QALMRI INSTRUCTIONS

Adapted from: Kosslyn, S.M. & Rosenberg, R.S. (2001). Psychology: The Brain, The Person, The World. Boston: Allyn & Bacon.

The QALMRI method provides a means for critically evaluating experiments, as well as for organizing your own experiment proposals. It helps you to find **connections between theory and data** by making explicit the question being asked, the approach used to answer it, and the implications of the answer.

Q stands for Question

All research begins with a question, and the point of the research is to answer it. For example, we can ask whether a placebo is better than no action in alleviating depression. For most journal articles, the General Introduction should tell the reader what question the article is addressing, and why it is important enough that anyone should care about the answer. Questions fall into two categories: broad and specific. In your QALMRI, state both the broad and the specific questions being asked. Broad questions are typically too general to answer in a single experiment, although one should view the experiment as one step on a journey to answer the broad question. An example of a broad question might be "Does language influence perception?" This sort of question provides the general topic of the paper, and can only be answered through compiling many experimental results. In contrast, the specific question can typically be addressed in a single experiment or set of experiments. A specific question might be "If one language has a specific term for one color, and another language does not have any term for that color, will speakers of the two languages perceive the color differently?"

Again, be sure to identify the broad and specific question relevant to your data collection.

A stands for Alternatives

Good experiments consider at least 2 possible alternative answers to a specific question, and explains why both answers are plausible. For example, the possibility that speakers of different languages will perceive colors differently is plausible based on evidence that top-down processes can affect perception. The alternative hypothesis, that language does not influence perception of color, is also plausible because color perception in particular might be impervious to top-down influences. That is, it might be based solely on properties of the visual system which are unaffected by language. When describing an existing article or when proposing an experiment, you should identify the alternatives the authors considered. **There are always at least 2 alternatives**: that factor X will show an effect, or that it won't (that a null result will be obtained). If possible, identify other alternative patterns as well.

L stands for Logic

The logic of the study identifies how the experiment's design will allow the experimenter to distinguish among the alternatives. The logic is typically explained towards the end of the study's introduction, and has the following structure: If alternative 1 (and not alternative 2) is correct, then when a particular variable is manipulated, the participants' behavior should change in a certain way. For example, the logic of the color experiment would be: If a person's native language influences their perception of color, then speakers who have a term for a given color should respond differently to that color than speakers whose language contains to term for that color. Alternatively, if language does not influence color perception, then speakers who have a color term should respond no differently than speakers who lack

the term. Note that the logic of the experiment is integrally connected to the alternatives you stated in the last section. Indeed, **this section should be comprised of a series of "If…then…" statements in which you restate the alternatives you offered ("If X…"), and then state what pattern of data would support that alternative ("…then Y").** You should therefore have equal numbers of alternatives and If…then statements.

M stands for Method

This section identifies the procedures that will be used to implement the logical design. It should **state the independent variable (the factor being experimentally manipulated) and the dependent variable (the behavior being measured) of the experiment. It should also describe the subjects, including whether subjects were divided into groups receiving different experimental manipulations. What materials were used to conduct the experiment, and what were the experimental stimuli like?**

R stands for Results

What was the outcome of the experiment? Describe the results of the primary measures of interest. For example, did different subject groups yield different group means? What were these means? Or did the entire subject population produce a distinctive pattern of responses? Describe that pattern. Did the results seem reliable, or do you feel they might have been an artifact of the way the experiment was conducted? For this section, **it is often a good idea to use graphs or tables to illustrate the pattern of data you obtained.**

I stands for Inferences

What can the results of the experiment tell us about the alternatives? If the study was well designed, the results should allow you to eliminate at least one of the possible alternatives. For example, if a language lacks a color word but the speakers of that language respond to the color no differently than speakers of a language lacking a term for the color, then the experiment supports the view that language does not influence color perception.

At this point, take a step back and think about any potential problems with the experiment that could have led to the pattern of results you obtained. Were there confounds that could have caused the results? For example, if you <u>did</u> find a difference between the subject groups, are there other ways in which the groups differ that are not language-related? Might this have caused the result? Were there problems during the data collection? In addition, this is the section in which to consider the hypothetical next step in answering the broad question. If you were to conduct a follow-up experiment, what would it be (hint: think of questions that remain unanswered by the present results, and sketch a study that could bear on one or more of those questions)? What questions do your results raise?