



## **Analyzing Student Achievement Data: Preparing Teacher Candidates for Leadership**

Angela Danley<sup>a</sup>, Natalie Tye<sup>b</sup>, Karen Loman<sup>c</sup>

<sup>a-c</sup>University of Central Missouri

Dr. Angela Danley is an Associate Professor of Elementary and Early Childhood Education at the University of Central Missouri. She teaches undergraduate and graduate courses. Additionally, she supervises teacher candidates in the clinical practicum.

Dr. Natalie Tye is an Associate Professor of Early Childhood Education at the University of Central Missouri where she teaches junior level teacher candidates in undergraduate program. She also teaches graduate level courses in early childhood.

Dr. Karen Loman is an Associate Professor of Elementary and Early Childhood Education at the University of Central Missouri where she teaches junior level teacher candidates and supervises the candidates in their clinical practicum.

### **Abstract**

The purpose of this article is to share how one teacher education program at a Midwestern university prepares teacher candidates to analyze student achievement data, which is believed essential as one of the roles a teacher candidate needs in order to develop teacher leadership in the classroom. The authors provide the teacher candidates' relevant assignment and discuss the implications toward developing leadership. In particular, the action research results of two teacher candidates' writing lesson scores and personal reflections are highlighted. In addition, a former teacher candidate shares how her experience prepared her for the teacher leader role.

**Key Words:** teacher leaders, student achievement data, analyzing data

### **Introduction**

From the moment teachers enter the doors of the school building, they assume the role of teacher leader within the walls of their classrooms. Harrison and Killion (2007) state, "Teacher leaders assume a wide range of roles to support school and student success... they build the entire school's capacity to improve" (p. 74). Classroom teachers remain responsible for delivering effective instruction focusing on content knowledge, grade level standards, and assessments. Additionally, in order to make informed instructional decisions, teachers

analyze student data. The National Association of Elementary School Principals (NAESP) (2011) states, “To help all students achieve, teachers need to systematically and routinely use data to guide instructional decisions and meet students’ learning needs” (p. 7). Analyzing student data provides teachers with a snapshot of what their students know and should know (Lewis, Madison-Harris, Muoneke, & Times, 2010). There is a critical need to prepare teacher candidates (TCs), not only in lesson delivery and classroom management, but also with a developing understanding regarding analyzing and interpreting student achievement scores. Critically, understanding how to analyze and interpret students’ scores fulfills one of the many roles of teacher leadership. TCs analyze achievement scores to make informed decisions about their instruction as aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) Standards: 1- Learner Development and Standard; 6 - Assessment (Council of Chief State School Officers, 2011). Analyzing student data indicates a direct relationship to teacher leadership (Killion et al., 2016).

### **Background and Action Research Setting**

In the teacher preparation program at a Midwest regional university, the school-university partnerships represent a critical component of the clinical experience. Teacher candidates (TCS) are placed in a variety of school districts from rural, suburban, and urban communities during their first semester as a senior. The elementary and early childhood programs place TCs in the field beginning in their junior year, where TCs receive classroom support from the university supervisor and the cooperating teacher through observation and feedback. Once a week, TCs provide small group lessons and one-on-one instruction with students while in the field placement. TCs gain experience administering English Language Arts assessments such as running records (fluency, decoding, comprehension), sight words, and writing. After the junior year, the TCS transition into senior coursework.

During the senior year, teacher candidates participate in a combination of field placement (two days) and coursework (once a week). TCs implement whole group assessments and data informed lessons in mathematics, English language arts, and in science or social studies. This first semester senior experience provides a smooth transition into student teaching wherein the university supervisor releases responsibility to the mentor teachers. In order to meet the needs of students in the classroom, the clinical experience allows TCs to reflect on what they learned, the outcome of the lesson including evidence of student learning, and how teacher candidates can improve in their instruction. For this action research, TCs were given an assignment on teaching a writing lesson followed by administering a writing prompt. This assignment charged the candidates to analyze the students’ writing to determine next steps in their teaching. Although candidates in the course completed the required assignment, it involved collaborating with their cooperating teachers on the writing lesson and prompt. This collaboration piece is important for planning and ensuring each candidate follows the individual school pacing guide. The two teacher candidates, who provided a narrative for the purpose of this action research, completed their practicum in two Midwest suburban schools.

## Literature Review

Analyzing student achievement data, kindergarten through twelfth grade, provides educators with information to support adjusting their instruction to the individual needs of students (Hamer, 2014). It remains critical for TCs to evidence the ability to transfer their skills and knowledge associated with analyzing achievement data to their future classrooms. It is also important to prepare teacher candidates to use student achievement data to inform instructional decisions. Harrison and Killion (2007) contend although teachers have access to achievement data, they do not often use it to drive instruction. Providing authentic and meaningful opportunities to analyze student achievement data prepares teacher candidates to become effective leaders in the contemporary classrooms.

Analyzing student achievement data to meet the academic needs of the students can be an overwhelming task. Teachers already access student data through classroom and district assessments, with the expectation they use results to inform instruction (Deluca & Lam, 2014). It is important for teachers to “own” their data in order to make sense of the results. Morrison (2008-2009) stated, “If teachers are ever to use data powerfully, *they* must become the coaches, helping themselves and colleagues draw on data to guide student learning, find answers to important questions, and analyze and reflect together on teaching practice” (para 3). It is through this process that teachers take on another role of leader, by strengthening grade level teams and adding to overall school success. Morrison also affirmed teachers become self-coaches in analyzing their data if administrators and teacher leaders promote three essential components:

- Realize that data include more than end-of-year standardized test scores.
- View collecting data as a way to investigate the many questions about students, teaching practices, and learning that arise for any committed teacher.
- Talk with one another about what data reveal and how to build on those revelations (para 4).

Killion (2008) coached and suggested key questions for teachers to analyze student achievement data:

1) What is this assessment measuring? 2) What are the characteristics of the students involved in the assessment? 3) What type of assessment was used? 4) What type of conclusions can be drawn from this type of assessment? 5) How many students were assessed? (p. 8).

When teachers become more cognizant of the data, they confront and make informed instructional decisions. Once teachers become self-coaches mining the data, they can engage in collaborative conversations, focusing on improving teaching and learning. As the National Board for Professional Teaching Standards (NBPTS) (2014) affirms, “Teacher leadership is no longer optional. It is important for student learning...” (p. 1).

There is limited research on preparing teacher candidates to analyze achievement data. This current project contributes to the literature for teacher education programming connected to analyzing student achievement data. Additionally, this manuscript allows for teacher education

programs to consider the importance for field embedded course assignments to focus on collecting achievement data related to literacy or other content areas in order to help prepare TCs as classroom leaders. In order to support diversified student learning, this discussion describes the importance of preparing TCs for the classroom by using data to drive instruction. It is the belief that when teachers enter the walls of their classrooms, they are teacher leaders with the responsibility of the varied teacher leader roles, including analyzing student achievement data.

### **Action Research Process**

This action research described the need to prepare TCs for the classroom and also illustrated their capacity to become teacher leaders. The questions guiding the action research include: 1) How has analyzing achievement data prepared two teacher candidates for their future career as a classroom teacher leader? 2) How has the program prepared a classroom teacher to take on a leadership role in the school?

This action research focused on teacher candidates transitioning into the future teacher leadership role. The two TCs highlighted in this action research implemented a writing lesson, collected authentic student work from the lesson, and analyzed the results. The assignment protocol is provided (see Table 1).

<p>Table 1</p> <p><i>Protocol for Teaching and Scoring the Writing Prompt: Before and After Activities</i></p>
<p><b>Before Teaching the Lesson and Giving Writing Prompt</b></p>
<ol style="list-style-type: none"> <li>1. Choose two focus students. These focus students should have different learning needs. Please provide an overview of the two focus students and the entire class (student characteristics and contextual factors). (At least 3 paragraphs: 1 per focus student and the entire class. 600-900 words)</li> <li>2. What modifications or accommodations will you make for your two focus students and why? (100-150 words)</li> <li>3. Describe the writing activity and why you selected that activity. (100-150 words)</li> </ol>

### After Teaching and Giving the Writing Prompt

After the lesson and writing prompt, you will analyze assessment evidence to explain progress and achievement towards learning objectives demonstrated by your whole class, subgroups of students, and individual students.

1. **Whole class:** In this section, describe and summarize the learning of the class based off your pre-assessment scores (the class set of the first draft of writing).
  - What were the learning goals and the objective(s) of your lesson?
  - Provide the qualitative data (the results of your pre-assessment scores (first draft of the students' writing)).
    - Writing scores should be placed in a table and graph to represent the student scores.
    - Summarize what the table and graph inform you about your students' learning (i.e., the number of students who met the criterion based off the rubric). What evidence did you gather about the students' writing scores towards writing to the prompt or writing skill?
  - Based off the writing score, what are 3-4 writing strategies you could work on with your class as a whole?
  - (600 words maximum + tables, images, etc.)
2. **Focus Students:** Include an example of the two focus students' work (writing and rubric). Looking at the two focus students you selected with different learning needs and who need different types of accommodations and modifications:
  - Explain why it is important to understand the learning of these particular students.
  - Use what you know about the students and also the scores from the writing and their writing sample to draw conclusions about the extent to which these students attained the learning objectives from the writing lesson and prompt. Use samples of the students' work to support your answer. (250- 300 word limit per student)
  - Based off the writing scores, what are 3-4 writing strategies that you could work on with your focus students [3-4 per student and strategies that you

could work on with your focus students (these should not be identical strategies)].

### 3. Reflection and Self-Evaluation:

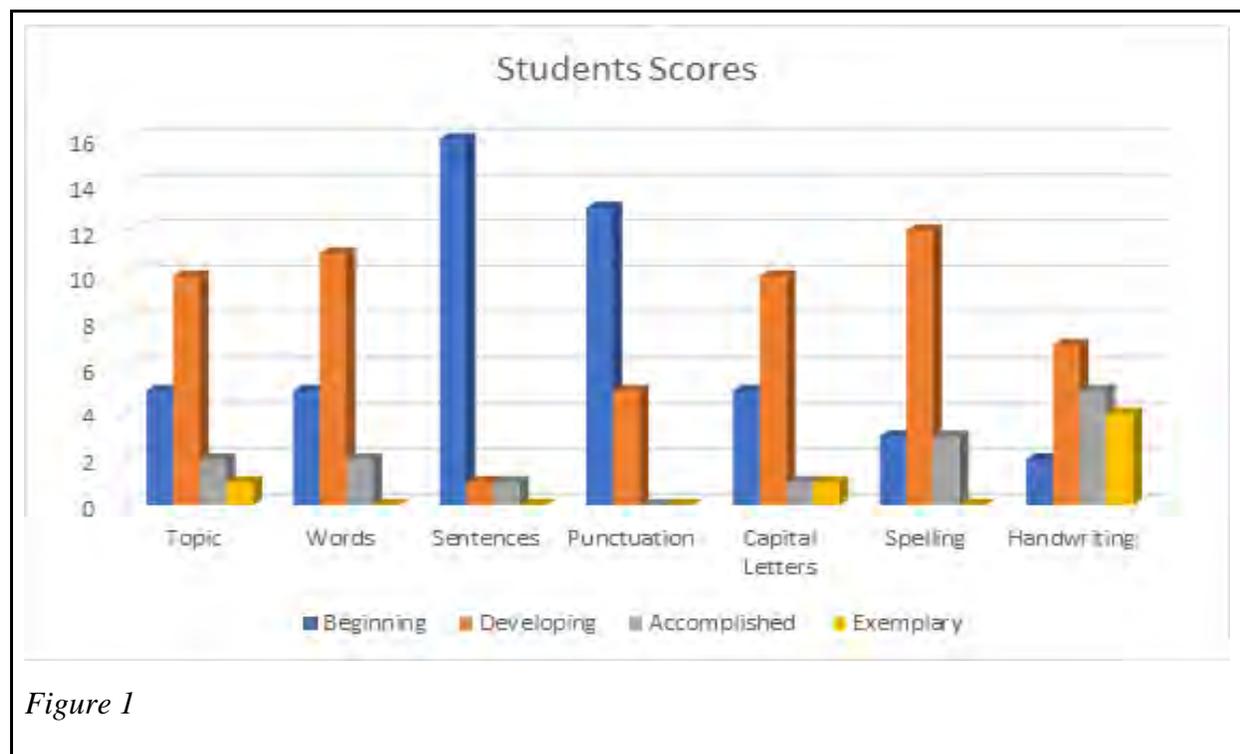
- If you taught this lesson again, what would you change? Why would you change it? What is your evidence that it needs changing?
- What did you learn from teaching this lesson that will make you a more effective teacher?

## Results

### Teacher Candidate #1

#### Personal Narrative Writing Prompt Results

For this writing prompt assignment, TC #1 chose to have her second grade students focus on what they were thankful for while incorporating writing with detail, using complete sentences, and handwriting. After implementing the lesson, the TC released her students to write their narrative. She collected student writing and analyzed the results by displaying the scores in a graph (see *Figure 1* below). Additionally, she developed next steps and writing activities for future instruction for whole class as well as focus for particular students. Due to confidentiality of the focus students, only her results and analysis for the whole group are provided.



*Figure 1*

After scoring the students' writing based off the use of the rubric (see Table 2), TC#1 found her students struggled with accomplishing the expectations set for them. After assessing the students' writing, she found there were a small number of students who scored in the exemplary section of the rubric. Six out of the 18 students scored in the exemplary section of the rubric. The majority of scores were in the developing portion of the rubric.

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Topic	Key word(s) near beginning	Main idea or topic in first sentence	Sufficient main idea or topic sentence	Interesting, well-stated main idea/topic sentence	
Words	Related words or ideas mentioned	Some key words or related ideas included as details with meaning	Key related words and ideas used as details with meaning	Key related words and ideas used correctly; defined for reader; interesting choice of words	
Sentences	Sentence fragments	Mostly complete sentences	Complete sentences	Complete sentences; variety	
Punctuation	Some punctuation	Most sentences have punctuation	Correct punctuation	Correct punctuation and variety	
Capital Letters	Upper and lowercase letters are not distinguished	Uses upper and lower case letters	Begins sentences with upper case	Correct use of case for beginning or sentence, names, etc.	

Spelling	Many spelling errors	Some spelling errors	Few spelling errors	No spelling errors	
Handwriting	Hard to read; not well formed	Mostly legible	Well-formed letters	Neat, easy to read, well formed	

Based on student scores, TC#1 stated that writing strategies could be done in small groups or mini-lessons. For students who were in the accomplished to exemplary categories, TC#1 wrote,

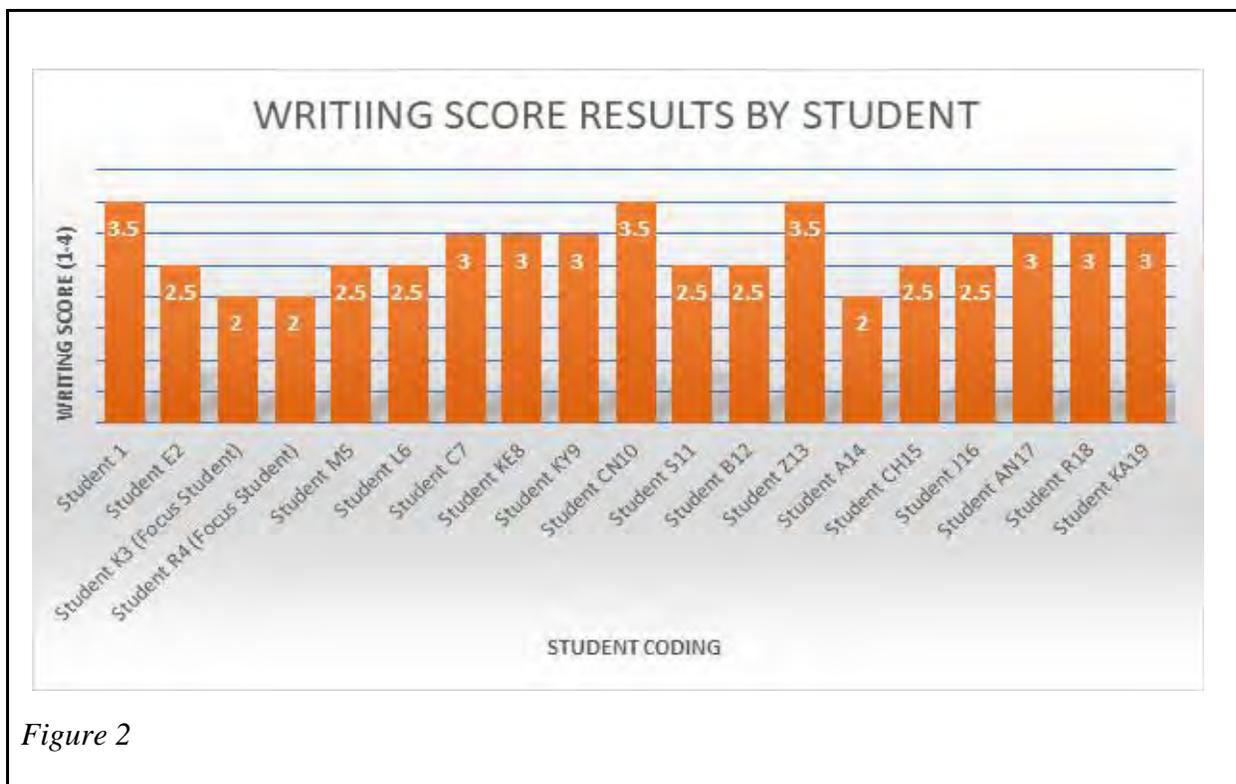
“I would challenge them to expand on their details by adding more descriptive words to their writing. I would have them explore the questions “who, what, where, when, and why” in their writings to add as much detail as possible.”

TC#1 also reflected that students could work on revising their own writing without direct help from the teacher, or work in pairs. For the developing stage of writing, TC#1 stated the following activity would focus on providing student examples of writing with detail. “Students could highlight the topic sentence and the detail in the writing example.” This would allow the students to see an exemplary example of what writing with what detail looks like. For the beginning stage of writing, TC#1 wrote how she could work in small groups and provide topic sentences and examples of supporting detail sentences. Students could take supporting detail sentences and sort them into the appropriate topic sentence.

## **Teacher Candidate #2**

### **Personal Narrative Writing Prompt Results**

For TC#2’s writing lesson, his fourth grade students developed a personal narrative. Students brainstormed ideas before beginning writing, which focused on the topic of their choice and on the structure of the paper, including a topic sentence, transitions, and a conclusion. The use of grammar and punctuation were also part of the writing expectations. The TC collected student writing and analyzed the results by displaying the scores in a graph (see *Figure 2*). Further, he developed next steps and writing activities for his two focus students and for the whole class. Due to confidentiality of the focus students, only his results and analysis for the whole group are provided.



*Figure 2*

The data TC#2 collected from the personal narrative writing samples provided him insights on his teaching. TC#2 scored his 4th grade students' narrative writing using a rubric from StudyLib (2018) (see Table 3). When scoring his students' writing, he discussed how three students scored an equivalent of a 3.5. Six students scored an equivalent of 3 and seven students scored a 2.5. Out of the 19 students, approximately 47% scored a three or higher, while 43% of the students scored below a 3. TC#2 wrote in his reflection, "Data revealed to me that the students were split on how to organize and develop a narrative piece of writing."

Table 3	
<i>Fourth Grade Narrative Writing Rubric</i>	
<b><u>4<sup>th</sup> Grade Narrative Writing</u></b>	
<p><b>*This is a snapshot of the 4th grade writing expectations as cited in StudyLib (2018).</b></p> <p><b>The original rubric can be found at this link:</b></p> <p><a href="https://studylib.net/doc/14318054/rubric-for-narrative-writing—fourth-grade">https://studylib.net/doc/14318054/rubric-for-narrative-writing—fourth-grade</a></p>	
<b>Overall</b>	The writer wrote the important part of an event bit by bit and took out unimportant parts.
<b>Lead</b>	The writer wrote a beginning in which he showed what was happening and where, getting readers into the world of the story.
<b>Transitions</b>	The writer showed how much time went by with words and phrases that mark time such as <i>just then</i> and <i>suddenly</i> (to show when things happened quickly) <i>or after a while</i> and <i>a little later</i> (to show when a little time passed).
<b>Ending</b>	<p>The writer wrote an ending that connected to the beginning or the middle of the story.</p> <p>The writer used action, dialogue, or feeling to bring the story to a close.</p>
<b>Organization</b>	The writer used paragraphs to separate the different parts or times of the story or to show when a new character was speaking.
<b>Elaboration</b>	The writer added more to the heart of the story, including not only actions and dialogue but also thoughts and feelings.

<b>Craft</b>	<p>The writer showed why characters did what they did by including their thinking.</p> <p>The writer made some parts of the story go quickly, some slowly.</p> <p>The writer included precise and sometimes sensory details and used figurative language (simile, metaphor, personification) to bring the story to life.</p> <p>The writer used a storytelling voice and conveyed the emotion or tone of the story through descriptions, phrases, dialogues, and thoughts.</p>
<b>Spelling</b>	<p>The writer used what he knew about word families and spelling rules to help him spell and edit. He used the word wall and dictionaries when needed.</p>
<b>Punctuation</b>	<p>When writing long, complex sentences, the writer used commas to make them clear and correct.</p>

From the data TC#2 collected, he discovered several different strategies that could be used with the whole group. The first strategy he suggested was the use of small group instruction. TC#2 wrote, “I would use grouping because some of the students seemed to have a hard time organizing their thoughts individually.” The second strategy he discussed was whole group instruction with explicit teaching. He also stated, “I felt as though I provided limited instruction as to what important details should be mentioned in a narrative story.” The third strategy that TC#2 discussed was giving the students the opportunity to revise their first copy. He also suggested that conferencing would be implemented to help them improve on their writing. TC#2 did state that he had limited time to administer the writing prompt after his lesson and he did not have the opportunity to conference with each student within the allotted time frame.

## Teacher Candidates' Personal Experience on Analyzing Student Achievement Data

### Teacher Candidate # 1.

This candidate is a Caucasian female, currently completing her student teaching in a larger suburban school district. During her first semester senior year coursework and field placements, faculty were already noticing future leadership potential through her ability to use data to make informed decisions. Upon completion of this work, TC#1 provided a narrative depicting her data analysis process.

After completing the writing data analysis, TC#1 wrote, "I am more prepared and equipped for my future classroom. For my writing analysis, I chose for my students to write about what they were thankful for. Students listened to a read aloud, while getting the opportunity to answer questions based on the book. They then completed a graphic organizer, listing out six things they were thankful for. Once completed, students moved on to the writing portion of the lesson. The students had to choose one of their topics from their graphic organizer and expand upon it in their writing. Once completed, I scored and analyzed the data of the whole class, but more specifically for two students with different learning needs within the classroom. Through this process, I have learned how to evaluate my students' work to improve their learning through accommodations and modifications. By analyzing students' work, they [my students] will be able to make larger strides in their learning and writing skills, by reaching their full potential."

Additionally, she wrote, "Before completing the writing analysis, I was making educated guesses with my accommodations and modifications. I was basing my information off of observations and not facts or evidence. This meant my accommodations and modifications did not have a constant success rate, was not being implemented properly, or implemented with the wrong students. Through the analysis of my students, I was able to give them the appropriate accommodation and modification to fit their needs because of the factual evidence I gained. Analyzing the students' work allowed me to pinpoint exactly what they were struggling with in their writings, compare it to other classmates' work, and implement the correct accommodations and modifications. As a classroom teacher, this means I am allowing my students to learn in the best circumstances possible for their growth. This allows my students to also be given accurate accommodations and modifications to learn the best way their brain knows how, giving them the largest improvement in their writing skills in a shorter amount of time. There is a variation of learning and skill within a classroom and that will be the case when I have a classroom of my own."

"It is my goal to have my students reach their full potential on an individual level. Students reaching their full potential looks different for every student. Going into a classroom of my own, I know I am prepared as a teacher leader to facilitate and analyze all my students properly to implement the appropriate lessons, accommodations and modifications. This makes me feel confident that I am giving my students the best learning environment for themselves and their needs by allowing them to reach their full potential."

## **Teacher Candidate #2.**

This candidate is a Caucasian male, who completed his student teaching in a smaller suburban school district. After completing the work in this first semester senior experience, this student expressed interest in possibly pursuing a role as principal at a later point in his career.

Upon completion of this work, TC#2 provided a narrative depicting his data analysis process. “During my senior semester in spring 2018, I completed the writing prompt assignment. Before completing the writing prompt with a group of 4th graders, I was not exactly sure what to expect from a 4th grade writer. I chose for the students to write narrative pieces so I could get an idea of each student and their imagination. I found that each student can vary in their writing ability especially when giving details within a narrative. Although after grading each narrative according to a 4-point rubric (provided by the classroom teacher), I noticed that there were quite a few students falling in between the 2 and 3 category. Grading each narrative was quite difficult for me as well as time consuming. However, I feel that all the time and effort I put into grading paid off immensely. Due to the fact I am student teaching in the same grade I administered the writing prompt with last spring, I have a better idea of what a proficient 4th grade narrative looks like compared to an exemplary narrative. Having a baseline set of writing to take into my student teaching was beneficial when working with the students on writing.”

He further wrote, “As far as the data analysis project goes, I think that by having the opportunity to create such an extensive project really helped as far as reading student data in my student teaching semester. Going into student teaching, I was not sure how much student data I would have access to, but I soon found out that I had access to quite a bit. Analyzing student data can be difficult at times without having the right tools in hand, but I will say it is helpful knowing what each student is excelling/struggling with. Working with student data last spring, I have learned that a lot goes into planning and executing learning strategies to help each student. As a student teacher, I have worked with data in Math and ELA which has given me an insight as to how each student’s performance affects them in the classroom. Student data is everything when working to improve student performance in any subject. The most important thing when using student data is all about how the teacher is able to read the data and how that teacher uses it for the benefit of the students.”

TC#2 also discussed how this project connected to teacher leadership. “I feel as a first-year teacher it is important to bring any and all ideas to the grade level team/school, especially if those ideas are in regards to improving a student’s education. Being able to read student data correctly can provide the teacher with various options on how to improve a given student within the content area they struggle. Having the opportunity to work with student data while in college classes and during student teaching has prepared me to be able to read data correctly and determine the best approach to help students. Once I have my own classroom of students, I feel as though I can bring my knowledge of reading data and help any student thrive in their educational career.”

### **A Former Teacher Candidate Who is Now in a Teacher Leader Role**

This former candidate is a Caucasian female, who completed her student teaching in an urban school district where she was later hired. As a former candidate, this classroom teacher was already displaying leadership characteristics. She developed a strong understanding of how to use student achievement data to make informed instructional decisions. Now a second-year classroom teacher, she provided a narrative depicting her experience with the data analysis process and her transition to a more active leadership role based on her understanding of data and the analysis for student learning (personal communication, December 11, 2018).

The second-year teacher wrote, “As a 2017 graduate of this Midwestern university and 2nd grade teacher in my second year of teaching at the elementary school under the leadership of my principal, I feel exceedingly fortunate for the experiences I have had in my professional career thus far. Being a part of the Midwestern university elementary education clinical pathway program was the first opportunity for my success as an educator. Through this program, I was able to partake in active, authentic learning. Beginning my junior year, I was placed in urban, suburban and rural classrooms. During my time in those placements, I had the opportunity to not only observe veteran teachers but lead small group lessons and co-teach alongside mentor teachers. I truly believe these experiences quickly and efficiently prepared me for my career.”

“I was fortunate enough to work in the elementary building with my current principal and my cooperating mentor teacher for 1 ½ years for my required practicum before graduating. During this time, I was able to familiarize myself with the district and school policies, procedures, curriculum, students and their powerful data analyzation process. When I was hired on as a second grade teacher at this Midwestern urban elementary school, I felt more than adequately prepared to embark on my first year as an elementary teacher.”

The former candidate discussed how the experiences helped her become a data team leader. “In my first year of teaching, I taught on the same grade level team as my cooperating teacher, whose role then changed to being my mentor. My principal provided advice, support, and a familiarity that was comforting. I held the role of data review team leader for my grade level my first year. Having observed the school’s data review process previously, I was prepared to administer assessments, gather data, set student goals and have weekly conversations with my team to plan and drive our instruction.”

“As I go through my second year of teaching, I feel confident and excited to take on the role of being a mentor to a teacher candidate from this Midwestern university. My experiences with the university, and at the elementary school has equipped me to evolve into a teacher leadership role. I look forward to sharing instructional strategies and classroom management techniques with a future teacher. I am eager to show them my passion for data analysis and help them see how purposeful planning can truly lead to student achievement.”

## **A Principal's Perspective on How Analyzing Student Achievement Data Has Prepared the Teacher Candidate for the Classroom**

This principal is a Caucasian female, working in an urban school district who partners with the university clinical program. She has been an educator for 16 years and has served as a principal for five years. This principal has witnessed growth from the above-mentioned teacher candidate from her junior year to her second year as a classroom teacher. She played an integral role in hiring this teacher as well. This principal (personal communication, December 8, 2018) provided her perspective on the transition into teacher leadership.

The school principal wrote, “I have had the great opportunity of working collaboratively with the Midwestern university, since 2014. Currently, my building is hosting our third group of juniors who will loop into their senior block at the elementary school, and who will hopefully student teach with us. Since starting our partnership, hiring high-quality, classroom-ready teachers has become easy. I have found that the teacher candidates from the Midwestern university, who spend time in my building, are better prepared to start their teaching career, compared to their peers who graduated from other universities. The teacher candidates can analyze student achievement data and collaboratively make decisions about instruction based on those data. They can contribute to planning and have meaningful conversations about teaching and learning. The graduates from this Midwestern university I have hired, who spent time during their junior and senior blocks, have transitioned into teacher leaders in my building more quickly than their peers.”

The principal also stated. “Teachers who are teacher leaders have applied for and been intentionally selected to serve in that capacity. Teacher leaders attend additional professional development provided by the district, as well as professional development I provide. They help plan and implement all building-level professional development. Additionally, they serve as mentors to new teachers. The mentor role includes coaching, observing and providing feedback, and being observed by their mentee. This happens at least once per quarter, or more if requested. I expect all teachers to be professional and on their "A" game, however, teacher leaders exemplify what I expect from all staff.”

### **Discussion**

When reviewing the writing prompt data analysis from TC#1 and TC#2, both teacher candidates were able to organize their student data in a graph and were able to interpret the results to make informed instructional decisions. Opportunities for teacher candidates to analyze student achievement data prepare them for a classroom position as well as a teacher leader role. From the experiences in the coursework, TCs can transfer what they learned about the importance of assessments and data analysis and carry this into their future teaching career. These early experiences with data analysis allow the TCs to connect their learning to the school district's data cycle. Once in a permanent teaching position, TCs with early experiences working with authentic data, find it easier to transition to leadership roles. It is through the authentic process of data collection and not “fake” data provided in the university classroom, that allows TCs the opportunity to dissect and process results in a meaningful way. By collecting and analyzing data

for the purpose of driving instruction, TCs see and understand the value placed on assessment through their lesson implementation and planning of next steps based on data they collect. TCs are able to adapt teaching and rely on strategies to support learning based on evidence rather than trial and error. These authentic experiences working with data, along with the support of university instructors and cooperating teachers prepare TCs for future career leadership roles and best teaching practices.

Based on reflections from the former TC in her second year of teaching, it is clear to see how the early preparation and support from university instructors and cooperating teachers provide relevant and appropriate opportunities to work with data, preparing TCs for an active role in leadership. By collecting data and learning the steps with appropriate supports, TCs gain personal understanding of the data collection and analysis process as well as develop artifacts from their work to review later in their own classrooms. These artifacts serve as reminders of how they learned the process and can guide future data analysis. These TCs can then feel confident in their first years of teaching and assume the role of teacher leader earlier and more efficiently than their peers without these purposeful experiences. When principals hire new teachers, they feel confident knowing the teacher candidate was provided opportunities to analyze student achievement data and to generate instructional decisions from the collected data.

### **Limitations**

Limitations to this action research included a small sample size. Another limitation was the time each of the two candidates were in the field, which was two days a week. Each TC was given one or two days to complete their writing prompt with the students. Increased focus is sought on preparing teacher candidates to analyze the data to take it to the next level, which is immersing TCs on how to differentiate instruction to meet the needs of diverse learners.

### **Implications for Practice/Next Steps**

In considering next steps, it is important to follow TCs through the junior semester into the student teaching experience where they have the continued opportunity to use a reliable assessment tool. This step is essential in order to determine the growth through time that the TCs may have gained in their understanding of how to analyze student achievement data. Comparing TCs' growth for two-to-three years would provide insights on teacher candidates' ability to analyze student data while also allowing the college instructor to use the results to tailor the instruction. Creating other opportunities for TCs to analyze student achievement data across the content areas, such as math, would be of additional value. To extend on this research study where TCs focus on a small unit of instruction, a benefit for the program and TCs, would be to provide the opportunity to teach a full unit of study in a content area such as math or communication arts prior to student teaching. This would benefit the TCs because they would pre-assess and post-assess the skills taught. Providing the TCs this opportunity could help those who find it challenging to interpret and analyze student data. In return, this field experience would afford the college instructors, mentoring teachers, and principals the opportunities to work side-by-side with the TCs to ensure preparation for student teaching and career leadership.

## **Conclusion**

Preparing new teachers for the classroom is no small task. From the time teacher candidates begin their junior to their senior levels, college instructors cover several areas: classroom and behavior management, instructional strategies, lesson and unit plan development, understanding the purpose of assessments, writing assessments, and analyzing student achievement data, which all connect to support emerging classroom teacher leadership. Xu and Patmor (2012) stated, “Developing teacher leadership skills in both in service and pre-service teachers is important enough to sustain school improvement and student achievement that it must be actively incorporated into training programs for those... preparing to teach” (p. 4). In some regards, the college instructor is the instructional coach each semester who has a responsibility to continuously reflect and provide course modules to develop effective teacher candidates who are ready to assume the role of classroom teacher leader.

The work of preparing TCs to analyze student achievement is typically done in isolation. Authentic experiences embedded in field placements remain necessary for active and purposeful learning. The partnerships with each school district and the schools within each district remain critical to the program outcomes, ensuring that all TCs receive support at all levels of their learning. The most beneficial learning occurs when TCs are immersed in the field working side by side with mentoring teachers who are willing and able to help prepare them for becoming teacher leaders who can use achievement data to meet the needs of students in the classroom.

## References

- Council of Chief State School Officers (2011). Interstate teacher assessment and support consortium (InTASC) model core teaching standards: a resource for state dialogue. Washington, DC: Author.
- DeLuca, C., & Lam, C. (2014). Preparing teachers for assessment within diverse classrooms: An analysis of teacher candidates' conceptualizations. *Teacher Education Quarterly*. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1078652.pdf>
- Hamer, I. (2014). 11 ways to make data analytics work for K-12. *Education Week*, 34(8), 22-23. Retrieved from: [https://www.edweek.org/ew/articles/2014/10/15/08hamer\\_h34.html](https://www.edweek.org/ew/articles/2014/10/15/08hamer_h34.html).
- Harrison, C., & Killion, J. (2007). Ten roles for teacher leaders. *Educational Leadership*, 65(1), 74-77.
- Killion, J. (2008). Coaches mine the data. *Teachers Teaching Teachers*. Retrieved from: <https://learningforward.org/wp-content/uploads/2008/02/feb08-issue.pdf>
- Killion, J., Harrison, C., Colton, A., Bryan, C., Delehant, A., & Cooke, D. (2016). A systematic approach to elevating teacher leadership. *Learning Forward: The Professional Learning Association*. Oxford, OH. Retrieved from: <https://learningforward.org/docs/default-source/pdf/a-systemic-approach-to-elevating-teacher-leadership.pdf>.
- Lewis, D., Madison-Harris, R., Muoneke, A., & Times, C. (2010). Using data to guide instruction and improve student learning. *SEDL*, 22(2). Retrieved from <http://www.sedl.org/pubs/sedl-letter/v22n02/using-data.html>.
- Morrison, J. (December 2008/January 2009). Why teachers must be Data experts, 66(4). *Educational Leadership*. Retrieved from: <http://www.ascd.org/publications/educational-leadership/dec08/vol66/num04/Why-Teachers-Must-Be-Data-Experts.aspx>
- National Association of Elementary School Principals (NAESP) (2011). Using Student Achievement Data to Support Instructional Decision Making Student Assessment. White paper published by *National Association of Elementary School Principals*. Retrieved from: [https://www.connectnow.us/Communications/Content/Documents/doc\\_NAESP-Student%20Achievement\\_blue.pdf](https://www.connectnow.us/Communications/Content/Documents/doc_NAESP-Student%20Achievement_blue.pdf)
- National Board for Professional Teaching Standards (NBPTS) (2014). The teacher leadership competencies. Retrieved from: [https://www.nbpts.org/wp-content/uploads/teacher\\_leadership\\_competencies\\_final.pdf](https://www.nbpts.org/wp-content/uploads/teacher_leadership_competencies_final.pdf)
- StudyLib (2018). Rubric for narrative writing - fourth grade. Retrieved from <https://studylib.net/doc/14318054/rubric-for-narrative-writing%E2%80%94fourth-grade>.
- Xu, Y., & Patmor, G. (2012). Fostering leadership skills in pre-service teachers. *International Journal of Teaching and Learning in Higher Education*, 24(2), 252-256. Retrieved from <http://www.isetl.org/ijtlhe/>. ISSN 1812-9129.