PHD IN NURSING

FACULTY COURSE REVIEW QUESTIONS

PREPARATION FOR CANDIDACY EXAMINATIONS

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Here are some practice candidacy exam questions and items relevant to quantitative methods.

Part I: General items and questions:

1. Discuss theoretical and conceptual frameworks. How are they used and how do they support the use of quantitative methods?

2. Given the following examples of research questions and purposes, identify and describe associated quantitative research designs and factors influencing the conduct of such research (discuss sampling issues and types of samples needed, instrumentation and measurement, general considerations for data collection and analysis). Remember the research question/purpose drives the methods.

   A. What is the relationship between marathon running and body temperature in male and female athletes aged 20-40 years? The purpose of this study is to describe the relationship between marathon running and body temperature in male and female athletes aged 20-40 years.

   B. Is guided imagery effective for stress reduction and cessation of smoking when used in an adult smoking cessation program? The purpose of this study is to investigate the effectiveness of guided imagery for reducing stress and smoking rates when used in an adult smoking cessation program.

   C. What is the effect of patient education on increasing exercise adherence for patients involved in a cardiac rehabilitation program? The purpose of this study is to investigate the effect of patient education on increasing exercise adherence for patients involved in a cardiac rehabilitation program.

3. How do the levels of measurement guide the selection and use of varying types of statistics for analysis?

4. Describe all types of reliability and all types of validity. Explain how reliability and validity relate to one another to produce psychometrically sound instruments.

5. Compare and contrast the use of test-retest reliability when measuring state or trait characteristics of subjects.

6. Describe six factors that are important in the selection of instruments for research with human subjects and discuss methods for avoiding subject burden.

7. Identify issues related to probability and nonprobability sampling; provide and explain six examples each of probability and nonprobability sampling.

8. List, define, and discuss all threats associated with internal and external validity in quantitative designs. Also, list mechanisms for dealing with the threats and enhancing study validity.

9. What part does power play in the design and analysis of quantitative studies? Explain
your answer in terms of avoiding Type I and Type II errors?

10. Given the following research designs – explain your beginning thoughts about possible types of nonparametric and parametric statistics that could help you analyze data derived from the designs.

   A. Randomized controlled trials (experimental and control groups)
   B. Three group repeated measures experimental design
   C. Two group comparison design
   D. Two group correlational design

Part II: Applications: Address the following items and answer the questions based on your own area of research (if your research is qualitative in nature, design a quantitative study using relevant concepts and variables):

1. Briefly describe your substantive area of interest.

2. State your research purpose and the overriding research question using a quantitative approach.

3. Do you have related research questions or hypotheses that can be stated in a quantitative fashion, remembering that the hypotheses should be consistent with the quantitative statistical data analysis methods selected? Explain and describe in a narrative fashion similar to what is found in a research proposal.

4. What measures or instruments might you use with this study? Describe the instrument, critique its psychometric qualities (reliability and validity). How is it scored? What level of measurement is obtained from the instrument?

5. Discuss your population, sample, how you will obtain your sample (sampling plan), type of sample selected, and provide a power analysis to estimate sample size. Consider your sample size and the statistical tests performed; explain power and the elements involved in power analysis. Relate this discussion to statistical significance and the prevention of Type I and Type II errors.

6. What inclusion or exclusion criteria will be established for the subjects?

7. Describe data collection techniques and how you will work with subjects to obtain the data you need.

8. Discuss the statistical analysis method that you deem as most appropriate for analyzing your data in a quantitative fashion.

9. Describe the strengths of this quantitative approach to your study and frame it around all you know about threats to internal and external validity.

10. Describe the limitations of this quantitative approach to your study and frame it around all you know about threats to internal and external validity.
Practice Candidacy Exam Questions: Policy

1. It has been written that public policy making is process-driven. Explain the significance of this concept.

2. Discuss the stages of the public policy making process. How do these components frame what goes into or out of the policy making machinery.

3. The stakes in the policy making process are higher today than in the past. What accounts for this change?

4. Triggering mechanisms have been described as the wellsprings of public policy. Explain the linkages in this relationship.

5. What do scope, intensity, and timing tell us about triggering mechanisms? How do they combine to create issues for the public agenda?

6. Distinguish internal triggering mechanisms from external triggering mechanisms. In what ways do they impact on each other? How do they differ in their impacts of society and public policy makers?

7. What is the relationship between triggering mechanisms and the public agenda?

8. Several actors are responsible for development of the public agenda. Who are they and what are their characteristics?

9. How do we differentiate between the substantive and the symbolic agenda? Are the distinctions important with respect to policy development?

10. Analyze the “hidden-agenda” theory. What evidence exists for supporting or refuting this claim?

11. Who are the major policy making actors? How do they convert competing claims into public policy commitments?

12. Congress and the president have different accountability issues from the issues that confront courts and bureaucrats. What makes the two groups unique? What are the costs and benefits of these different arrangements?

13. Which of the five policy making actors has the most independence? Which has the least? What are the consequences of these different levels of autonomy?

14. What is the primary role of implementation in the policy making process?

15. Bureaucracies are crucial agencies for implementation, yet they are often criticized for what they do. What is behind this seeming inconsistency?

16. It has been written that, more times than not, implementation takes place along the lines of a continuum. What does this mean? How can the chances for implementation of a public policy be maximized?
17. Some observers describe evaluation as the “underside” or the “back end” of the public policy making process. What is meant by this claim? Why does it have or not have merit?

18. Process and outcomes are two primary approaches to evaluation. Using your knowledge, cite examples of recent public policies that have been evaluated by each of these methods.

19. Although far removed from the policy making process, evaluators nonetheless have the potential to impact the formulation of future policies. At the same time, evaluators are not elected and, therefore, are accountable to virtually no one. What do you make of this irony?

20. With the description of the process not complete, what do you believe is the greatest strength of the public policy making framework? What do you view as the greatest weakness?

21. Public policy making has been described as an evolutionary process. What factors contribute to this condition?

22. Conflict is at the heart of the public policy making experience. Give examples of a conflict-laden issue that has been successfully resolved as one that has remained on the public agenda without resolution. What factors were responsible for resolution of the first example, and what factors have impeded the unresolved issue?
Practice Candidacy Exam Questions: Qualitative Methods in Nursing Research
From Dr. Claire Draucker

Please note: These are course **review** questions. If you can answer these questions accurately and comprehensively, it indicates that you have meet the course objectives. This will help when it comes to candidacy!

1. Choose two of following paradigms to discuss in-depth: positivism, postpostivism, critical theory, and constructivism. Compare and contrast the basic ontological, epistemological, and methodological beliefs of the two paradigms. Choose one of the paradigms and discuss the paradigm position on the following practical issues: inquiry aim, nature of knowledge, knowledge accumulation, and goodness or quality criteria.

2. Interpretivism, hermeneutics, and social constructionism have been described as three epistemological stands for qualitative inquiry. Define each stance and compare and contrast the basic tenets of each.

3. Choose two approaches to qualitative research (grounded theory, descriptive or interpretive phenomenology, ethnography, etc.). Identify the paradigm from which each approach has evolved, discuss the nature of the research questions for each approach, and identify data collection methods, sample size, and analytic strategies typical of each approach. Write two abstracts of approximately 250 words, each describing a study proposal based on one of the approaches you have discussed (e.g., one study that uses grounded theory, one study that uses interpretive phenomenology). You must construct studies OUTSIDE your own area of interest and may “invent” details related to significance. I might, for example, write an abstract of a proposal about a study designed to describe how individuals manage a chemotherapy regimen. I could “invent” statistics about the prevalence of that type of cancer and some of the side effects associated with the regimen. The substantive content of the abstract, therefore, will not be evaluated; rather, evaluation will be based on whether each abstract describes a purpose, research questions, and methods that are all consistent with the qualitative research approach identified.

4. Choose and describe one published framework for evaluating qualitative research. Identify and describe each evaluative criteria identified within that framework. Choose one qualitative article and evaluate it according to the framework you have identified. You should be able to discuss the article’s strengths and limitations so choose an article that has plenty of both!!!

5. Read the following scenario and imagine that you are a member of the IRB board at your University. What are the major ethical issues of concern in this “protocol”? What questions would you wish to ask the investigator? Based on the limited information you have about the study, how would you assess the risk/benefit ratio? What changes might have to be made before you decide to approve the study?

The investigator teaches in a state in which advanced practice nurses (APNs) have just received prescriptive authority. In order to obtain the credential necessary to prescribe, the APNs must complete a year long externship under the supervision of a physician.
The State Board of Nursing has funded the investigator to conduct a qualitative study to better understand how the externships are managed, what problems may be encountered, and what facilitates and/or what hinders APNs’ progress toward obtaining prescriptive authority. The Board of Nursing will provide the investigator with contact information on APNs who complete the paperwork necessary to begin the externship. The investigator will contact those individuals and enroll the first six who agree to participate.

Because obtaining prescriptive privileges is a psychosocial process, the investigator will do a grounded theory study in which APNs seeking prescriptive privileges will be interviewed on three occasions during their externship and at six months and one year following the externship. Open-ended interviews will be conducted in which the participants will be encouraged to describe their experiences on the road to obtaining prescriptive privileges in as much detail as possible. The interviews will be done on the phone as the nurses may be practicing anywhere throughout the state.

The results will be analyzed using the constant comparison methods and presented to the Board of Nursing. The investigator indicates that she also plans to publish the results in professional nursing journals.
The following question is more of a “candidacy” question than a review question as it requires a fairly high level of integration and synthesis to answer. It is a question that came up “naturalistically” in the recent qualitative class and provoked a fair amount of discussion (and a challenge from me!!). I place it here so all might be privy to the question and to my thoughts related to the amount of reflection needed to answer the question at the level of abstraction required for the candidacy exam. (You might want to take a stab at the question before reading the discussion.)

1. You are doing an integrative literature review on how individuals’ respond to the death of a spouse. You are doing a section on depression and find two studies that have seemingly contradictory results. One group of researchers, using a standardized depression inventory, found that individuals who lost a spouse are more likely to score high on the depression scale than those who haven’t. Another group of researchers have done a qualitative study with a group of individuals who share narratives about their lives after the death of their spouse. These individuals never mention feeling depressed and, in fact, hardly mention symptoms we typically associate with depression. How would YOU handle these findings?

Discussion: In several courses we have stressed that there are several basic paradigms (basic belief systems) based on ontological, epistemological, and methodological assumptions. Because these paradigms guide inquiry and will provide the foundation for your scholarship, you must be able to reflect on and articulate the paradigm that guides your thinking and your scholarship. The question posed above would provide a prime opportunity for you to showcase your reflections on issues of paradigm. A thoughtful response to this question would require, in my mind, that you demonstrate an understanding of how your paradigmatic assumptions will guide your scholarship. [This question deals with the scholarship of integration, but a similar question could be designed related to the scholarship of teaching, application, or discovery].

The question is one of ontology. If you are a post-positivist, for example, you ascribe to a critical realist ontology – that is you believe that there is an objective external reality that can be apprehended, albeit imperfectly. In this paradigm, the aim of inquiry is prediction and control and knowledge accumulation occurs through generalizations that are made with predictable confidence to a population. In our dilemma, as a post-positivist, you would probably privilege the study that used the instrument while carefully scrutinizing the internal and external validity of that study. You would probably acknowledge that the narrative information may be used to suggest new variables that would help better explain the variance of depression in this group or to suggestion new items that would improve the predictive powers of the tool. You ultimately want to explain, predict, and control better.
If, on the other hand, you ascribe to a constructivist worldview and have an ontology of relativism, you believe that there are multiple social realities, the construction of which are local and specific. The inquiry aim is understanding (not prediction) and knowledge accumulation is based on more informed reconstructions of phenomenon you seek to understand. You probably would not view the results as contradictory, but you would ask how each set of findings can be interpreted to provide a more in-depth understanding of the experience of losing a spouse. Neither findings would be privileged necessarily – you would advocate moving back and forth between the findings, and other available information, to increase the complexity of the previously held constructions (hermeneutic circle). A constructivist would use the dialectic of this situation to increase the level of interpretation to devise more sophisticated constructions.

Bottom line, a post-positivist would fret the dialectic as he/she seeks the truth, whereas a constructivist would embrace the dialectic for its potential to increase understanding (there is no one “truth” to seek).
1. What are the advantages and disadvantages of using “deviations from the mean” as contrasted with “residuals from category mean” or “residuals from the regression line” as the fundamental unit of statistical analysis for social data?

2. What are the advantages and disadvantages of using the zero-order correlation, the partial regression slope, the partial correlation, and the part correlation (i.e. the increment in the variance explained) for disentangling the effects of collinear independent variables on an outcome variable?

3. How is systematic error addressed by classical test theory? How should systematic error be addressed in statistical analysis?

4. What are the advantages and disadvantages of “estimating confidence intervals” as contrasted with “testing null hypotheses” in making inferences from samples to universes?

5. What are homoscedasticity and heteroscedasticity? How do the question of homo- vs. heteroscedasticity influence the kinds of analyses that are conducted on social data? How should the question of homo- vs. heteroscedasticity influence the kinds of analyses that are conducted on social data?

6. What is the power of a statistical test? What does the researcher need to know in order to establish the power of a statistical test? How much power is usually required by federal grant funding agencies in order to fund a grant?

7. How many respondents are needed to conduct a principal components factor analysis to assess the adequacy of a set of items in measuring the dimensions of a concept? How many respondents is the “optimum” sample size? How many respondents is “sample size overkill?” How many respondents is “sample size inadequacy?” What are the advantages and disadvantages of having “too many” vs. “too few” respondents in a set of items in measuring the dimensions of a concept?

8. What are the strengths and weaknesses of having a research design in which the observations are “independent” vs. “dependent?” What is the effect of the size of the correlation between dependent observations on the power of the research design to detect real differences between conditions?
9. What are the criteria for “pretty good but not perfect” measurement? How do these criteria enhance or detract from the “validity” of the measuring instrument?

10. What are the advantages of path analysis over ordinary least squares regression analysis in the analysis of survey data? What is the difference between a “clean” path model and a “dirty” path model? Define the following path models:
   - The “Mediation” Model
   - The “Spurious” Model
   - The “Common Prior Cause” Model
   - The “Suppressed” Model
   - The “Colinear” Model
   - The Correlated Independent Variables Model

11. What is “attenuation?” How does a researcher “correct for attenuation?” Under what conditions should a researcher “correct for attenuation?” What are the risks of “correcting for attenuation?”

12. What is a nonlinear transformation? Under what conditions should a nonlinear transformation be used? What is the criterion by which the use of a nonlinear transformation should be evaluated?

13. What is a quadratic curve? What is a cubic curve? Provide a substantive situation in which you would theoretically expect to see a quadratic curve?

14. What is the purpose of factor analyzing a transposed spread sheet? For what kinds of research questions is the factor analyzing of a transposed spread sheet useful? What kinds of groups can be usefully constructed using the factor analysis of a transposed spread sheet?

15. What is factorial survey research? Provide a substantive situation in which a factorial survey is the only research design in which the research questions can be answered. What are the strengths and weaknesses of factorial survey research?
The following questions were developed to facilitate review of the material considered in this course. Please feel free to call me to discuss any or all of the questions: 330-688-7783.

1. What are the advantages and disadvantages for Nursing of having a knowledge base that is unique?

2. Discuss whether the forms of theory described by Reynolds (1971) are possible at the grand, midrange, and practice levels of theory; and defend your answer, i.e., why or why not?

3. Interpret the statement, “conceptual meaning is something that is created. It does not ‘exist’ as an ‘out there’ reality, but it is deliberately formed from empiric experience” (Chinn & Jacobs, 1991, p. 80), in terms of the theorizing (theoretical thinking) process of induction.

4. Differentiate classifications and taxonomies; and consider their usefulness for building theory in terms of primitive vs. derived terms.

5. Relate the effort to classify nursing activities (diagnoses, interventions, and outcomes) in terms of nursing knowledge development. How important is this step to developing nursing theory that is useful for nursing practice?

6. If you were handed a sheet of paper with many sentences about a topic, how would you determine whether the sentences were a theory?

7. Compare and contrast empiric and philosophic theory.

8. Discuss the statement “a conceptual model is not a theory, but a theory contains a conceptual model.”

9. Discuss the statement, “If you cannot name it, you cannot teach it, research it, practice it, finance it, or put it into public policy” (Clark & Long, 1992), in terms of developing nursing knowledge that is useful for nursing practice.

10. Discuss induction as a process of logic and as a theoretical thinking process.

11. Discuss deduction as a process of logic and as a theoretical thinking process.

12. If the goal of science is theory, describe the scientific process in terms of this goal.

13. Define argument and identify where you should find an argument(s) in any theoretical formulation.
14. Discuss the statement, “The causal relation is not purely logical or deductive; it cannot be discovered by any *a priori* reasoning. Causal laws can be discovered only empirically, *a posteriori*, by an appeal to experience” (Copi & Cohen, 1994, p. 500).

15. Define “proposition” in terms of truth, relationship, and meaning (understanding).

16. Analyze the following theoretical exposition (Wilcox, 2003) in terms of the components of theory (assumptions, concepts, and propositions); the processes of abduction, induction, and deduction; the inherent arguments; presence of fallacies; and testability.

The Dark Sucker Theory

For years, it has been believed that electric bulbs emit light, but recent information has proved otherwise. Electric bulbs don’t emit light; they suck dark. Thus, we call these bulbs Dark Suckers. The Dark Sucker Theory and the existence of dark suckers prove that dark has mass and is heavier than light.

First, the basis of the Dark Sucker Theory is that electric bulbs suck dark. For example, take the Dark Sucker in the room you are in. There is much less dark right next to it than there is elsewhere. The larger the Dark Sucker, the greater its capacity to suck dark. Dark Suckers in the parking lot have a much greater capacity to suck dark than the ones in this room.

So with all things, Dark Suckers don’t last forever. Once they are full of dark, they can no longer suck. This is proven by the dark spot on a full Dark Sucker.

A candle is a primitive Dark Sucker. A new candle has a white wick. You can see that after the first use, the wick turns black, representing all the dark that has been sucked into it. If you put a pencil next to the wick of an operating candle, it will turn black. This is because it got in the way of the dark lowing into the candle. One of the disadvantages of these primitive Dark Suckers is their limited range.

There are also portable Dark Suckers. In these, the bulbs can’t handle all the dark by themselves and must be aided by a Dark Storage Unit. When the Dark Storage Unit is full, it must be either emptied or replaced before the portable Dark Sucker can operate again.

Dark has mass. When dark goes into a Dark Sucker, friction from the mass generates heat. Thus, it is not wise to touch an operating Dark Sucker. Candles present a special problem as the mass must travel into a solid wick instead of through clear glass. This generates a great amount of heat and therefore it’s not wise to touch an operating candle.

Also, dark is heavier than light. If you were to swim just below the surface of the lake, you would see a lot of light. If you were to slowly swim deeper and deeper, you would notice it getting darker and darker. When you get really deep, you would
be in total darkness. This is because the heavier dark sinks to the bottom of the lake and the lighter light floats at the top. That is why it is called light.

Finally, we must prove that dark is faster than light. If you were to stand in a lit room in front of a closed, dark closet, and slowly opened the closet door, you would see the light slowly enter the closet. But since dark is so fast, you would not be able to see the dark leave the closet.

Next time you see an electric bulb, remember that it is a Dark Sucker.

References


Karen W. Budd, PhD, RN

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