in mindsets has happened or is happening: it shifted from an educational system that collected data to individuals using data to drive instruction and decisions that impact results. We are a results oriented profession. The implications of becoming data-driven have stemmed from federal policy in a trickle-down effect. “In fact, the theory of action underlying NCLB requires that educators have the will and the know-how to analyze, interpret, and use data so they can make informed decisions in all areas of education, ranging from professional development to student learning (Wohlstetter et al, 239).”

Based on the reviewed literature, the frequency of data-driven instruction related to best practice depended upon the purpose for the data. Assessment of learning, used to inform of an
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CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

Research Method

A one-shot, non-experimental survey was designed to collect teacher perceptions related to data. It determined if teachers were prepared for the information data provided, if teachers felt competent with data-driven instruction, if teachers liked data, if time was sufficient for data-driven instruction, if collaboration time was sufficient, if teacher responses are significantly different from one another. A separate one shot, non-experimental survey was designed to identify the frequency used for data-driven decision-making, recording data, utilization of data, and perceptions. Chi-square analysis was used to determine significance and discrepancy between daily, weekly, monthly and quarterly practices. The correlation matrixes were used to analyze the correlation between frequency and student gain.

Study Group Description

The students that participated in this study qualified to attend the Title 1 Early Childhood Center by scoring at-risk on the Dial-III screening, parent survey, and school need indicators. The study consisted of 178 early childhood students between the ages of 3 and 5 years old. The program was located in suburban greater-Kansas City, Missouri. The school contained 10 blended Title and Special Education classrooms. Students attended based on a screening-process. The 2 self-contained Special-Education classrooms did not participate in the study due to specific, individualized educational plans. The Title 1/Special Education program is a feeder school to 10 elementary buildings, 2 middle-level buildings, 2 junior-high level buildings, and 2 high schools.
The SMART goals that demonstrated learning were collectively reported 3 times during the study using common formative assessments. Within the performance indicators, students were classified as meeting and not meeting the school-wide SMART goals. Teachers reported numeric intervals to determine goal results.

The school in the study is very unique and valued developmental appropriate practices. It began with the student performance and worked toward a growth goal. The process has since been refined to be even more specific to proficiency. The teachers assessed students to determine student performance at the beginning of the year. With the data from the pre-assessment, goals were determined based on student data at that time. The teachers drafted the SMART goals based on data. The SMART goals drove instruction, school improvement, and professional development during the year. The goals have repeated as needed and new goals have been established based on yearly student achievement and needs. The data is real-time and informative. The teachers planned based on the individual needs of the student learners. Teams planned according to data-driven instruction, similar to RtI, even though RtI is not an early childhood initiative. The data-driven decisions and instruction process was similar the elementary RtI methods practiced in the district.

Data Collection Methods and Instruments to be Used

Data collected consist of math common formative assessments devised by the teachers at the Early Childhood Center. The data from the study demonstrated growth during the 2011 – 2012 school year from September to April. Data surveys regarding teacher perception and utilization of data-driven instruction were also used in this study.

The common formative assessments were beneficially related to data-driven instruction as exemplified by the majority of students overall gain. Information was directly and immediately
available to teachers to analyze and use for instructional decision-making. Teachers were able to determine the exact level that individual students performed. Teachers could then group students by mixed ability or ability grouping for instructional needs. Learners engaged in appropriate developmental activities and lessons resulted in student gains. It was beneficial that the goals were school-wide, this established efficacy. It created a guaranteed, viable curriculum and held teachers accountable for learning.

However, the weakness in the assessment was that it was common and not standardized to compare to children of the same age. Student gains were compared to all other at-risk learners. Additionally, it was a growth goal and not a proficiency indicator. A student may accomplish significant gains and still function below proficiency. The school has since developed proficiency standards in their targeted goals. This modification accounted for data misconceptions that were not considered in the study. Additionally, the study is limited to the Title 1 specific grade-level. It is limited to the experiences and the interpretations of the teachers who participated in the study; the participants represent a significantly small sample size.

Research Design

The first research design used for this study was post, non-experimental design. The null-hypothesis was tested by a chi-square analysis. The independent variables in this study were frequent and infrequent data-driven responses. The dependent variables in this chi-square analysis were the interval practices: daily, weekly, monthly, and quarterly. Both independent and dependent variables were nominal data sets.

The second research design used for this study was a 2-sample t-test, experimental design. The correlation identified the student gains in achievement as the dependent variable using
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intervals compared to the independent variables: frequent and infrequent categories. The 2 sample t-tests compared gain to data-driven decision making frequency, data-driven recording frequency, data-driven common formative assessment frequency, data-driven standardized assessment frequency, data-driven observation frequency, and data-driven time perceptions categorized as frequent/infrequent.

Data for this study was obtained from the Early Childhood Center. Data was entered into excel spreadsheets and converted into the Vassarstats Software and Excel Minitab software. The tests analyzed pre-instruction performance and post-instruction performance. The pre- and post-assessments provided growth intervals. The surveys completed and submitted by the teachers examined frequency perceptions of data and utilization of data-driven instruction. The information was used to determine if perception and utilization impacted student achievement.
CHAPTER FOUR

PRESENTATION AND ANALYSIS

Presentations of the Data Analysis

This section reports the degree of similarities and differences between teacher perceptions of data. The responses range on a 1 – 4 point graph. The 4 equals strongly agree, 3 equals agree, 2 equals disagree, and 1 strongly disagree. It also presents the correlation significance of frequency and practice intervals: daily, weekly, monthly, and quarterly. Finally, it portrays the correlation significance of weekly frequency practices and student gain.

Data-Driven Perception Survey Results

Demonstrated by Graph 1, teacher participants strongly identified that data was useful. Most teachers, 80%, related perceptions to the highest degree of agreement. This information presented the Title 1 collective perspectives of understanding, purpose, and buy-in regarding data in the building. Simultaneously, the information is representative of the systematic, school-wide beliefs implemented with the 2008 PLC initiative. Meaning, teachers agreed that using data to make decisions or select specific actions based on data was purposeful.

Graph 1: degree that data is useful

Perception of Data as Useful
According to Graph 2, teacher participants strongly identified data was informative. Most teachers, 80%, responded with a strong degree of agreement. This information notified the audience that teachers see the value in data to guide instruction and decision-making practices. The numbers demonstrated that teacher perception was similar, with very little variance in opinion. This area of perception demonstrated a collective opinion among the community studied. Again, a systematic perception.

Graph 2: degree that data is informative
Shown in Graph 3, teacher participants’ agreed that data informed practice was relatively strong. Most teachers, 80%, demonstrated identification to the 3\textsuperscript{rd} degree of agreement. This question demonstrated a shift in identification from strongly agree to agree. Meaning the shift in degree is not strongly associated to perceptions, yet teachers were still in agreement. This is slightly different than data as informative. The wording alteration from data as informative to data informs instruction carries an implied action or response. What is the implication in this shift of perception? Why do teachers agree rather than strongly agree? The response demonstrated was still a collective opinion among the community. What factors changed the response from the 4\textsuperscript{th}, or strongly agree, to the 3\textsuperscript{rd}, agree, degree?

Graph 3: degree that data is used to inform my instruction
Graph 4, 5, and 6: degree that teachers perceive competency regarding data

Demonstrated in Graph 4, teacher perceptions are alike regarding collecting data. Most teachers, 80%, identified they agreed they were competent to collect data. This graph depicts the first disagree identification related to data. Only 10% of the study population disagreed with collection of data competency. Therefore, data collection is not a common area of concern according to study perceptions.

Graph 4: degree of competency collecting data
According to Graph 5, teacher participants felt competent to analyze data. This graph represented majority in agreement with more variance in perceptions. Most teachers, 70%, relatively agreed. A minority, 30%, disagreed with their ability to analyze data. Based on the response to the survey, the minority group expressed a need for support to summarize the information they have collected. This is an area to consider in regard to findings and recommendations.

Graph 5: degree of competency to analyze data
Demonstrated in Graph 6, teacher participants’ perceptions to interpret data were divided. Half, 50%, of teacher participants agreed they were competent to interpret data; half, 50%, of teacher participants disagreed they were competent to interpret data. This split degree of identification regarding teacher participants was significant. If teacher identifications related to disagree, what actions or responses will be practiced? What reflective practices are informing instruction based on data? Teacher opinion as presented, demonstrate a need for support or more information to feel competent to interpret data for 50% of the study participants. This graph shows a need for professional collaboration or learning in the community of this study.

Graph 6: degree teachers perceive competency to interpret data
According to Graph 7, teacher participants disagreed with certification training for data-driven instruction. 90% of teachers felt inadequately prepared; 20% strongly disagreed. This graph presented significant concern regarding the preparation of educators.

Graph 7: degree teachers were adequately prepared for data-driven instruction during certification program
According to Graph 8, most teacher participants, 70%, agreed there was a need for professional development for data. This comparable need was similar to the competency graphs of analyzing and interpreting data. Additionally, the certification training graph demonstrated a need for further training potentially achieved from professional development.

Graph 8: degree teachers perceive the need for professional development
Graph 9 and 10: degree teachers perceive sufficient time for data-driven instruction

According to Graph 9, teacher participants’ perceptions were divided in regard to sufficient time to work on data, individually. This information was similar to the competency graphs. Half, 50%, of teachers agreed there was time to work independently with classroom data. Half, 50%, of teachers disagreed with the time available to work independently with classroom data. Most teachers who perceived competency to analyze and interpret data were more likely to feel they had time to work with data in the classroom. Teachers that expressed incompetent perceptions felt more time was needed to sufficiently work with classroom data.

Graph 9: degree teachers perceive to have sufficient time working with data in the classroom
Shown in Graph 10, teacher perceptions slightly decreased regarding data-driven planning from working with classroom data. For example, 10% strongly disagreed to a greater degree of difference and 10% moved from agreed to disagreed; that was a 20% decrease in data-driven planning individually with sufficient time. Planning in response to the data should have informed instructional practices. It is concerning that 10% of the participants responded that they need time for working with classroom data and changed to affirmative time sufficiency to plan with data. How can that 10% plan with data if they do not have the time to work with data? This demonstrated inconsistency in response.

Graph 10: degree teachers perceive to have sufficient time planning with data in the classroom
Running Head: Data-Driven Instruction

Indicated in Graph 11, most teachers, 80%, like data. Within that 80%, 10% strongly identified liking data. The perception outcomes for liking data were similar to the useful and informative graphs. Teacher perceptions liking data were similar and collectively agreed. A minority, 20%, of teachers disagreed; they did not like data; they felt competent and time-sufficient regarding data and just perceived a dislike for data.

Graph 11: degree teachers perceive to like data

![Graph 11: Like Data](image)

Graph 12 and 13: degree teachers perceive teams to work with data

Represented by Graph 12, teachers perceived to have divided responses regarding sufficient time working in teams with data-driven instruction. Half, 50%, of teachers felt there was sufficient time to collaborate with teams using data. Similarly, 50% of teachers disagreed with sufficient time to collaborate with teams using data. This difference between perception was insightful. The participants disagreed. Therefore, the inconsistent responses indicated a team need for improvement. What systematic changes are needed for collective perceptions regarding working in teams? What implementations are needed? What factors influence teacher response?
According to Graph 13, teacher perceptions demonstrated a divided identity. Teachers were split 60% disagreed with sufficient time for teams and 40% agreed there was sufficient time. A slight majority felt planning required more time than allowed to work in teams to plan data-driven instruction. This was a slight decrease from working with data. This response makes sense as planning in response to data means the time for data in teams must be sufficient. Planning is a reflection of the data and requires analysis and interpretation to plan data-driven instruction.

Graph 13: degree that teachers perceive sufficient data-driven planning
As shown by Graph 14, teacher perceptions of teams implementing data-driven instruction utilizing data were a majority. Most teachers, 90\%, recognized teams utilized data. This was concerning regarding perception, considering responses to team time and planning with data was divided. How do teams utilize data-driven instruction if there is not time to work and plan? What are teams doing that prompts collective, affirmative responses? How do teacher participants interpret utilization of data? This response prompts the need for further information.

Graph 14: degree of perception that teams utilize data
Demonstrated by Graph 15, all teachers perceive data to impact the classroom. Regardless of frequency, competency, utilization, or liking data, teachers comprehensively understand the impact of classroom data. Therefore, the school-wide perception is common.

Graph 15: degree of perception that data impacts the classroom
Graph Summary

1. Majority, 80%, strongly agreed data was useful and informative. (Graph 1, Graph 2)
2. Majority, 80%, agreed data informs instruction; only 20% strongly agreed. This was a decrease in common identification of data-driven instruction utilization. (Graph 3)
3. Similar to the 80%, 20% ratio above, majority identified they liked data. On the contrary, the 20% shifted to disagree. This was a discrepancy in perception, although a small difference. (Graph 11)
4. Majority, 90%, felt competent to collect data. This was a common perception. Only 10% disagreed. (Graph 4)
5. Majority, 70%, felt competent to analyze data; only 30% felt incompetent to analyze data. The gap in identification widened with the application of data-driven utilization. (Graph 5)
6. The opinion was split. Half, 50%, teachers felt competent to interpret data. This demonstrated a difference in perception. (Graph 6)
7. The opinion was split. Half, 50%, teachers felt they had sufficient time for independently working with data, planning data-driven instruction, working with data in teams, and team data-driven instruction. In fact, there was a 10% decrease further separating the gap regarding team data-driven instruction. This response was understandable considering planning in response to data means the time for data in teams must be sufficient. The diverse opinion represented in 4 graphs showed discrepancy in teacher perceptions. This is telling. (Graph 9,
8. Majority, 90%, recognized teams utilized data; only 10% disagreed. This was problematic considering perceptions regarding time working with data and planning in teams previously demonstrated discrepancy in perceptions. (Graph 14)

9. Majority, 90%, identified with inadequate certification program preparation. Only 10% agreed with adequate programming. This was problematic. (Graph 7)

10. Majority, 70%, recognized a need for professional development. Aforementioned inadequate training subsequently demonstrated a need for support regarding data-driven instruction and utilization.

11. All teachers responded affirmatively toward data-driven instruction regarding classroom impact. In fact, 60% strongly agreed and 40% agreed. Regardless of frequency, competency, utilization, or liking data, teachers comprehensively understood the impact.
Correlation of Perceptions to Frequency

As shown in Table 1 below, columns B1 identified frequent perceptions of data-driven decision making and B2 identified infrequent perceptions of data-driven decision-making. Row A1 illustrated daily frequency, A2 illustrated weekly frequency, A3 illustrated monthly frequency, and A4 illustrated quarterly frequency. As shown, there was a significant difference (p-value = .0004) between the perceptions and the frequencies: daily, weekly, monthly, and quarterly. Specifically, there was a numerical shift in the daily response practices to the latter weekly, monthly, and quarterly practices. School policy was also a factor concerned with the findings; it was aforementioned that the school implemented monthly data practices. Therefore teacher variance within the timeframe of a month is significant. However, teachers have common monthly and quarterly practices.

Table 1 Chi-Square: frequency of teachers referring to data for decision making

<table>
<thead>
<tr>
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<th>B4</th>
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</tbody>
</table>

Legend:
A1 – Daily
A2 – Weekly
A3 – Monthly
A4 – Quarterly
B1 – Frequent Perceptions of Weekly Decision-Making
B2 – Infrequent Perceptions of Weekly Decision-Making
As demonstrated in Table 2 below, column B1 represented frequent perceptions of weekly recording and B2 represented infrequent perceptions of weekly recording. Rows A1 demonstrated daily frequency, A2 demonstrated weekly frequency, A3 demonstrated monthly frequency, and A4 demonstrated quarterly frequency. As shown, the p-value is .0001: a significant difference between frequent and infrequent practices among weekly recording data. The teachers seldom record data at frequent, daily intervals. There is a shift in the weekly responses for monthly recording data. A majority of teacher practice monthly frequency. Therefore, this hypothesis was rejected.

Table 2 Chi-Square: frequency of teachers recording data

<table>
<thead>
<tr>
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<tr>
<td>Cramer's V =</td>
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</table>

Legend:
A1 – Daily
A2 – Weekly
A3 – Monthly
A4 – Quarterly
B1 – Frequent Perceptions of Weekly Recording
B2 – Infrequent Perceptions of Weekly Recording
According to Table 3, there was significant difference between the utilization of SMART goal data (A1), CFA data (A2), standardized data (A3), observation (A4) and other methods (A5) of assessment and frequency perceptions. Table 3 column B1 identified frequent perceptions of data-driven utilization for planning. Table 3 column B2 identified infrequent perceptions of data-driven utilization for planning. As shown, the p-value is .4006. Therefore, this hypothesis was accepted.

Table 3 Chi-Square: frequency of teachers using data for planning

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Legend:
- A1 – SMART goal data
- A2 – CFA data
- A3 – Standardized data
- A4 – Observational data
- A5 – Other Methods
- B1 – Frequent Perceptions of Data-Driven Utilization
- B2 – Infrequent Perceptions of Data-Driven Utilization
According to Table 4, there was no significant difference between the frequency perception related to data-driven instruction and the time data requires. Column B1 denoted frequent perceptions and B2 denoted infrequent perceptions of data-driven instruction. Row A1 signified perception of data and impact on instruction, A2 represented reasonable time required by data, A3 reported significant time required by data, and A3 represented data interference with instruction. As characterized in Table 4, the p-value is .0127 and the hypothesis is rejected because it is below .25 and is insignificant.

Table 4 Chi-Square: frequency perceptions of data-driven instruction

<table>
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<td>10.83</td>
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</table>

Cramer’s V = 0.5203

Legend:
A1 – Classroom Impact of Data
A2 – Reasonable time Required for Data
A3 – Significant time Required for Data
A4 – Data Interference with Instruction
B1 – Frequent Perceptions of Data-Driven Instruction
B2 – Infrequent Perceptions of Data-Driven Instruction
Chi-Square Summary

| 1. | There was no significance between weekly frequency and decision-making responses to data-driven instruction. There was a numerical shift from daily response practices to the latter weekly, monthly, and quarterly practices. (Table 1) |
| 2. | There was no significance between weekly frequency and recording data. Participants demonstrated a split frequency regarding weekly practice. The numerical shifted for monthly data recording. (Table 2) |
| 3. | There was a significant difference in utilization of data-driven instruction. Teachers frequently used SMART goals; the specific goals identified for learners at the time of the study. Teachers also demonstrated a higher frequency of observation or other methods. CFAs identified less frequent utilization. Standardized assessment divided frequent and infrequent utilization of data-driven instruction. The various frequencies were surprising considering most CFAs are aligned with SMART goals. Subsequently, do teachers understand utilization of data-driven instruction? (Table 3) |
| 4. | There was no significant difference between perceptions and data-driven instruction. The shift in numerical representation, heavily represented in the A2 and A3 columns demonstrated teacher frequency need for time related to data-driven instruction. Meaning, teachers identified a need for time as both reasonable and significant; teachers have common perceptions regarding time related to data-driven instruction. (Table 4) |
Correlation of Frequency to Student Achievement

The t-tests in this section demonstrated nominal variables related to frequent and infrequent data-driven instruction. Correlation intervals tested were numeric gains demonstrated by students from the pre- and post-common formative assessments. The categories and student gains were compared in regard to weekly perceptions of sufficient time, CFAs, standardized data, observations, data-driven decision making (planning), and data-driven recording.

As shown in Figure 1, student gains were not significantly different between frequent and infrequent perceptions (t = -0.40, df = 30, p = .68). The estimate for difference was -0.239; this was a small difference and not significant. The mean of frequent growth was 0.26 and the mean of the infrequent growth was 0.53; the growth was about the same.

Figure 1:
Two-Sample T-Test and CI: frequent, infrequent time required for data
Two-sample T for frequent vs infrequent

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>StDev</th>
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<tbody>
<tr>
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<td>157</td>
<td>4.62</td>
<td>3.26</td>
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<tr>
<td>infrequent</td>
<td>21</td>
<td>4.86</td>
<td>2.43</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Difference = mu (frequent) - mu (infrequent)
Estimate for difference: -0.239
95% CI for difference: (-1.447, 0.969)
T-Test of difference = 0 (vs not =): T-Value = -0.40  P-Value = 0.689  DF = 30
According to Figure 2, student gains were not significantly different between frequent and infrequent perceptions (t= -0.15, df=115, p = .879). The estimate for difference was -0.074; this was a small difference and not significant. The mean of frequent growth was .30 and the mean of infrequent was .38; the growth was similar.

**Figure 2:**
**Two-Sample T-Test and CI: frequent, infrequent**
Two-sample T for frequent vs infrequent

<table>
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<th>N</th>
<th>Mean</th>
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<th>SE Mean</th>
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<td>4.62</td>
<td>3.32</td>
<td>0.30</td>
</tr>
<tr>
<td>infrequent</td>
<td>53</td>
<td>4.70</td>
<td>2.80</td>
<td>0.38</td>
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</table>

Difference = mu (frequent) - mu (infrequent)
Estimate for difference: -0.074
95% CI for difference: (-1.037, 0.888)
T-Test of difference = 0 (vs not =): T-Value = -0.15  P-Value = 0.879  DF = 115

Shown in figure 3, student gains were not significantly different between frequent and infrequent perceptions (t = .77, df = 167, p = .442). The estimate for difference was 0.362; this was a small difference and not significant. The mean of frequent growth was .33 and the mean of infrequent growth was .34; the growth was almost identical.

**Figure 3:**
**Two-Sample T-Test and CI: frequent, infrequent using Standardized data**
Two-sample T for frequent vs infrequent

<table>
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<th>N</th>
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<th>SE Mean</th>
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<td>infrequent</td>
<td>72</td>
<td>4.43</td>
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<td>0.34</td>
</tr>
</tbody>
</table>

Difference = mu (frequent) - mu (infrequent)
Estimate for difference: 0.362
95% CI for difference: (-0.565, 1.289)
T-Test of difference = 0 (vs not =): T-Value = 0.77  P-Value = 0.442  DF = 167
Running Head: Data-Driven Instruction

Demonstrated in Figure 4, student gains were not significantly different between frequent and infrequent perceptions ($t = 1.63$, df = 141, $p = .104$). The estimate for difference was 0.779; this was a small difference and not significant. The mean of frequent growth was 0.31 and the mean of infrequent growth was 0.36; the growth was alike.

Figure 4:
Two-Sample T-Test and CI: frequent, infrequent using observation data

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<td>infrequent</td>
<td>63</td>
<td>4.14</td>
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<td>0.36</td>
</tr>
</tbody>
</table>

Difference = mu (frequent) - mu (infrequent)
Estimate for difference: 0.779
95% CI for difference: (-0.163, 1.721)
T-Test of difference = 0 (vs not =): T-Value = 1.63  P-Value = 0.104  DF = 141

Shown in Figure 5, student gains were not significantly different between frequent and infrequent perceptions ($t = -1.43$, df = 70, $p = 0.156$). The estimate for difference was -0.829; this was a small difference and not significant. The mean of frequent growth was 0.26 and the mean of infrequent growth was 0.51; the growth was comparable.

Figure 5:
Two-Sample T-Test and CI: frequent, infrequent weekly data-driven decision making

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<td>5.26</td>
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<td>0.51</td>
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</tbody>
</table>

Difference = mu (frequent) - mu (infrequent)
Estimate for difference: -0.829
95% CI for difference: (-1.982, 0.324)
T-Test of difference = 0 (vs not =): T-Value = -1.43  P-Value = 0.156  DF = 70
Indicated in Figure 6, student gains were not significantly different between frequent and infrequent perceptions (t = -0.75, df = 175, p = .452). The estimate for difference was -0.355; this was a small difference and not significant. The mean of frequent growth was 0.32 and the mean of infrequent growth was 0.34; the growth was almost identical.

Figure 6:
Two-Sample T-Test and CI: infrequent, frequent recording data weekly

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<td>97</td>
<td>4.48</td>
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</table>

Difference = mu (infrequent) - mu (frequent)
Estimate for difference: -0.355
95% CI for difference: (-1.284, 0.574)
T-Test of difference = 0 (vs not =): T-Value = -0.75  P-Value = 0.452  DF = 175
CHAPTER 5
OVERVIEW, FINDINGS AND RECOMMENDATIONS

Research Questions

RQ1: To what degree do teachers perceive they were adequately prepared, or trained, for data-driven instruction?

RQ2: To what degree do teachers perceive competency using data-driven instruction?

RQ3: To what degree do teachers like data?

RQ4: To what degree do teachers perceive there is sufficient time for data-driven instruction?

RQ6: Is there a significant difference in teacher’s response regarding frequency of data-driven instruction by category of frequent/infrequent?

RQ7: Is there a difference in student achievement regarding data-driven frequent/infrequent categories?

Null Hypothesis

Ho1: According to Table 1, there was no significant difference between the frequency and response times of data-driven decision-making. According to Table 2, there was no significant difference between the frequency and response times of recording data to monitor student progress. According to Table 3, there was significant difference between the frequency and utilization of data tools: formative and informative assessments. According to Table 4, there was no significant difference in the perception of data impact regarding time and instruction in the classroom.

Ho2: According to Figure 1, there was no significant difference between responding to data within a weekly frequency regarding decision-making and student gain. According to Figure 2, there was no
significant difference between responding to data within a weekly frequency regarding common formative assessments and student gain. According to Figure 3, there was no significant difference between responding to data within a weekly frequency regarding standardized assessments and student gain. According to Figure 4, there was no significant difference between responding to observations regarding weekly frequency and student gain. According to Figure 5, there was no significant difference between weekly data frequency regarding data-driven decision making and student gain. According to Figure 6, there was no significant difference responding to weekly recording frequency and student gain.

Conclusions

Discussion of Findings

According to the results of this study, teacher frequency perceptions of data-driven instruction utilization did not independently impact student achievement. The revelations found in this study include the common perceptions related to data-driven instruction. The study also exemplified opposing perceptions related to data-driven instruction. The study compared data-driven instruction utilization regarding daily, weekly, monthly, and quarterly frequency. There were significant differences of individual practices within monthly timeframes. There was no significance correlated to student achievement.

Identified in the bar graph series, teacher perceptions regarding data-driven instruction demonstrated common perceptions regarding purpose, preparation, and professional development. Teacher perceptions varied according to competency and sufficient time. According to the chi-square analysis, there was no significant difference in the frequency
practices of the study participants, except the utilized tools was significant. There was no significant difference in frequency practices for the school embedded routines and practices demonstrated by the chi-square analysis. Finally, there was no significant difference between frequencies correlated to student gain.

More specifically, based on the previous graphs, all teachers agreed data was useful and informative. In fact, 80% strongly agreed with the perception that data was useful and informative. All teachers agree that data informed instruction and only 20% strongly agreed. Almost all teachers agreed they felt competent to collect data, 10% disagreed in the perception of competency. Majority, or 70%, of teachers agreed they felt competent in their ability to analyze data; no teachers strongly agreed and 30% disagreed. Only half of the teachers felt competent to interpret data. This demonstrated a decrease in confidence regarding the deeper, developed utilization of data-driven instruction like analyzing and interpreting data necessary to drive actions. Participants collect data; the degree of practice in response to data differs. Only 10%, a shift in perception felt they received adequate preparation from their certification program. Therefore, 90% felt inadequately prepared for the data-rich classroom environment. Meaning, teachers do not feel prepared, or trained, for data-driven instruction. In fact, most feel inadequately prepared. Consequently, 70% felt the need for professional development in the area of data. Half of the teachers felt there was time to individually and collaboratively spend working with data for the classroom. Similarly, half the population felt there was time to individually and collaboratively plan; 10% strongly disagreed. Considering the lack of time that half of the teachers perceived, more than half, 80%, of teachers agreed they liked data. Most, 90%, of the teachers felt their teams utilize the data collected. This information demonstrated that teachers had similar perceptions regarding the importance, training, professional
development needs, and utilization needed for data. Teacher differences began to emerge when compared to competency and sufficient time for data-driven utilization. All teachers, regardless of the degree, saw the useful and informative purpose of data. This information was presented in the bar graph series. It revealed the collective perception based on school-wide implemented structures and routines. Therefore, reflections, applications, and implementation practices need to be addressed, systemically.

Regardless of the teacher frequency perceptions, there was no difference on the effect of student achievement as demonstrated by Figure 1. The chi-square analysis findings demonstrated difference between frequency and utilization of data-driven instruction. Student gain was almost identical among frequent and infrequent practice demonstrated in the T-test figures.

As mentioned in the literature review, some schools have adopted routines in which teachers analyze data. Schools cannot depend on data once or twice a year to impact data-driven gains directly. The findings demonstrated that frequency and utilization of data-driven instruction varied among purpose. Creating systemic change based on these findings will help teachers become frequency efficient. Subsequently, frequency efficiency will improve data-driven instruction. The findings also examined frequency related to the data utilization practices and found the weekly frequency has no impact on student achievement. As a result, teachers can manage data-driven instruction time more efficiently and effectively.

Based on the findings of this study, common practices embedded in school-wide routines created by Professional Learning Community benefitted the school surveyed in this study. The frequency perception correlations demonstrated common monthly building-wide practices. The significant variations were daily and weekly practices. The benefits were demonstrated in the
correlations that averaged comparable gains within monthly timeframes. Subsequently, teachers reported that they all refer to data monthly, whether they like, feel comfortable, or use data individually and collaboratively. School-wide data routines imposed by Professional Learning Community structures in the school studied kept the information in front of teachers that may not utilize the information otherwise. As a result, teachers have practiced how to gather, analyze, summarize, and interpret the results of data to set goals and take action for student achievement; each teacher at their individual performance level. The degree that teachers perceived competency ranged, possibly due to years of experience and practice. The systematic, school-wide practices supported teachers to perform beyond their comfort zones.

Recommendations

In conclusion, data-driven instruction perceptions demonstrated common identifications in the studied school. Common perceptions and common practices created guaranteed building-wide routines. Building-wide routines created common goals. Common goals create learning gains. Therefore, it is recommended that schools make systematic, embedded data-driven instructional routines. Research previously explored in Chapter 2, identified that frequency range between every other week, every 4 – 6, and increments established in time-sensitive SMART goals. That range can be summarized as monthly frequency, give or take a week. The study exemplified that weekly frequency is irrelevant. Henceforth, factors beyond data-driven frequency perceptions and utilization studied affect student achievement. The school studied had established goals and practices that were time-bound and data-driven to impact student achievement. This was exemplified in the comparable gains.
It is my recommendation that schools provide professional development to all educators in data-driven instruction. Schools can scaffold the professional development to fit multiple personnel needs. The professional development should be in an implementation, practiced format. One of learning and responses based on the learning. One option would be to create a tiered new teacher program with integrated data analysis training. For example, if tiered the first year or two would be the development of classroom management, instructional strategies, and curriculum. Teachers must have a solid foundation in the classroom before they devoted the time and energy to data-driven instruction. The mentors during the first tier would be responsible for helping teachers gather and report data. When teachers have a grasp of curriculum and classroom instruction, the focus would evolve to data interpretation in the classroom. Data is instructional feedback. Data is informed decision-making for planning. Data is student learning demonstrated by results. Mentors may be selected upon their performance and practice; mentors may change with the program to have the most certified staff providing instruction and support for the protégé based on the tier. Teachers, new to the district not new to the profession, could begin with the data analysis tier. This would cover all new-hires to a school district. The district could provide the data-driven instruction training to all educators upon initiating the professional development program. The training would be more coaching and action based, than conceptual or theoretical. Teachers demonstrated in the student that they understood the use, information that data supplied. However, the application was presented with discrepancy. The problem must be addressed systematically. It must be a process of change.

Additionally, to best train educators who are in the system and did not receive training upon the hiring process, I would advise an internal needs assessment. A district could present data-specific information including GATES, DRAs, CFAs, etc. for grade-levels alike: Pre-K – 2,
3 –5, 6 – 8, and 9 – 12. This preparation would need to be district and personnel specific. The internal implementation would demonstrate data-driven instruction with support and feedback as needed. Participants demonstrated that the utilization is significantly different and this need be addressed.

It is also my recommendation that certification programs at the University level implement data analysis and interpretation into their Educational programs. An introductory statistics class is not sufficient. The course should be taught by an educator with an understanding of the data-rich environment that a classroom produces. It needs to simulate real information that is collected. It needs to guide potential educators to analyze the data with meaning that impacts the teacher’s decisions. It needs to guide classroom practices. With data, the teacher knows the standards that students understand, the standards that may need more practice and what students need the practice, or what standards need to be re-taught and to whom. The interpretation of data determines a course of action for instruction. The instruction is meaningful and the student achievement reflects the growth of learning. This course could be a pre-requisite for student teaching extending the classroom experience to one year rather than 1 semester with built-in training.

Recommendations for the district of the school participating in this study, I would recommend expanding the alignment process in the form of an Early Childhood Report card. The district has implemented standards-based grading and reporting. Early Childhood curriculum is standards based. Aligning the Kindergarten report card with Missouri Early Learning Standards would create essential data that could be used as assessment of learning, assessment for learning and assessment as learning. This would also allow student progress to be more extensive for elementary teachers.
Specifically related to the needs of this Title1 school, I recommend allowing students in the Title 1 feeder schools to attend the Early Childhood Program. Research has shown that children learn most rapidly between the ages of birth-to-five. Therefore, we would attempt to close the achievement gap by meeting the needs of the district and target students based on trends using data-driven instruction and initiatives. Student performance during the qualification screening is one day, one snapshot of performance. Students who represent the Title 1 school attendance areas have a greater need for early intervention. Therefore, attendance area may need to be addressed in the future in relation to qualification. The findings of this study support positive outcomes in the area of student achievement. It would be beneficial to the district to use the data focused on early intervention to decrease additional expenditures. “Positive early childhood experiences also improve developmental and school readiness outcomes, increase K-12 achievement, and contribute to higher rates of school graduation…programs generate cost savings between seven and ten percent in other public programs (Building Ready States, 3).” The correlations in this study demonstrate positive student gains. The positive gains decrease the achievement gap and allow students to function within a range of closer range of instruction. Meaning, student differentiation is less by closing the gaps early; this eases teacher accountability further in elementary performance through early interventions.

For educators that are not directly involved in this study, I would recommend systematic, common goals and objectives for schools. Teachers must know and understand the curriculum before they are equipped to make decisions about their instruction that impact student learning. Therefore, common, or standards-based learning objectives, are necessary for data-driven instruction to be effective. As shown by this study, teacher frequency perceptions data-driven instruction utilization does not correlate to student achievement. Other factors beyond frequency
of data are imminent for the success of data-driven instructional practices. I would recommend assessing your school building needs and beginning with common learning objectives specific to your population. I would also recommend developing system-wide goals and objectives with teacher authority to determine the timeframe for attainment.
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