

# Project Summary and Personal Research Experience

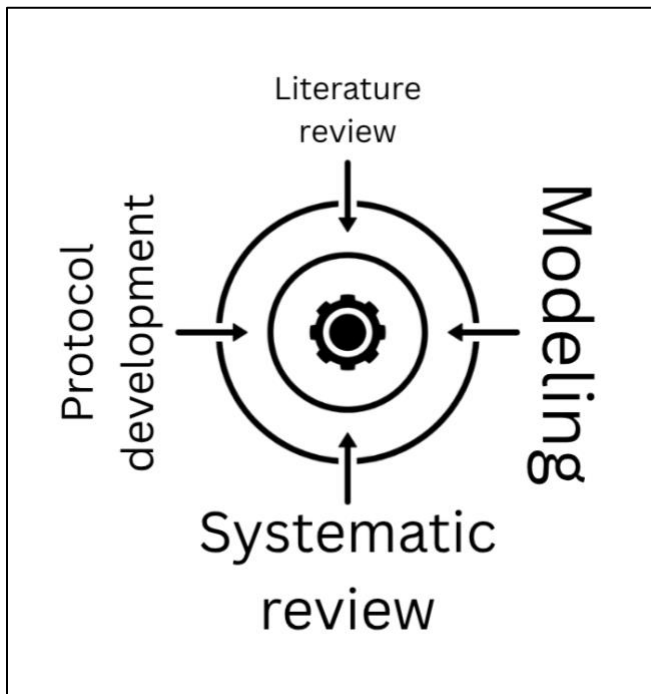


Figure 1: my workflow on a collaborative project

During the literature review, it became evident that a suitable, straightforward guideline was unavailable. This left us with a primary objective: to create our own tailored protocol that encompasses the values, methodologies, structure, and flow of the engineering and technical fields. While defining methodological gaps in available research, we decided to branch off from the larger project to a smaller goal that would serve us in the writing process. I took the lead on this task, conceptualizing and pushing ideas, using strengths from the Open Science Framework (OSF) and PRISMA systematic review protocols to develop our own.

We acknowledged that many ready-made sources for the research writing process, such as these, were designed for the health and data-science fields. Due to the differences in writing structure across fields, we needed a modified protocol that better aligned with our ideas, precision, and goals. At the same time, we wished to

Over the past academic year, I have assisted Shannay Rawal at various stages of an ongoing research project. We specifically examined the movement of non-time-sensitive goods and their interconnected relationships. The objectives of the research included developing a computational model that optimizes the environmental aspects of transport while prioritizing the most impactful key metrics, as identified through a systematic review.

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create a repeatable, adaptable guide to benefit researchers who may encounter similar issues.

Keeping these priorities in mind, I began drafting a protocol that could benefit our engineering literature review. When designing a useful protocol, I kept in mind what was missing from available literature and how alternative guidance could better assist other engineering researchers and us. The protocol would follow the Problem Computational Method-Metrics (PCM) framework and the FAIR principles: Findable, Accessible, Interoperable, and Reusable.

I had the opportunity to display my work in various settings, including the Environmental Engineering Department research group meeting and the Statler Research Week Poster Competition. The methodology and core drive of the protocol have been showcased to benefit researchers who may share our experience. This experience was a good opportunity to present and become comfortable sharing ideas and findings. The research group meeting helped me strengthen my communication skills while explaining my process to professionals, and the poster symposium allowed me to practice sharing my work. This research experience has taught me time management, presentation skills, communication, unconventional thinking, and much more. Moving forward, I plan to focus on my schoolwork as I begin my final year of undergrad and hope to rejoin the research team for my master's.

Working on this project has allowed me to focus on sustainable transportation and pursue my interests. I plan to use my civil and environmental engineering background to build on my curiosities in these associated fields and find my place in research.