

Educational Research Methodology Framework
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Research Phase	Attributes / Key Questions
<p>Research Question Review the academic literature (lit review) on your research topic to better understand the existing knowledge base related to it.</p> <p>Define the specific research topic Define the specific research aim <i>Define the specific research question(s) you want to answer</i> Define the specific research objective(s) Develop a written research plan/proposal</p> <p>In a research study, everything begins and ends with the research question(s) you want to answer.</p>	<p><u>What do you want to investigate and why?</u> All educational research attempts to better understand (meaning-making) a particular phenomenon and the nature of relationships among variables through a systematic inquiry-based analysis and interpretation of data.</p> <p>The topic area of the research project The purpose and scope of the research project The specific research question(s) you want to answer The question put in the form of specific research objectives Your <i>research plan</i> should describe how you propose to conduct the research; it includes the following sections: introduction, purpose, literature review, research question(s), research strategy, research methods (participants/sample, data collection instruments, data analysis procedures), and conclusion.</p>
<p>Research Perspective (researcher(s) <i>worldview</i> & assumptions) Philosophies (view on the nature of reality and knowledge) Positivism (objective reality, socially independent) Realism (objective reality, socially dependent) Interpretivism (subjective reality, socially constructed) Pragmatism (multiple realities/views acceptable) Approaches (problem-solving reasoning) Deductive (mainly a positivist approach) Inductive (mainly an interpretivist approach)</p>	<p><u>What worldview guides your investigation of the research question(s)?</u></p> <p>Interprets reality mainly via value-free, scientific test data Interprets reality mainly via senses and social conditioning Interprets reality mainly via symbols/meaning/values/roles Best research design depends mainly on the nature of research question</p> <p>Conclusion deduced from empirical facts; typically tests hypothesis/theory Conclusion inferred from empirical facts; typically builds hypothesis/theory</p>
<p>Research Design (research strategy used) Strategies (research design <i>strategy</i> for collecting and analyzing data; the strategy most appropriate depends on research questions) Quantitative (uses sampling and <i>statistics</i> with logic & theory) Survey, correlational, causal-comparative, experimental (single subject, quasi, true: to test null hypothesis), and meta-analysis (research about previous research) Qualitative (uses sampling and <i>coding</i> with logic & theory) Grounded theory (emerged from sociology) Ethnography (emerged from anthropology) Phenomenology (emerged from philosophy & psychology) Narrative inquiry (multidisciplinary) Historical research (multidisciplinary) Quantitative or Qualitative or Mixed Case study research (multidisciplinary) Action research (emerged from organizational behavior) Evaluation research (multidisciplinary) Assessment research (multidisciplinary) Mixed methods research (multidisciplinary) Methods (techniques and procedures – see below) Mono (1 data collect. technique and 1 analysis procedure) Multiple (>1 data collect. techniques and analysis procedures) Timeframe Cross-sectional Longitudinal</p>	<p><u>How will you answer the research question(s)?</u> Strategy used will determine what type(s) of data will be collected (Quant: random or nonrandom sampling; Qual: purposive sampling) Focus is mainly on controlled context to <i>test</i> hypotheses. Quantitative designs operate on continuum from descriptive to relational to predictive to cause-effect using descriptive statistics and inferential statistics</p> <p>Focus is real life context to build hypothesis or theory Focus is real life context and personal stories via their cultural context Focus is real life context to explain personal meaning of person/group Focus is real life context and meaning from stories told by the individual Focus is the examination of a past event, activity, person, subject, place, etc.</p> <p>Focus is real life context (defined by unit of analysis, not by methodology) Focus is organizational context to create change (research by actors for actors) Focus is on the merit of a program, policy, process, need, activity, etc. Focus is on student learning and development to improve educational outcomes Combine quantitative and qualitative methods: includes exploratory research (what) and explanatory research (how, why) and the triangulation of methods</p> <p>Study a particular phenomenon at a particular time Study change and development over a period of time</p>
<p>Research Analysis (data methods used) Techniques (data <i>collection</i> techniques: participants / instruments) Quantitative Data Surveys (questionnaires, interviews, observations), Tests (scores), Documents/Records/Artifacts Qualitative Data Surveys (questionnaires, interviews / focus groups, observations), Documents/Records/Artifacts Procedures (data <i>analysis</i> procedures) Quantitative Data (data analyzed <i>statistically</i> by researcher(s) using statistics, tables, charts) Qualitative Data (data analyzed <i>conceptually</i> by researcher(s) using codes, categories, themes)</p>	<p><u>Who (sample), what (data), when, where, how (techniques/procedures), and why will you collect/analyze data relevant to the research question(s)?</u> Collects mainly numeric data from sample for <i>statistical</i> analysis. Random sampling: random, simple, stratified, cluster, systematic; nonrandom sampling: convenience, purposive, quota). Random sampling with controls is preferred. Collects mainly nonnumeric data from sample for <i>conceptual</i> analysis (which purposive sampling method to use – intensity, homogenous, criterion, snowball, or random purposive – depends on the nature of the study)</p> <p>Analyzes mainly <i>numeric and categorical data</i>. Analyzes independent and dependent variables across different scales: nominal (categorical), ordinal (ranked), and interval/ratio. Tests: descriptive stats (frequencies, percentages, X, SD) & inferential stats (correlation, regression, t, ANOVA, Chi-square, etc.) Analyzes mainly <i>non-numeric data</i> (words, images, videos) that are usually coded through thematic analysis, then translated into overarching themes</p>
<p>Research Conclusions (researcher(s) <i>interpretation</i> of the data) Explain your findings (results of the data analysis) Discussion (researcher(s) reflection on the findings) Draw your main conclusions (key points) Discuss the implications for future research</p>	<p><u>What have you learned from your research?</u> What results did your analysis reveal? Are they reliable and valid? How did you interpret the results and why (e.g., relative to existing theory)? Your <i>answer(s) to your research question(s)</i> Based on your conclusions, what are the implication for future research?</p>