

Assignment #2: Problem Statement, Research Question(s)/Hypothesis(es) (Group)

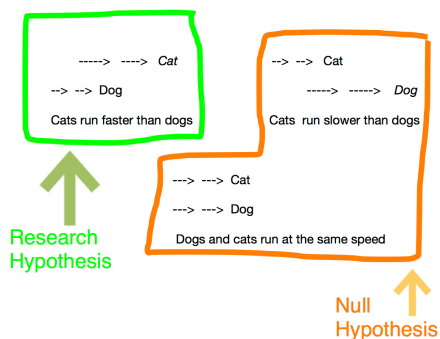
Final Due: February 26, 2023

The purpose of this assignment is to help you think about your research project from two very different perspectives: (a) its relationship to practical issues facing educators, students, parents, policy makers and/or the general public via the problem statement and (b) its focus on carefully articulated research questions and/or hypotheses that **can be answered or tested** through some form of data collection and analysis.

While there is much that we do not know or understand about the world, most research in education has a very practical focus. **Thus, your task in writing the problem statement is to craft a brief but compelling argument to convince the reader about the relevance and importance of your proposed research project to real-world concerns and the potential connection of your findings to addressing or resolving those real-world concerns.**

The research question or hypotheses provide the focus for the research design. **A 'good' research design will enable the researcher to 'answer' the research question(s) or provide a definitive test of the research hypothesis(es).** Thus, clarity in the wording of these statements is crucial for the development of research methods and analytic procedures. Typically, the research question is posed when the researcher is trying to gain a basic understanding of what is going on in some situation. For example, there is much in the news lately about bullying. Before a school would implement a bullying prevention program, it would be useful to know the types, frequency and impact of bullying episodes in the school. In this case a set of research questions would be appropriate, and the researcher could use various descriptive statistics to present the data to answer the question(s). However, once a school has selected and implemented a specific bullying prevention program, people want to know if it works! While a school principal would ask a question: Is this particular program effective in lowering the incidence of bullying episodes in my school; the researcher would probably want to be able to use inferential statistics to answer that question in a formal way. Thus, the researcher would move beyond the question and frame clear one or more hypotheses that contain predictions about what is expected to be found. This is the research hypothesis. But to use inferential statistics to test the hypothesis, the researcher would frame a **null** hypothesis which covers all other possible outcomes except the one contained in the research hypothesis.

For example, if the research hypothesis is that cats run faster than dogs, the null hypothesis contains two parts, cats will not run faster than dogs and that cats and dogs will run at the same speed.



Thus, your group's task is to:

- (1) write an effective problem statement ;
- (2) write one or more research questions that are tied to your problem statement;
- (3) write one or more pairs of research and null hypotheses that are tied to your research questions;

Note: Typically, researchers will pose either research questions or hypotheses not both since 'questions' are more geared to exploratory research and 'hypotheses' are reserved for situations where the researcher has a clear expectation of the desired outcomes and often wants to be able to generalize the findings to other settings. For this assignment, I want you to practice writing both research questions and hypotheses.

**Please keep in mind that the development of a research plan is in reality an iterative process.** As you read in your topic area, you become clearer about 'what's out there', about what you want to do, and what you can reasonably do. Thus, it may turn out that your final research plan will only involve research questions but for this assignment you are to practice writing both research questions and hypotheses.

Here are links to online examples:

[Follow this link to see an example of a problem statement](#)

[Follow this link to see a couple annotated examples of a Problem Statement](#)

[Follow this link to see an example of a well-formed comparison groups hypothesis](#)

[Follow this link to see an example of a well-formed correlational hypothesis](#)

[Follow this link to see an example of an AMBIGUOUS research hypothesis :\(](#)

[Here is a brief discussion of the differences between hypotheses and research questions.](#)

Grading Procedures:

This assignment will be worth 10% toward your final grade for this course. The assignment will be evaluated on the basis of the attached rubric. **Only one member submits the assignment but include everyone's name!!!**

NOTE: You can submit a draft version, partial or full, for feedback and indeed, I would encourage you to submit a draft. The draft, if any, and the final version should be uploaded to GoogleDocs and shared with me. Be sure that you have 'shared' the GoogleDoc file and sent a GoogleDoc notification **to both me and all the group members saying that the document is ready for feedback.** If you have trouble with GoogleDocs, please contact me.

Remember to name your file with the assignment and the last names of each member of your group, e.g.

*"Assignment\_#2\_Smith\_Jones\_&\_Brown\_final"* or *"Problem\_&\_Hypothesis\_Smith\_Jones\_&\_Brown\_final"*.

**Rubric for Assignment #2: Problem Statement, Research Questions & Hypotheses**

	<b>Needs Improvement (B- or lower)</b>	<b>Adequate (B/B+)</b>	<b>Proficient (A-/A)</b>	<b>Comments</b>
<b>Problem Statement:</b> Identifies a real-world concern(s) or problem(s)	<ul style="list-style-type: none"> <li>•No meaningful real-world concern or problem is provided.</li> </ul>	<ul style="list-style-type: none"> <li>•An ‘interesting’ but not particularly important or solvable real-world concern or problem is provided.</li> </ul>	<ul style="list-style-type: none"> <li>•A potentially solvable real-world concern or problem is provided.</li> </ul>	
<b>Problem Statement:</b> Provides evidence as to the magnitude of the issue(s) in terms of severity and scope of impact	<ul style="list-style-type: none"> <li>•Few if any of the claims in the problem statement are supported by evidence.</li> </ul>	<ul style="list-style-type: none"> <li>•All of the claims in the problem statement are supported but only some of them are backed up by research evidence as opposed support from things like newspaper articles.</li> </ul>	<ul style="list-style-type: none"> <li>•Clear research evidence, with one or more citations, is provided to support each claim made in the problem statement.</li> </ul>	
<b>Problem Statement:</b> <b>Connection between the real-world issue and the potential contribution of the research study.</b>	<ul style="list-style-type: none"> <li>•The contribution of this research study to the real-world issue is not stated or stated unclearly.</li> </ul>	<ul style="list-style-type: none"> <li>•A connection is made but it is likely to be of limited relevance to a real-world issue.</li> </ul>	<ul style="list-style-type: none"> <li>•There is a clear and compelling connection between a real-world issue and the potential contribution of this research study</li> </ul>	
<b>Research Question/Hypothesis:</b> <b>Provides focus for data collection and analysis</b>	<ul style="list-style-type: none"> <li>•The wording is too vague or ambiguous to be a clear guide for data collection and data analysis.</li> </ul>	<ul style="list-style-type: none"> <li>•The wording is such that only a portion of the research question or hypothesis could be clearly answered.</li> </ul>	<ul style="list-style-type: none"> <li>•The wording of the research question or hypothesis provides a clear focus for data collection and data analysis.</li> </ul>	
<b>Research Question:</b> <b>Open-endedness and Neutrality</b>	<ul style="list-style-type: none"> <li>•The wording of the research question is not open ended or presupposes an expected outcome.</li> </ul>	<ul style="list-style-type: none"> <li>•<i>(no rating for this category)</i></li> </ul>	<ul style="list-style-type: none"> <li>•The wording of the research question is open-ended and does not presuppose an expected outcome.</li> </ul>	
<b>Hypothesis:</b> <b>Independent and Dependent (Outcome) variables</b>	<ul style="list-style-type: none"> <li>•One or both of the variables are not observable; or</li> <li>•Both are not clearly articulated. (It would be difficult to measure them.)</li> </ul>	<ul style="list-style-type: none"> <li>•Both the independent and dependent variables are identified and observable but one of them is not stated in a way that permits unambiguous categorization or quantification.</li> </ul>	<ul style="list-style-type: none"> <li>•Both the independent and dependent variables are identified with sufficient clarity that they can be observed and categorized or quantified.</li> </ul>	
<b>Hypothesis:</b> <b>Description of the pattern of difference or impact</b>	<ul style="list-style-type: none"> <li>•The wording of both forms of the hypotheses is unclear about the expected pattern of results.</li> </ul>	<ul style="list-style-type: none"> <li>•The wording for either the null or research version of the hypothesis is unclear about the pattern of results;</li> <li>•If the hypothesis is one-tailed, the direction of predicted outcome is not stated or is incorrectly stated.</li> </ul>	<ul style="list-style-type: none"> <li>•The wording of both forms of the hypothesis clearly indicate if it is a two-tailed (non-directional) or one-tailed (directional) test or prediction.</li> <li>•If it is a one tailed test, the direction of predicted outcome is stated correctly.</li> </ul>	
<b>Hypothesis:</b> <b>Parallelism between the Research and Null Hypotheses</b>	<ul style="list-style-type: none"> <li>•Only one version, either null or research, of the hypothesis is given; or</li> <li>•It is unclear which version is which.</li> </ul>	<ul style="list-style-type: none"> <li>•Both forms of the hypothesis are given but they do not cover all possible outcomes, e.g., both groups being the same rather than one group being ‘better’ than the other.</li> </ul>	<ul style="list-style-type: none"> <li>•The research and null hypotheses are complementary and thus together they cover all possible outcomes.</li> </ul>	