Day Two

Reviewing the Empirical Literature

Functions of the literature review

- Ensures that you are not "reinventing the wheel".
- Gives credit to those who have laid the groundwork for your research.
- Demonstrates your knowledge of the research problem.
- Demonstrates your understanding of the theoretical and research issues related to your research question.
- Shows your ability to critically evaluate relevant literature information.

- Indicates your ability to integrate and synthesize the existing literature.
- Provides new theoretical insights or develops a new model as the conceptual framework for your research.
- Convinces your reader that your proposed research will make a significant and substantial contribution to the literature (i.e., resolving an important theoretical issue or filling a major gap in the literature).

Common Problems with Literature Reviews

- Lacking organization and structure
- Lacking focus, unity and coherence
- Being repetitive/excessively wordy
- Failing to cite influential papers
- Failing to keep up with recent developments
- Failing to critically evaluate cited papers
- Citing irrelevant or trivial references
- Depending too much on secondary sources

THE STRUCTURE OF THE BACKGROUND STATEMENTS: THE “HOURGLASS” STRUCTURE

Introduction/Context

- Sets the scene for the proposal
- Outlines the problem/topic area addressed in the proposal
- Establishes the importance of the problem/topic to be addressed (i.e., state why this line of research is worth pursuing)
- Sets a meaningful context for the area of investigation (e.g., historical antecedents to current research interest in the field)
- Defines any *key* terms and concepts (i.e., those required for staking out the boundaries of your problem area).

Reviewing the Empirical Literature

- The literature review should explain the relation of your topic and research aims to significant literature and recent (or even current) research in your field.
- The form of the literature review may vary according to the nature of the field (e.g., experimental, philosophical, theoretical, comparative) but its purpose will be the same in all fields.
- Should place your proposed research topic clearly in its relevant research context, and should demonstrate your awareness of significant similar or relevant research.

- Focus on studies that have specifically examined the variables or aspects of the problem that you have chosen to address, but make use of the broader literature where there is little specifically related.
- Lead systematically towards your rationale and research aims or hypotheses
- A logical progression of ideas *must* be established clearly (subheadings may be useful here).
- The relevance of all material presented must be made explicit: Each point should make a clear contribution to the development of your overall thesis.
- While economy of expression is a primary goal, no points should be included that you cannot adequately develop.
- Avoid non-essential details; instead, emphasise pertinent findings, relevant methodological issues, and major conclusions

- Read widely in preparing your literature review, and to demonstrate this knowledge explicitly with clarity and style.
- Provide an explicit rationale should be presented for any conclusions you reach in the literature review – e.g., in weighting outcomes of some studies more heavily than those of others in drawing your conclusions (e.g., favouring the results of methodologically sound studies)
- Set the scene for your rationale by highlighting gaps or deficiencies in our current understanding of the problem, or highlight the ways in which the problems outlined manifest within your own professional context - which you will then go on to address in your study

- Some research would be more influenced by values than others (e.g., educational, moral, political or religious) and researchers with different values will make different judgements of emphasis or interpretation. In these cases, state this to be so and indicate your own position.
- Clarity and rational presentation are required, not conformity to a particular "line". This is a different matter, of course, from the conduct of research once the methodology has been chosen: the report should be presented in conformity with the rules and canons of the methods employed, and if new methods or variations on existing methods are adopted, these should be explained and justified.

The Study Rationale and Aims/Questions/Hypotheses

- State how your study addresses some of the gaps or deficiencies identified in your review
- Transition from the conclusions you reached in your review to your rationale should be smooth and orderly: Each component of your study should be clearly justified by the information you presented previously.

- Depending on the nature of the questions you are asking, you may conclude with a statement of general study aims and research questions, or with a statement of research hypotheses.
- Sometimes, an expected pattern of results will be clearly suggested from the findings you present in your review, in which case, a formal statement of research hypotheses is warranted.
- At other times it may be more appropriate to simply state the aims of your study.
- In either case, your aims, questions, and hypotheses should flow logically from your rationale, allowing their expression to take the form of a “thus”, or a “therefore” statement.

GENERAL POINTS TO CONSIDER IN READING PRIOR EMPIRICAL RESEARCH

CONCEPTUALISATION

- What is the author's central thesis? What is she/he trying to do in the piece? What are the most important or new ideas presented?
- Is the theory underlying the problem detailed? Are conceptual and other assumptions made clear, and are these tenable? Are the main arguments clear?
- Is the problem clearly stated? Is the conceptual framework of the study appropriate in light of the research problem?
- What theoretical perspective is articulated or implied?

- Is the theoretical/practical significance of the problem established? Does the introduction provide an appropriate context for the problem (e.g., political, social) – that is, why address this topic now?
- Does the author try to build on past research? How strong is the argument? How convincing is it? Is the evidence sufficient to sustain the argument? What other sources could have been used? Are the selected sources appropriate?
- What are the strengths and weaknesses of the arguments?
- How are the critical issues stitched together? Is the logic appropriate?
- Are there areas that the author neglects/omits; what is NOT in the article?

- What assumptions does the author make, and which of these should be questioned?
- Do the author's hypotheses research questions seem logical in light of the conceptual framework and research problem?
- Are the meanings of key terms defined and used consistently throughout? Does the author define any key terms? Are the definitions consistent with the meaning of the terms as you know them?
- How does the research relate to similar work by other authors? How does this piece compare to what you have read so far?

- Are links between prior research and the problem made clear?
- Is the review comprehensive?
- Is the review relevant, significant, and well-organized?
- Do works cited reflect the breadth of existing literature regarding the topic of the study?
- Does the literature review lead logically into the Method section?

METHOD

- Is the sample clearly described, in terms of size and relevant characteristics (i.e., those that would make the sample non-representative)? Is the target population identified?
- How was the sample selected? Is it a random sample? Is it representative of the larger group of people in which the researcher is interested? Can results from this group be generalized to a wider population?
- Are the research method and design adequately described? Are the study's procedures described thoroughly?

- Do the design and procedures seem appropriate in light of the research problem, conceptual framework, and research questions/hypotheses?
- What are the limitations to the methodology? Considering the limitations, should the researcher have used a different methodology?
- Does the researcher discuss factors or variables that may have affected the research outcomes?
- Overall, does the method section provide sufficient information to replicate the study, and/or to identify its strengths and weaknesses?

INSTRUMENTS

- Are the materials used in collecting data clearly described?
- Are data collection (e.g., test administration), interviewing, and recording procedures fully and clearly described?
- Do the instruments/procedures described seem appropriate as measures of the variables under study?
- Have the authors included sufficient information about the psychometric properties (e.g., reliability and validity) of the instruments? Are the measures reliable and valid for the purposes for which they were used in the study? Are supporting data indicated?
- Are potential judgmental biases identified and controlled?

RESULTS

- Are the analysis results presented and reported clearly?
- Are appropriate analysis methods selected and described?
- Are the methods applied correctly?
- Is the Results section clearly written and well organized?
- Are illustrations, tables or graphs used? Do they complement the text? Are they the best method to present data, or are they unnecessary?
- Are data in tables and graphs interpretable? Does the information in the text match the accompanying tables and graphs?
- Are salient results connected directly to hypotheses?

DISCUSSION AND CONCLUSIONS

- Are findings discussed in terms of the research problem, conceptual framework, and hypotheses?
- Are findings reported for each question asked and each hypothesis tested?
- Are the general conclusions warranted in light of the results?
- Are the interpretations based on the data?
- Are conclusions considered in terms of both statistical significance and practical significance?
- Are implications for future research and/or special education practice identified?
- Are inferences and opinions clearly labeled as such?
- Are the limitations of the study delineated?
- Are the results related to outcomes from other research?
- Is any bias on the part of the researcher detectable?
- Is the stated generality of the conclusions warranted?

OTHER POINTS

- Overall, has the study addressed the aims stated?
- Does the study address an important problem?
- What implications does this work hold for scholars and/or practitioners? Does it inform us about thought and/or practice?
- Is the article well written, logical, interesting, and organized?
- Does the article's overall tone reflect an unbiased attitude?
- Are limitations of the study and any inconsistencies stated?
- What are the most important things you learned from this article?
- What do you see as the most compelling strengths of this study?
- How might this study be improved?

ISSUES RELATED TO SPECIFIC TYPES OF STUDY DESIGN

Specific Issues to Consider: The Quality of the Data Collected

Standardized Instruments

- Test validation and norming samples
- Reliability and internal consistency
- Criterion-related validity evidence
- Content-related validity evidence
- Construct-related validity evidence
- Test administration procedures
- Test item and bias considerations

OBSERVATION

- Are clear and distinct scoring and judging categories used?
- Are the operational definitions provided clear, logical, and adequate? Are they consistent with the characteristics being observed, as far as you are aware?
- Is administration of the measures described clearly?
- Were the observation schedules pilot-tested? Is interrater reliability described and adequate?
- Are observational systems and other instrumentation included in the study report; if not, are sources noted for them?
- Were the schedules/procedures used appropriate for the problem? Are there methods that would have been more appropriate? Are there key aspects of the setting, for example, that might have been missed?

INTERVIEWS

- What was the form of the interviews? Was it semi-structured, structured, or informal?
- Are the interview procedures described adequately?
- In the interview procedures, are there any characteristics that might have invited socially desirable responses or other biases?
- Are there any aspects of the interview procedure that might invite biases?

QUESTIONNAIRES

- Are clear and unambiguous directions provided to respondents?
- Are questionnaires or interview protocols included; if not, are sources noted for obtaining them?
- Are slanted or leading questions avoided?
- If the questions are closed-ended, did the response format (e.g., Strongly agree to strongly disagree, yes/no) match the question stems? Did the response format capture the full range of responses?
- If the questions are closed-ended, are the stem questions simple (i.e., ask only one question)?
- If the questions are closed-ended, are any of the questions likely to invite desirability response sets?
- If the questions are closed-ended, are any of the questions biased to particular groups that are likely to be in the sample?
- In any questions, are any value or judgement terms (e.g., “important”) operationally defined?

ARCHIVAL RECORDS

- What were the sources used, and were they appropriate given the aims stated?
- Was the analysis method for the coding and interpretation pilot-tested?
- Was interrater reliability of judges established, and was it high enough?

Specific Issues to Consider: The Quality of the Research Design

SURVEYS

- Is the target population (to which generalization is desired) identified?
- Are the sampling procedures used, and available sampling frames, described fully?
- Is the representativeness of the sample drawn noted, as well as its "match" with the target population?
- Is the importance of the study addressed?
- Are informed consent and confidentiality procedures for respondents described?
- Is the overall response rate reported, and are specific items that frequently were not answered identified?
- If the response rate appears low, is a follow-up reported?
- Is a nonrespondent bias check performed (e.g., to determine the similarity between respondents and nonrespondents)?
- Are observational systems and other instrumentation included in the study report; if not, are sources noted for them?
- Are procedures (mailing, fieldwork, and so forth) well described?

OBSERVATIONAL CASE STUDIES

- Are the subjects and the sampling procedures fully described? Is the target population identified, and characteristics of the sample considered in light of its representativeness?
- Is the setting of the observation described, and the representativeness (i.e., authenticity) of that setting discussed?
- Are the observations likely to have been reactive (i.e., was the observer's presence likely to have affected the behaviour of the participant/s)?
- Are potential biasing conditions in the setting noted?
- Does the overall approach used "fragment" the picture of the participant – i.e., does the information give you a holistic impression of the case?
- Are observational systems and other instrumentation included in the study report; if not, are sources noted for them?
- Were the schedules/procedures used appropriate for the problem? Are there methods that would have been more appropriate? Are there key aspects of the setting, for example, that might have been missed?

CAUSAL-COMPARATIVE RESEARCH

- Is the research focused on establishing cause and effect?
- Has the presumed effect (the independent variable) occurred?
- Is the sample fully described?
- Are the two groups to be compared fully described, including the nature of each at the time the presumed cause occurred?
- Are the two groups to be compared similar on all demographic variables except the independent (presumed cause) variable?
- Are potential threats to internal and external validity recognized and discussed?
- Are rival hypotheses-other plausible explanations for the outcomes observed-identified and ruled out?
- Are findings cautiously stated insofar as cause and effect is concerned?
- Would it have been possible to have explored the cause-and-effect question addressed via an experiment? '

QUASI-EXPERIMENTAL RESEARCH

- Is group identification and formation detailed?
- Is the sample fully described with an eye toward the generalizability of the results?
- Is equivalency of the groups examined?
- Are the levels of the active independent variable quite different?
- Is the treatment well implemented?
- Are critical extraneous variables identified and controlled?
- Was a true experiment likely to have been possible?

TRUE EXPERIMENTAL RESEARCH

- Is the sample fully described with an eye toward the generality of the results?
- Is the process of assigning subjects to groups indeed random?
- Are the levels of the independent variable quite different?
- Is the treatment well implemented?
- Are critical extraneous variables identified and controlled?
- Are threats to internal validity adequately addressed?
- Are threats to external validity adequately addressed?
- Is balanced attention given to, and control established for, internal and external validity (see earlier notes)?
- If the study is conducted in the laboratory, is attention given when generalizing to the match between the experimental conditions and the nature of the "real" world?

SINGLE-CASE RESEARCH

- Is the subject for the study fully described?
- Is the target behaviour (the dependent variable) clearly and operationally defined?
- Is the target behaviour measured reliably?
- Is the target behaviour measured to a point of stability in all study phases (e.g., baseline, treatment, etc.)?
- Is the treatment condition fully described?
- Are other conditions in which the study is conducted (e.g., setting, participants, time of day) fully described?
- Is special attention given to controlling the observer (or experimenter) effect?
- Is the graph of the results clear, straightforward, and evidence of a practically significant change in the target behaviour during the treatment phase?
- Are replications reported-across settings, behaviours, or individuals?

EXAMPLES OF CRITICAL STATEMENTS

- Non-significant results were also reported in three studies by Lazarowitz, Baird, Hertz-Lazarowitz, & Jenkins (1985), in which a “modified” Jigsaw programme was compared with either an individualised mastery approach (Experiments 1 and 2) or a traditional mastery approach (Experiment 3). In all studies, intact tenth- and eleventh-grade biology classes worked under one of these three approaches over a two- to six-week period. The major difference between the “modified” Jigsaw method used and traditional Jigsaw was that each group member was given a large quantity of material to learn, and generally joined with their “expert” groups over three to four class periods (rather than for a short portion of one lesson). Presentation sessions to “home” groups were also conducted over a number of days, rather than immediately after expert group meetings. In Experiments 1 and 2, no significant differences were found in the performance of students in the modified Jigsaw and individual mastery learning classes on a criterion-referenced science test. In Experiment 3, a significant difference was found in favour of the traditional mastery approach.

- As noted by Lazarowitz *et al.* (1985), however, the modifications made to the Jigsaw procedure may have reduced its efficacy in this study. For example, the units covered in this programme were longer than those covered in more traditional Jigsaw applications, and Jigsaw students often presented subtopics to their home groups over a period of several days. Consequently, some students presented up to three days after meeting with their expert groups, and informal observations suggested that these students did not recall the information as well as those who gave earlier presentations. In addition, all three studies used quasi-experimental designs, which complicates the interpretation of their outcomes. For example, in Experiment 1, the effects of the three experimental conditions were confounded with a teacher effect (i.e., experimental and control classes were instructed by different teachers). In addition, pretest equivalence of intact experimental and control classes was not established in any of the three studies (i.e., no analyses for pretest differences were presented).

Class Exercise: Structuring an Argument

- Are females inferior to males in reading road maps?
- Do university academics have inherent deficits in the use of ICTs?
- Do quantitative researchers have more fun than qualitative researchers?

Individual Exercise: Structuring Your Own Background Arguments