

**CMPSC 580
Junior Seminar
Spring 2022**

**Assignment 4:
Bridging the Gap Between the Known and Unknown**

Objectives

To contemplate the deliverable of your research project by identifying the knowledge gap motivated by relevant literature. This assignment will invite the student to consider the end-product so as to begin to set goals for a senior thesis research project.

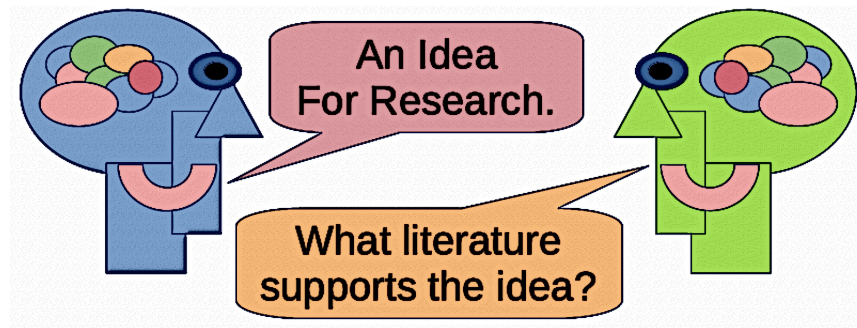


Figure 1: All research projects begin with a potential idea of a study. This idea must be narrowed and tightened into a particular feasible deliverable. However, before this focus of the project can be completed, the outcome of the project must be motivated by the literature in someway...

Outcomes of Research

In all research, there is some *outcome* or *resulting body of work* that is created as a result of a researcher's investigation, as noted by Figure 1.

In your project, what do you envision will be the resulting deliverable from your work? For example, would the product of your research project be similar to one of the ideas below, or something different?

- A piece of software
- A tool
- A new type of video game
- A component for a game
- A piece of theory
- A method or an analysis to investigate some real-world concept

- A software library
- A data set and its analysis
- Something completely different ...

Perhaps your deliverable fits into an all-together different category entirely? In some research projects, for example, the deliverable may be a body of text such as a book, or an article, to explain some in-depth aspect of technology in Computer Science. Whatever you plan to produce during the course of your work, **you will need to motivate the work as an *original* work which is *supported by facts found in the literature*.**

Find the Gap with Motivation From the Literature

A gap in knowledge is described as a missing piece of original information, or the lack of fact, which would connect two current pieces of thought within the research area. Bridging a gap would add knowledge to strengthen the understanding in the area so that current thinking is continuous between these former pieces of knowledge thanks to the added knowledge.

This assignment asks you to consider the product of your project in terms of the facts of the literature to support your work. Here, you are asked to use your previously found literature, in addition to several fresh and current articles in the literature to discuss how your work bridges some type of gap in knowledge.

For instance, upon reading articles in the domain of your idea where it is mentioned that “a workable solution has not yet been found”, you could use this knowledge to propose your research project to find such a workable solution to the problem.

Further ideas about finding a gap in knowledge of your research area may be found at link: <https://sites.middlebury.edu/middsciwriting/overview/organization/gap-statements/>.

Clone Your Assignment Repository

Today's assignment repository can be found at the below link to a GitHub Classroom repository. Here you will work on your assignment and then you must push your work to the GitHub cloud where the instructor will be able to view your work for grading. Often, there will be files in your assignment repositories which you are to edit before you submit them by using the below commands for git. **Please note that the instructor cannot view your submission and cannot grade your work unless you push your work to the GitHub cloud!**

<https://classroom.github.com/a/K7sT2-YI>

To use this link, please follow the steps below.

- Click on the link and accept the assignment
- Once the importing task has completed, click on the created assignment link which will take you to your newly created GitHub repository for this lab,

- Clone this repository (bearing your name) and work locally
- As you are working on your lab, you are to commit and push regularly. The commands are the following.
 - `git add -A`
 - `git commit -m ‘Your notes about commit here’`
 - `git push`

Part 1, This Class: What To Do

In the GitHub repository’s `writing/report.md` document, answer the prompted questions.

Part 2, Next LAB: What To Do

For our next lab session, you will continue to work on this assignment instead of receiving a new lab assignment. Please use the lab time wisely to identify the knowledge gap, motivate it by relevant literature and/or existing projects, and develop your research question(s). You can also use this time to create a cohesive blog (min 200 words) post summarizing your responses.

Part 3, Next Class: What To Do

Give a 3 minute presentation that identifies the gap and the way you will attempt to address it.

Summary of Deliverables

- **For THIS class:** Begin working on the `writing/report.md` document where you will address its leading questions.
- **For NEXT lab:** Come prepared to continue working on the writing assignment and to create a blog post of the summary of your responses.
- **For NEXT class:** Prepare and give a lightening talk as described above.

Help?

Please let the instructor know of any questions that you may have. Please use email or make office-hour appointment slots if you would like to discuss an issue.