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# SOARS PROJECT VIGNETTE

**Faculty Name(s):**

**Heather E. Coles & Kathy Stoklosa**

**Student Name(s):**

Danielle Taormino

Olivia Hanno

Haley Vastbinder

Brianne Evesky

**Project title:**

The Effects of Constraint Induced Movement and Language Therapy with Individuals with Chronic Stroke and Aphasia

**The purpose of this project was to...**

Examine the effects of motor function and language function through co delivered occupational and speech language pathology therapy with clients who presented with left hemispheric strokes compared with improvement in language function with clients who only received speech language therapy.

**To accomplish this, we...**

We randomized clients to an OT/Speech co treatment session or a speech language therapy session only and provided treatment through stations and functional activities. Students developed detailed assessment and treatment plans for weekly sessions which occurred twice weekly for both groups. Students had clients participate in stations and functionally based activities and provided both speech and OT components with each task for the co treatment group.

**With the following interesting results...**

Results are still being analyzed. Preliminary results suggest significant improvements in movement and language within the co treatment group. The statistics have not yet been analyzed but will be using SAS as well as qualitative information from the videotaped sessions which are also presently being described and analyzed by the students.

**I anticipate this activity will enhance student retention and increase student success...**

The students all report a high degree of satisfaction with the experience of working across disciplines and learning about other disciplines' scope of practice and treatment techniques.

**As a faculty mentor, I incorporated the following characteristics of guided mentorship...**

Collaborative approach and regular meetings and discussions regarding planning and development of the research study along with regular editing of written work, HSRC submissions, etc...

**My mentoring supported the following student learning outcomes (SLO)...**

Conducting research

Assessments and Treatments

Regular and ongoing meetings with students to facilitate analysis of data

Assessment of Co Treatment Outcomes

**In the future, I (we) hope to build on this project by...**

Continuing this research with a new student group

# SOARS PROJECT VIGNETTE

**Faculty Name(s):**

**Dr. Padmini Das**

**Student Name(s):**

Mr. Jack Wessel and Mr. Ivan Gergi

**Project title:**

Building a Lead-free Community: Understand the existing problem in the community and develop a sustainable solution using Biology and Chemistry principles

**The purpose of this project was to...**

Currently, the communities in Rochester city neighborhoods are deeply concerned about the widespread lead contamination in their houses that were built prior to 1978, community gardens, privately owned urban gardens, and even inside the school premises. Since last 1.5 year, my research group in Nazareth College has been actively involved in helping the residents and schools by assessing the lead levels in soils and water samples collected from their properties. These stakeholders have asked me many times if we could provide a cost-effective solution to this problem. To address their need, I have mentored two students, Jack Wessel, and Ivan Gergi, through the SOARS project in which we have initiated designing an environment-friendly, cost-effective, as well as socially acceptable clean-up technology, which upon completion will help to reduce the risk of lead exposure in the city neighborhoods.

**To accomplish this, we...**

Immobilizing soil-lead in the residential properties of the Rochester city neighborhoods is an utmost priority as more than 95% of homes were built prior to the ban of lead-based paint in 1978, meaning that current residents may be at risk. Indeed, we have found strikingly high levels of lead in residential property, as high as 5000 mg/kg in bulk soil and up to 50,000 mg/kg in soils with buried paint chips. Water treatment residual (WTR), a waste sludge that is generated during the drinking water purification process, has shown promises to be used as a remediation technique for a variety of soil and water contaminants. The long term goal of our research group is to reuse WTR as a chemical amendment to immobilize soil-Pb in the residential properties of Rochester city neighborhoods. Our data so far established the need for sustainable remediation processes to solve these problems. WTR's effectiveness in immobilizing lead is evident from our initial sorption/desorption experiment, where >90% lead was absorbed by 5% WTR up to 1000 mg/L initial Pb concentration and almost no lead was released in three sequential desorption cycles.

**With the following interesting results...**

The results of this project are highly encouraging and were so far published as two technical abstracts in national/international conferences. The first one was accepted for the national/international annual conference of the prestigious Geological Society of America and was presented by Jack Wessel at Indianapolis in November 2018. Another abstract was submitted in the American Chemical Society's national/international annual conference to be held in April 2019. This abstract was also accepted after peer review and will be presented by Ivan Gergi, the second student chosen for the SOARS funding. Currently, both Jack and Ivan are engaged in helping me writing a manuscript to be submitted in a top tier journal in our field. These accomplishments are rare as well

as exemplary at the undergraduate level, and we thank the SOARS funding opportunity for providing us with the required funding for this project.

**I anticipate this activity will enhance student retention and increase student success...**

Definitely so. As I mentioned earlier, the achievements by the students, who received this funding through SOARS, have surely surpassed all expectations and it will not only assure their retention and success, it will motivate many others as well.

**As a faculty mentor, I incorporated the following characteristics of guided mentorship...**

I incorporated all five characteristics while mentoring these students. We set up expectations at various levels. The overall goal of the project was our final destination; however, to assess the performance on a regular basis, we set up weekly expectations and reviewed it every week to check whether those expectations were being met. We met multiple times every week based on the requirements of the project. The students contributed significantly in designing the experimental protocol based on my central idea and the existing related research. Throughout the project, I promoted a friendly and collegial environment so that the students feel free to express their ideas and critical thought processes. Freedom of thoughts is instrumental in meaningful research and mentoring. It is my job to make sure I teach them “how to think” and not “what to think.” Through the self and peer evaluation process in our weekly meetings, I fostered these relationships even further. Student mentoring was another critical characteristic of this project. At the second phase of the project, both Jack and Ivan were involved in our high school summer research mentoring program as undergraduate co-mentors, where they taught their analytical research skills effectively as well as shared their service learning experience with sixteen high school students, who were selected from 13 schools from neighboring towns.

**My mentoring supported the following student learning outcomes (SLO)...**

1) Reflective thinking, 2) Effective reasoning, 3) Creative thinking, 4) Social responsibility, 5) Collaboration, 6) Understanding and appreciation of cultural and human differences, and Pursuing Goals, 7) Pursuing goals, 8) Communicating effectively, 9) Relating knowledge to daily life, and 10) Demonstrating professionalism.

**In the future, I (we) hope to build on this project by...**

This project has completed the first step towards achieving our long term goal of reducing risk in the lead-affected residential properties of the city neighborhoods in Rochester. It has paved our way in designing the ongoing experiments, which has involved many more students in this service-learning project since then and will continue to do so.

# SOARS PROJECT VIGNETTE

**Faculty Name(s):**  
Zbigniew Granat

**Student Name(s):**  
Pamela Mason

**Project title:**  
Music Analysis as Sound Archeology

**The purpose of this project was to...**

attempt a reconstruction of the sonic history of four piano compositions by Frederic Chopin that he named Ballades. We began with a hypothesis that Chopin based his newly invented genre of piano music on the idea of imitation of the hammered dulcimer, an instrument that in the 19th-century was very popular among Gypsy, Jewish, Polish, and Ukrainian musicians. The project involved historical research on the instrument in question as well as a novel type of “archeological” analysis of Chopin’s works, designed to uncover hidden sound layers that can be traced to the dulcimer model.

**To accomplish this, we...**

have reviewed existing literature on the subject and explored the available sources related to dulcimer music that Chopin may have encountered either in Poland or abroad. We then worked systematically on comparing various pianistic structures in Chopin’s pieces with those that can be produced on the hammered dulcimer, and also with other 19th-century compositions that contain evocations of the cimbalom or of the harp. Our research plan included the student’s independent work on several compositions using the newly acquired analytical tools. I have encouraged the student to develop her own research questions and hypotheses and find parallel areas of interest that she can pursue independently following the completion of this project. We also embarked on fieldwork in the local community of musicians, and worked with dulcimer player Mitzie Collins and harpist Rosanna Moore. We have interviewed both artists and recorded their performances of portions of Chopin’s ballades on the hammered dulcimer and on the harp, respectively.

**With the following interesting results...**

we will attempt to present our findings to various audiences. These findings will be shared in conference presentations, including CARS, and also future publication based on this research. The videos we have recorded will be edited and turned into educational tools that can be used in the classroom, public presentations, or online scholarly platforms.

**I anticipate this activity will enhance student retention and increase student success...**

This project has demonstrated the value of joint faculty and student research. It has advanced the scope of undergraduate research at Nazareth by introducing the student to an interdisciplinary research agenda that will allow her to explore goals for her future independent work in graduate

school. Showcasing activities of this kind through CARS and college publications will encourage both faculty and students to seek similar opportunities; thus, the project will have a positive impact on student retention and student success.

**As a faculty mentor, I incorporated the following characteristics of guided mentorship...**

I have established expectations for the student in the beginning of our collaboration and held regular meetings throughout the duration of the project. The entire research process was utilized, from the formulation of the research problem to the practical application of our findings in the form of dulcimer and harp performances. I have worked with the student in a collegial fashion and created an atmosphere of collaboration.

**My mentoring supported the following student learning outcomes (SLO)...**

Critical thinking: Within the parameters of the project, the student worked independently on solving problems and posing research hypotheses of her own. Collaboration: The student has collaborated the mentor, local musicians (dulcimer player and harpist), and library staff at Sibley Music Library. Communicating effectively: This project gave the student significant opportunities to develop as a writer (analytical writing, formulating hypotheses and reflections, and reviews of literature). Demonstrating professionalism: Student has demonstrated accountability, punctuality, great work ethic, and ability to take criticism.

**In the future, I (we) hope to build on this project by...**

preparing future conference presentations and publications on the subject we have explored. I plan to offer my own presentation on this research for the International Chopin Congress in 2020. The student's own work inspired by this project will be presented to the college community at CARS in Spring 2019.

# SOARS PROJECT VIGNETTE

**Faculty Name(s):**  
Shirley Sommers

**Student Name(s):**  
Thomas Cuyler

**Project title:**  
Trauma and Its Effects on Classroom Behavior

**The purpose of this project was to...**  
Determine if childhood trauma manifests itself in the students' behaviors in the classroom and how students and teachers deal with it.

**To accomplish this, we...**  
We used qualitative research methods, including interviews and document analysis. Interviews: There were four participants in the study. Two of the participants were teachers, and the other two participants were students in K-12 urban educational settings. The interviews were recorded in order to maintain the trustworthiness of the participants' words. Document Analysis: Documents included letters, poetry and essays written by participants in relation to trauma. They were provided by the participants and used to substantiate data from interviews and for comparing with published research on the effects of trauma in the classroom.

**With the following interesting results...**  
The results show that trauma does have effects on the behavior of students in general, but particularly in the classroom. According to teachers trauma manifested itself in a distinctly recognizable aversion to authority figures in many cases. For example, students had an aversion to teachers' authority and other authority figures in schools. This seemed to be the major root of the tension. Furthermore, it was reported that students and parents of students who have experienced trauma sometimes, either purposefully or inadvertently, violate the boundaries set forth by professionals. It was reported that students would test the boundaries set forth by a professional just to test how much that that professional cared for them. For example, a student might attempt to text or call their teacher at late hours for non-emergencies, and when the teacher explains that this type of communication is inappropriate, the student uses this to confirm their deep-rooted belief that the teacher will abandon them in time. Students reported that trauma influenced their behavior in the classroom in the following ways:

- Aversion to Authority
- High Risk sexual activity
- Drug use
- Negative peer group

**I anticipate this activity will enhance student retention and increase student success...**  
Yes, this project will contribute to Thomas Cuyler's retention and general success as it provided him with knowledge and skills that he can use as a classroom teacher.



**As a faculty mentor, I incorporated the following characteristics of guided mentorship...**

All the characteristics were followed. Thomas and I met at several points of his project to discuss the scope of the project, methodology to be employed, strategies to select participants. When data had been collected, we discussed thematic data analysis and various strategies to report and display data.

**My mentoring supported the following student learning outcomes (SLO)...**

- 1) Critical and reflective thinking
- 2) Conducting qualitative research
- 3) Application of trauma theories
- 4) Communication skills

**In the future, I (we) hope to build on this project by...**

In the future, Thomas hopes to develop a booklet that is accessible to students on how to mitigate symptoms of trauma in the classroom and a pamphlet for teachers on how to recognize and de-escalate behaviors stemming from traumatic experiences. He will also build on this project with his work of mentoring young African American men; the knowledge gleaned from the findings will assist him in planning effective mentoring strategies for young men who have experienced trauma.