Student Service and Research at Tarleton

Experiences as an Undergraduate Research Assistant

By Sarah Titus, TSU Undergraduate Student

Tarleton State University provides a multitude of opportunities for leadership development along with academic growth. I was able to experience incredible opportunities working as an Undergraduate Research Assistant for a variety of projects while attending Tarleton. I believe these experiences helped develop me into the scholar I am today. Upon the start of my junior year at Tarleton, I began taking classes within the College of Education which primarily focused on my future as a professional educator within the public education school system in the state of Texas. While taking READ 4309 Implementing Language Arts Across the Curriculum, I recognized my passion for learning about not only writing, but the process of writing and the effective practices to use when implementing writing strategies and techniques within the elementary classroom. The professor of the class, Dr. Laurie Sharp, invited me to apply for an Undergraduate Research Assistantship grant through Tarleton’s Office of Student Research and Creative Activities. After my grant was approved, I worked with Dr. Sharp throughout a 10-week research experience focusing on qualitative analysis of handwriting instruction concerning educators in the state of Texas. This handwriting study not only educated me concerning the state of education in Texas concerning handwriting instruction and technique, but the world that is academic research. Prior to this project, I did not have experience as a researcher for any type of project that was not assigned to me within the confines of the classroom for a graded project or assignment. The research we were conducting allowed me to serve as the actual researcher to delve into the data collected and analyze themes present and then categorize those themes. Later, those themes would be thoroughly explored and connections made between them.

The project I had the opportunity to work on with Dr. Sharp focuses on the question of handwriting instruction being outdated within Texas public schools. I was able to use an online database to research the history of handwriting, which then lead me to learn about the original study concerning this topic. I learned about the methodology of the study which included the exploration of the current state of handwriting instruction among currently practicing educators in Texas, the different types of coding techniques, the findings of the data, and the implications which pointed to a need for a more in-depth look at the topic concerning a larger number of teachers with a wider variety of teaching experiences which led to our project. While working on this project I learned about open and axial coding and the use of these techniques concerning the specific type of data being analyzed and/or categorized. I was also able to work on creating the research design where the social constructionist theoretical framework was used as our guide. I also learned how qualitative methodology of phenomenology was used to construct a data-driven inquiry regarding handwriting through teachers’ experiences throughout our study. The study allowed me to analyze the responses of a total of 39 respondents who were educators and members of the professional organization Texas Association of Literacy Education (TALE). I collected the data from a variety of survey questions. Using axial coding I was able to confirm the accuracy of the codes and group like codes into themes. During the third review of the data codes within each theme were reviewed to identify the presence of sub-themes. After coding the data I was able to create a set of 4 themes present throughout the data collection process. These included the Goal of Handwriting Instruction, Handwriting Pedagogy, Personal/Professional Perspective, and the Current State of Handwriting.

Not only did participating as an Undergraduate Research Assistant teach me valuable data analysis skills specific to this project, but I was able to learn how to think outside of the box concerning analyzing data. It was crucial to not only be able to read and analyze the statements of the teachers, but to look for common themes and be able to classify their statements under those specific identified themes. At the conclusion of the project I was able to recognize that analyses revealed that most of the teachers in the study were supportive of the continued teaching of handwriting. Findings demonstrated a need for stronger teacher preparation and continued professional development with specific handwriting skills. We proposed that educators consider the possibilities afforded with technology and augment handwriting instruction accordingly to be a more relevant curriculum component well beyond legibility. Working on this research project further instilled in
me a love of learning and the importance of being a lifelong learner. Learning how to analyze, code, interpret, and then present the data I found at the 2015 Tarleton Student Research Symposium allowed me to gain a set of professional skills and expertise that I otherwise would not have had the opportunity to experience. Dr. Sharp commented on the benefits of undergraduate research, saying “Participating in an undergraduate research experience is an extremely beneficial experience for both the undergraduate student and faculty mentor. Research experiences have traditionally been reserved for graduate students, who are typically experienced in a specific discipline and learning how to think more critically and deeply about that discipline through graduate coursework. Providing this same opportunity to undergraduate students allows them to broaden their perspective as they initially prepare for their sought discipline. Thus, when undergraduate students complete their respective programs, they are essentially ahead of the game as they enter the workforce. Undergraduate research experiences have the potential to produce better prepared professionals.” (Sharp, 2015)

While at Tarleton I have been an active member of the student organization Tarleton Educators for the Advancement of Mathematics. I have a passion for learning about effective techniques and the best practices to use specifically when teaching math to students in the elementary grade levels. When I found out that Dr. Faulkenberry, Dr. Smith, and Dr. Riggs were working on a project concerning pre-service educators and their views on mathematics, I was immediately interested. During the Fall 2015 semester I worked on my second Undergraduate Research Assistantship on the project titled “Assessing Pre-Service Teachers’ Beliefs & Understanding of the NCTM Process Standards.” This project was quite similar to the research I had conducted with Dr. Sharp concerning the handwriting study as I was analyzing data provided from the respondents (in this case, the Tarleton State pre-service educators) concerning their comprehension of the standards of the National Council of Teachers of Mathematics. I was able to code the data and look for a variety of 20 different pre-determined themes that lay within the respondents’ essays concerning their mathematics background. The students wrote about what mathematics is and how to teach mathematics effectively to their future students. As I identified themes I learned how to correctly rank the themes from a scale of 1 to 2 as I identified each theme in the response of the individual pre-service educator.

Much like with Dr. Sharp, I was able to work with Dr. Beth Riggs in the Mathematics Department to learn about the variety of skills necessary for analyzing and interpreting the data. I learned about the importance of reading the responses thoroughly and checking for the presence of the 20 different themes. I then worked with Dr. Riggs concerning how to best determine the level of the theme concerning a positive or negative view from the student where I used the rating scale from -2 to 2. Working on this project allowed me to develop additional data analysis tools and skills, and allowed me to gain a thorough understanding of pre-service teachers’ beliefs and how those beliefs change over time. Since this study had been done over the course of 2 years, the students’ outlooks could change and develop. The development of beliefs throughout the three different mathematics education courses from the respondents allowed me to build upon my solid foundation of understanding concerning the importance of a higher education and building upon classes to succeed.

This semester, during the spring of 2016, I am looking forward to working on my third Undergraduate Research Project. I will be working with Dr. Jim Gentry in the Department of Curriculum and Instruction concerning the effectiveness of the case study done as an assignment in READ 3384. I am very excited to work on this research project as this data will be composed of both qualitative and quantitative which I am looking forward to learning about analyzing.

Dr. Beth Riggs stated that, “As an undergraduate research assistant, Sarah will be involved in all aspects of the research as we assess pre-service teachers’ beliefs and understandings of the NCTM Process Standards in mathematics. Her involvement in a research project such as this one can help her to become a more reflective practitioner in her future classroom, and she will be better equipped to meet the needs of her students who may come from diverse academic backgrounds.” (Riggs, 2015) What Dr. Riggs said about my experiences as an Undergraduate Research Assistant definitely rings true. Participating in these research projects and serving as an assistant throughout the process allowed me to develop the skills necessary to assist a variety of students, as well as my future fellow teachers, who all come from various backgrounds. Understanding how to find the common denominator with multiple responses, or in my research the different themes within the data itself, allowed me to develop the ability to locate commonalities and recognize their
characteristics. Thus, I am able to better make connections between ideas and themes which upon first glance may have seemed polar opposite. Dr. Sharp also commented on the importance of undergraduate research and the positive impacts it has both for the professor serving as the mentor as well as the student. She stated, “With respect to the faculty mentor, working with undergraduate students engaged with research endeavors is extremely rewarding. I myself have aligned my own scholarly agenda with the research interests of undergraduate students whom I have mentored. Together, we have made scholarly presentations at local, state, and national venues and also written scholarly publications. I am very proud of the work that we have produced within the field of education and literacy.” (Sharp, 2015) I have thoroughly enjoyed my experiences as an Undergraduate Research Assistant at Tarleton and am looking forward to applying my knowledge and skills as an educator in the public schools of Texas.

References

Riggs, B. (2015, December 17). Importance of Undergraduate Research [E-mail interview].

Sharp, L. (2015, December 29). Importance of Undergraduate Research [E-mail interview].

About the Author:

See Tarleton Stars for more information about Sarah Titus.