SAINT LOUIS UNIVERSITY.

Program-Level Assessment: Annual Report

Program Name (no acronyms): Doctoral Program in Nursing	Department: Nursing
Degree or Certificate Level: PhD	College/School: Trudy Busch Valentine School of Nursing
Date (Month/Year): 5/2021	Assessment Contact: Helen Lach

In what year was the data upon which this report is based collected?

Data from 2017-2018 through 2020- 2021

In what year was the program's assessment plan most recently reviewed/updated?

Updated this year – new plan submitted with this report.

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please list the full, complete learning outcome statements and not just numbers, e.g., Outcomes 1 and 2.)

1. Articulate multiple perspectives on knowledge development and a broad understanding of research methods.

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please describe and identify the course(s) in which these artifacts were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

Direct measures. All PhD courses are synchronous with on-site and online students attending together (Note that most were just synchronous live online during COVID requirements).
a. Theory Paper: In NURS 6800, 80% of students will write achieve at least 70% on the grading rubric for their final paper (attached).
b. Quantitative Final proposal: In NURS 6809, 80% of students will achieve at least 80% on based on the attached rubric for their final research proposal assignment (attached).
c. Qualitative Paper Proposal: In NURS 6808, 80% of students will successfully write a qualitative proposal to achieve at least 80% on the paper rubric (attached).
d. Final Philosophy Synthesis Paper: In NURS 6813, 80% of students discuss the philosophical perspective on a topic of their choice to achieve at least 80% on the NURS 6813 rubric (attached).
e. At their dissertation defense, 80% of students will demonstrate above average scores on the assessment tool [score $\geq$3 out of 5] on the relevant items (attached rubric):
The PhD candidate demonstrated beginning skills in the following areas (1= not at all; 5- very well): 80% of students will demonstrate beginning skills in knowledge development, research methods and integrating science from the Faculty Review of Dissertation Defenses as evidenced by a score of 3 or higher.
- Knowledge development
- Integrating science
- Research methods

Indirect Measures:

End-of-program survey: 90% of graduates will agree or strongly agree on the following items:
- #2. As a result of my doctoral education, I have beginning understanding of the history and philosophies of science including ways of knowing and habits of the mind.

- #3. My PhD program prepared me with beginning expertise in to critique and integrate different science perspectives in the conduct of research.
- #5. Through my PhD program, I developed skills in research design and statistical methods.

3. Assessment Methods: Evaluation Process
What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and **include them in/with this report document** (do not just refer to the assessment plan).

- The rubrics for the specific assignments were used to evaluate course assignments by the faculty members and the grades collected for this report (years since the last assessment of this learning outcome which was Spring 2017).
- The dissertation data was collected from faculty who attended the dissertation defenses, who completed an assessment after attending the defense.
- The end of program survey was conducted in spring 2020 for graduates over the prior 3 years (frequency determined by committee to increase response rates with larger numbers of students surveyed). Data from specific items were compiled for this learning outcome. See attached rubrics and forms.

4. Data/Results
What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

Course Assignments

Assignment	N	Assessment goal	% Achieving the Grade
NURS 6800 Theory Paper	2017, n=12 2018, n-4 2019, n-7 2020, n=6	In NURS 6800, 80% of students will achieve at least 70% on the grading rubric (analysis, synthesis, derivation of a concept, statement, or theory (or some other approved theoretical focused paper).	12/12 4/4 7/7 6/6 100% of students achieved 75% or greater on the theory paper.
NURS 6813 Philosophy Paper	2017, n= 2018 n=6; 5/6 2019, n= 2020, n=	In NURS 6813, 80% of students discuss the philosophical perspective on a topic of their choice to achieve at least 80% on the NURS 6813 rubric	13/13 7/8 6/6 6/6 Overall, 96% of students achieved 80% or greater on the philosophy paper.
NURS 6809 Quantitative Proposal	2018, n=11 2019, n= 4 2020, n=7 2021, n=5	In NURS 6809, 80% of students will achieve at least 80% on based on the attached rubric for their final research proposal assignment.	11/11 4/4 7/7 5/5 100 % of students achieved 80% or greater on the philosophy paper.
NURS 6808 Qualitative Proposal	2018, n= 11 2019, n= 4 2020, n=8 2021, n=6 (1 incomplete)	In NURS 6808, 80% of students will successfully write a qualitative proposal to achieve at least 80%	11/11 > 80% 4/4 8/8 > 80% 4/5 > 80%

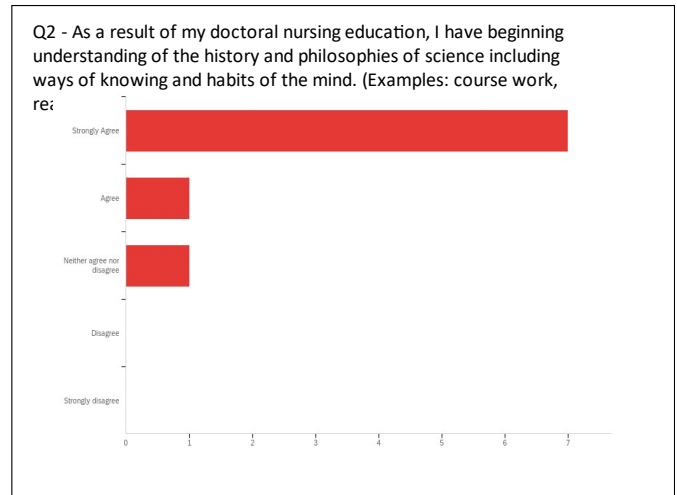|			96% of students achieved 80% or greater on the philosophy paper.

Dissertation Defense

The PhD candidate demonstrated beginning skills in the following areas (1= not at all; 5- very well): There were 21 students who had a defense since the last assessment of this Learning outcome.

Assessment item from the Faculty Review of Dissertations (total N of 107 forms) submitted at the time of the defenses.
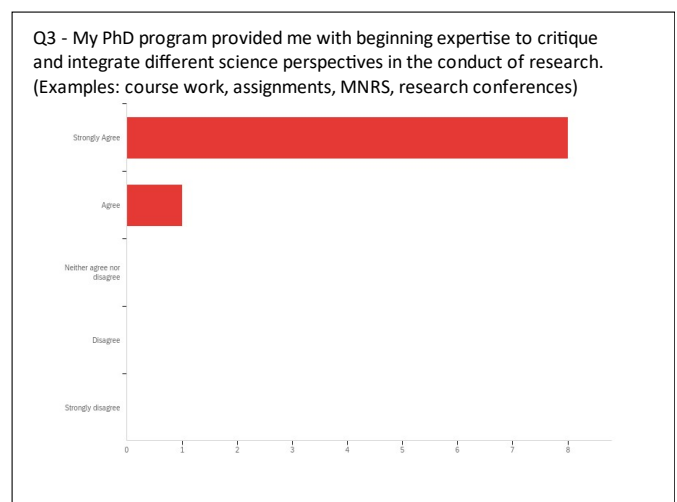
- **Knowledge development:** 100% of students scored 3 or above; Mean score 4.20; Range 3-5

- **Integrating science:** 100% of students scored 3 or above; Mean score" 4.10 Range: 3-5

- **Research methods**: 100% of students scored 3 or above; Mean score: 4.19; Range: 3-5
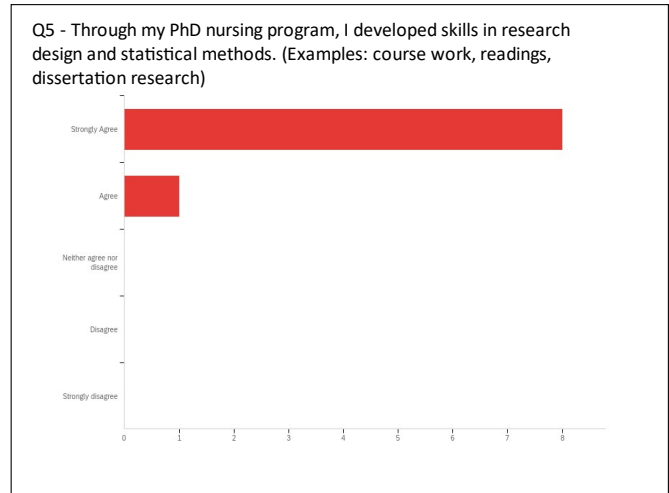
Indirect Results- Graduate Post Program Survey:

- Question #2 --8 out of 9 agreed or strongly agreed with this item (88.9%)

Q2 - As a result of my doctoral nursing education, I have beginning understanding of the history and philosophies of science including ways of knowing and habits of the mind. (Examples: course work, rea...

- Question #3 -9 out of 9 agreed or strongly Agreed with this item (100%)

Q3 - My PhD program provided me with beginning expertise to critique and integrate different science perspectives in the conduct of research. (Examples: course work, assignments, MNRS, research conferences)

- Question #5 – 9 out of 9 agreed or strongly Agreed with this item (100%

Q5 - Through my PhD nursing program, I developed skills in research design and statistical methods. (Examples: course work, readings, dissertation research)

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

Course Work

The evidence from courses that are evaluated for this learning outcome measures foundational knowledge for developing as a nursing scientist. These courses are taken in the student's first year of study so indicate their beginning development. The assessment data indicates that students are meeting our assessment criteria in successfully completing the major assignments for these courses.

Dissertation Defense

The Dissertation Defense provides ending evidence of the student's development through the PhD program. Faculty attendees provide feedback on student work when attending their public dissertation defenses. We have had an average of 5 faculty members attending each defense. Students were rated as meeting the assessment criteria for demonstrating their beginning skills in research, related to knowledge development, research methods, and integrating science.

The Survey of Graduates

Post-graduation, students provide feedback on their learning resulting from attending the PhD Program. For this learning outcome, students reported on the skills in research design and statistics, integration of sciences and philosophy in the conduct of research.

6. Closing the Loop: Dissemination and Use of <u>Current</u> Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

The report was shared with faculty in the preparation of this report. No current changes are recommended at this time. Last year we implemented a new statistics core of 3 classes, which would not have affected the students in this report; but we will want to see if we can achieve improvements in ratings as the changes are implemented.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites

- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan	• Student learning outcomes	• Evaluation tools (e.g., rubrics)
	• Artifacts of student learning	• Data collection methods
	• Evaluation process	• Frequency of data collection

Please describe the actions you are taking as a result of these findings.

The assessments in this report include evaluation of students early in their program, at the end, and post-graduation. At this time we are not making further changes.

As a result of prior assessment findings, the faculty voted to change the qualifying exam process in 2019 for the incoming cohort. In the old curriculum, students took a comprehensive written and oral exam at the completion of all course work. To identify students needing remediation sooner, we are implementing a new qualifying exam at the end of the 2nd year. This change will be initiated this August, where the now 2nd year students will complete a qualifying written and oral exam. Students requiring remediation will work with their advisor to address weaknesses. We will be able to track if this results in improved scores for assessment data at the end of the program and after graduation after implementation.

In addition, this cohort had a new core of statistics courses. It is too soon to see changes in the later outcomes, but we will be tracking student learning outcomes over the next few years.   Faculty have updated their assignments and rubrics over time, and when there are new faculty teaching courses. The up -to-date course materials and rubrics will be submitted with our updated assessment plan.

As a result of last year's assessment, the PhD Program Committee voted to change our 4th learning outcome (this was evaluated last year). The new learning outcome and assessment methods are submitted with our updated assessment plan.

The timing of assessments has been appropriate in that we can track changes over time as changes are implemented as new students progress through the program.

If no changes are being made, please explain why.

We are already implementing the changes described above, based on prior assessment, and did not identify further changes to be made at this time.

Besides annual assessments, the faculty anticipates conducting a curriculum review in the next 1-2 years that may lead to additional changes that may impact our learning outcomes and plans.

7. **Closing the Loop: Review of <u>Previous</u> Assessment Findings and Changes**
   A. What is at least one change your program has implemented in recent years as a result of assessment data?

As noted above we have change our statistical core from 2 to 3 courses to provide more in-depth content to students, and our qualifying exams.

   B. How has this change/have these changes been assessed?

As noted above, we are tracking this change through our normal assessment process. The faculty member teaching the statistics courses reported to the Program Committee at our March meeting that he is able to spend adequate time now on contents with expanded course time, students seem to have improved uptake of the information, and he feels the students seem more satisfied with their learning. We will evaluate outcomes as students following the new plan progress through the new curriculum.

   C. What were the findings of the assessment?

It is too soon to see changes in the assessment data at this point, other than the faculty report, but we will be tracking this over time.

D. How do you plan to (continue to) use this information moving forward?

We will continue to conduct our assessments and review the learning outcomes annually (or more often if other issues arise). The PhD Program Committee meets approximately monthly during the academic year to discuss any problems, issues or changes that are proposed. Curriculum changes are brought to the committee for approval.

IMPORTANT: Please submit any assessment tools (e.g., rubrics) with this report as separate attachments or copied and pasted into this Word document. Please do not just refer to the assessment plan; the report should serve as a stand-alone document.

PhD Program in Nursing
End-of-Program Survey QUESTIONNAIRE – PhD PROGRAM IN NURSING

The following is a brief end-of-program survey that is conducted every few years. As a graduate of the Ph.D. Nursing Program between September 2016 and May 2020, your anonymous responses to these questions will be very helpful and shared with the Ph.D. nursing program committee as part of its curricular assessment plan. Your responses will be reported in congregate form with all the responses of other former students.
The survey will close on May 30, 2020. Thank you for your participation.

Joanne Thanavaro, DNP, APRN, ANP-BC, ACNP-BC, GNP-BC, DCC, FAANP
Associate Dean for Graduate Education
Survey
The PhD program is designed to develop students as beginning nurse researchers, scholars and leaders.
Please respond to each statement by selecting the number that best reflects your opinion, from 1 for *Strongly Disagree* to 5 for *Strongly Agree*. If a particular question does not apply, please circle N/A (not applicable).
We appreciate your taking additional time to add comments.

1. My nursing doctoral education provided me with formal and informal learning experiences to begin building scientific depth in my area of study. (Examples: course work, MNRS, research conferences)

2. As a result of my doctoral nursing education, I have beginning understanding of the history and philosophies of science including ways of knowing and habits of the mind. (Examples: course work, readings)

3. My PhD program provided me with beginning expertise to critique and integrate different science perspectives in the conduct of research. (Examples: course work, assignments, MNRS, research conferences)

4. I believe my doctoral education provided me beginning knowledge on ways to generate new research ideas based on critical evaluation of existing knowledge. (Examples: course work, assignments, MNRS, research conferences)

5. Through my PhD nursing program, I developed beginning skills in advanced research design and statistical methods. (Examples: course work, readings, dissertation research)

6. As a result of my PhD nursing program, I have beginning skills in ethics and judgment in the conduct of research and writing for publication. (Examples: course work, assignments, dissertation research)

7. My PhD nursing program provided me beginning skills in how to manage, process, and analyze data, information, and knowledge. (Examples: quantitative and qualitative course work, statistics courses)

8. As a result of my PhD nursing education, I have beginning skills to conduct culturally competent research (Examples: course work, dissertation research) .

9. As a result of my PhD nursing education, I have beginning skills to prepare research grants (Examples: course work, assignments)

10. As a result of my PhD nursing education, I have beginning skills in how to prepare manuscripts for publication. (Example: course work, assignments)

11. Because of my PhD nursing program, I have beginning skills to communicate research findings to lay and professional audiences and identify implications for policy, nursing practice, and the profession. (Examples: course work, assignments, MNRS, research conferences)

12. My doctoral education provided me with beginning skills in understanding theoretical/scientific underpinnings of nursing and other disciplines relevant to my area(s) of interest. (Examples: course work, dissertation research)

13. My doctoral nursing education provided practice knowledge that informs nursing science and its application. (Examples: course work, dissertation research)

14. As a result of my PhD program, I have beginning skills in leadership strategies to influence health policy and professional issues in my areas of interest. (Examples: course work, assignments, MNRS, research conferences)

15. Describe you current position:

    a. Nursing faculty full time
    b. Nursing faculty part time
    c. Other _____

16. What would you have liked to have learned in your PhD program that they should consider adding? (Text)

Faculty Review of Dissertation

Student Name: _____ Date: _____

Please rate the extent to which the dissertation met the outcomes below.
The dissertation work was conducted appropriately related to the following areas:

1) Rigorously conducted

1	2	3	4	5
Not at all				Very

2) Ethically sound

1	2	3	4	5
Not at all				Very

3) Culturally sensitive

1	2	3	4	5
Not at all				Very

4) Innovative

1	2	3	4	5
Not at all				Very

How well did the PhD candidate demonstrate *beginning* skills in:

5) Knowledge development

1	2	3	4	5
Not at all				Very

6) Research methods

1	2	3	4	5
Not at all				Very

7) Critiquing science

1	2	3	4	5
Not at all				Very

8) Integrating science

1	2	3	4	5
Not at all				Very

9) Presenting professionally
   (Leadership)

1	2	3	4	5
Not at all				Very

10) Identifies implications for
    practice, policy and future
    research.

1	2	3	4	5
Not at all				Very

Comments:

Faculty Name:

NURS 6800: Theory paper rubric

Thesis	Easily identifiable, plausible, novel, sophisticated, insightful, crystal clear. 10	
	Promising, but may be slightly unclear, or lacking in insight or originality. 7	
	May be unclear (contain many vague terms), appear unoriginal, or offer relatively little that is new; provides little around which to structure the paper. 4	
	Difficult to identify at all, may be bland restatement of obvious point. 0	
Structure	Evident, understandable, appropriate for thesis. Excellent transitions from 10 point to point. Paragraphs support solid topic sentences.	
	Generally clear and appropriate, though may wander occasionally. May have 7 a few unclear transitions, or a few paragraphs without strong topic sentences.	
	Generally unclear, often wanders or jumps around. Few or weak transitions, many paragraphs without topic sentences. 4	
	Unclear, often because thesis is weak or non-existent. Transitions confusing 0 and unclear. Few topic sentences.	
Use of evidence	Primary source information used to buttress every point with at least one 10 example. Examples support mini-thesis and fit within paragraph. Excellent integration of quoted material into sentences.	
	Examples used to support most points. Some evidence does not support 7 point, or may appear where inappropriate. Quotes well integrated into sentences.	
	Examples used to support some points. Points often lack supporting evidence, or evidence used where inappropriate (often because there may be 4 no clear point). Quotes may be poorly integrated into sentences.	
	Very few or very weak examples. General failure to support statements, or 0 evidence seems to support no statement. Quotes not integrated into sentences; "plopped in" in improper manner.	
Analysis	Author clearly relates evidence to mini-thesis; analysis is fresh and exciting, 10 posing new ways to think of the material.	
	Evidence often related to mini-thesis, though links perhaps not very clear. 7	
	Evidence occasionally related to the mini-thesis, argument has lapses, occasional links made. 4	
	Very little or very weak attempt to relate evidence to argument; may be no 0 identifiable argument, or no evidence to relate it to.	
Logic and argumentation	All ideas in the paper flow logically; the argument is identifiable, reasonable, 10 and sound. Author anticipates and successfully defuses counter-arguments; makes novel connections to outside material (from other parts of the class, or other classes) which illuminate thesis.	
	Argument of paper is clear, usually flows logically and makes sense. Some 7 evidence that counter-arguments acknowledged, though perhaps not addressed. Occasional insightful connections to outside material made.	
	Logic may often fail, or argument may often be unclear. May not address counter-arguments or make any outside connections. May contain logical 4 contradictions.	
	Ideas do not flow at all, usually because there is no argument to support. 0 Simplistic view of topic; no effort to grasp possible alternative views. Many logical contradictions, or simply too incoherent to determine.	
Mechanics	Sentence structure, grammar, and diction excellent; correct use of 10 punctuation and citation style; minimal to no spelling errors; absolutely no run-on sentences or comma splices.	
	Sentence structure, grammar, and diction strong despite occasional lapses; 7 punctuation and citation style often used correctly. Some (minor) spelling errors; may have one run-on sentence, sentence fragment, or comma splice.	
	Problems in sentence structure, grammar, and diction (usually not major). Errors in punctuation, citation style, and spelling. May have several run-on 4 sentences or comma splices.	
	Big problems in sentence structure, grammar, and diction. Frequent major 0 errors in citation style, punctuation, and spelling. May have many run-on sentences and comma splices.	
Total		

NURS 6813 Philosophy Final Paper and Rubric

Final paper: Students can select among the following paper topics for the final paper. An alternative paper topic may be suggested by a student but must be approved in advance by the faculty member. The final paper is due on December 7.

Evaluation of final paper: 40% of grade: see below

GENERAL EVALUATION RUBRIC FOR PAPERS

Thesis	Easily identifiable, plausible, novel, sophisticated, insightful, crystal clear.	16	
	Promising, but may be slightly unclear, or lacking in insight or originality.	13	
	May be unclear (contain many vague terms), appear unoriginal, or offer relatively little that is new; provides little around which to structure the paper.	10	
	Difficult to identify at all, may be bland restatement of obvious point.	7	
Structure	Evident, understandable, appropriate for thesis. Excellent transitions from point to point. Paragraphs support solid topic sentences.	16	
	Generally clear and appropriate, though may wander occasionally. May have a few unclear transitions, or a few paragraphs without strong topic sentences.	13	
	Generally unclear, often wanders or jumps around. Few or weak transitions, many paragraphs without topic sentences.	10	
	Unclear, often because thesis is weak or non-existent. Transitions confusing and unclear. Few topic sentences.	7	
Use of evidence	Primary source information used to buttress every point with at least one example. Examples support mini-thesis and fit within paragraph. Excellent integration of quoted material into sentences.	16	
	Examples used to support most points. Some evidence does not support point, or may appear where inappropriate. Quotes well integrated into sentences.	13	
	Examples used to support some points. Points often lack supporting evidence, or evidence used where inappropriate (often because there may be no clear point). Quotes may be poorly integrated into sentences.	10	
	Very few or very weak examples. General failure to support statements, or evidence seems to support no statement. Quotes not integrated into sentences; "plopped in" in improper manner.	7	
Analysis	Author clearly relates evidence to mini-thesis; analysis is fresh and exciting, posing new ways to think of the material.	16	
	Evidence often related to mini-thesis, though links perhaps not very clear.	13	

Category	Description	Points	
	Quotes appear often without analysis relating them to mini-thesis (or there is a weak mini-thesis to support), or analysis offers nothing beyond the quote.	10	
	Very little or very weak attempt to relate evidence to argument; may be no identifiable argument, or no evidence to relate it to.	7	
Logic and argumentation	All ideas in the paper flow logically; the argument is identifiable, reasonable, and sound. Author anticipates and successfully defuses counter-arguments; makes novel connections to outside material (from other parts of the class, or other classes) which illuminate thesis.	16	
	Argument of paper is clear, usually flows logically and makes sense. Some evidence that counter-arguments acknowledged, though perhaps not addressed. Occasional insightful connections to outside material made.	13	
	Logic may often fail, or argument may often be unclear. May not address counter-arguments or make any outside connections. May contain logical contradictions.	10	
	Ideas do not flow at all, usually because there is no argument to support. Simplistic view of topic; no effort to grasp possible alternative views. Many logical contradictions, or simply too incoherent to determine.	7	
Mechanics	Sentence structure, grammar, and diction excellent; correct use of punctuation and citation style; minimal to no spelling errors; absolutely no run-on sentences or comma splices.	16	
	Sentence structure, grammar, and diction strong despite occasional lapses; punctuation and citation style often used correctly. Some (minor) spelling errors; may have one run-on sentence, sentence fragment, or comma splice.	13	
	Problems in sentence structure, grammar, and diction (usually not major). Errors in punctuation, citation style, and spelling. May have several run-on sentences or comma splices.	10	
	Big problems in sentence structure, grammar, and diction. Frequent major errors in citation style, punctuation, and spelling. May have many run-on sentences and comma splices.	7	
Style	Follows style nearly perfect	4	4
	Follows style part of the time; has a number of errors	2	
	Does not follow style at all	0	
Total			
			%

<h1 style="text-align:center">Qualitative Methods NURS 6810</h1>

Mini Proposal- Scholarly Paper

This assignment gives you the opportunity to design your own study. Choose a topic of your choice (suggest that you consider your dissertation focus, as it stands right now). Conduct a brief literature review that identifies a gap in the science that your proposed study will fill. Choose a research design (tradition, approach), method and methodology that matches your study purpose.

Grading Rubric

Based on your specific research topic focus, write a paper, 10 pages max, excluding references.

		Points
1. Problem significance This section should include: • Relevant incidence/prevalence • The negative effects of the problem on the individuals, family, and community • Identification of gaps • One research question (Make sure that your literature review includes government or key organization reports, integrative and comprehensive summary. If available, use research resources such as meta-synthesis, meta-summary, and meta-analysis)	20 pts.	
2. Method This section should include: _____ • Specific approach (e.g., case study, qualitative description, phenomenology, ethnography, grounded theory, etc.) • Philosophy and methodology underpinning your selected approach (e.g., why such research method)	. 20 pts	
3. Data collection This section should include: • Setting • Sample size and sampling technique • Data collection techniques and procedures	20 pts.	
4. Data analysis This section should include: _____ • Data analysis technique • How exactly you are going to analyze the data based on the technique.	20 pts.	
Writing (organization,	10 pts.	

clarity)		
APA format	10 pts.	
Total Points Earned (Out of 100)		

Name: _____ Date: _____ Key: **FFPNT**-for full points next time

Format Instructions

Font (size, color, type density) and Line Spacing
Font size: must be 11 points or larger (smaller text in figures, graphs, diagrams and charts is acceptable as long as it is legible)
Type density: must be no more than 15 characters per linear inch (including characters and spaces)
Line spacing: must be no more than six lines per vertical inch
Text color: must be black (color text in figures, graphs, diagrams, charts, tables, footnotes and headings is acceptable)
We recommend the following fonts, although other fonts (both serif and non-serif) are acceptable if they meet the above requirements: Arial, Garamond, Georgia, Helvetica, Palatino Linotype, Times New Roman, Verdana.

RESEARCH PLAN PART 1: Specific Aims (possible 8 points):

The purpose of the specific aims is to describe concisely and realistically the goals of the proposed research and summarize the expected outcome(s), including the impact the proposed research will exert on the research fields involved.
Recommended Length: No more than 1 page.
Content: The specific aims should cover:
- broad, long-term goals;
- the specific objectives <u>and</u> hypotheses to be tested;
- summarize expected outcomes; and
- describe impact on the research field.

This is the most important page of the entire application because it may be the only section the unassigned reviewers read to understand approach, impact, and innovation.
Suggestions for total points: Generally, the Specific Aims section should begin with a brief narrative [leading up to and] describing the <u>long-term goals or objectives</u> of the research project.
1) **Introduction:** Begin with an interest-grabbing sentence. Briefly introduce the reader to the topic and how it fits the (funder's) mission. In other words, summarize the important knowledge, not things everyone would know. Identify the **gap in the research/knowledge or the critical need** for this research in the field. Identify the problem because of this need. Build up to the purpose of the study. Add <u>only</u> what is needed to support the purpose and aims. <u>Includes defining terms used in the purpose or specific aims</u>. (make it clear, interest grabbing, define terms)—**2 points.**
2) **Purpose statement:** This is the overall project goal that will address the gap and move toward the long-term goal. Suggest using this terminology, "The purpose of this study is to…" A **fatal flaw** would be if the purpose statement does not follow <u>logically from introduction</u>. Emphasize product, not process. Present the objectively testable **central hypothesis**. Provide the rationale for this project and for what it will accomplish.—**2 points**.
3) **Specific Aims:** List succinctly the specific objectives that come out of the purpose and central hypothesis. Make sure your specific aims & hypothesis are consistent with the purpose and central hypothesis, clearly stated, testable, and adequately supported by citations & preliminary data. Be as brief and specific as possible. For clarity, each aim should consist of one sentence followed by its expected outcome/hypothesis, as appropriate. Most successful applications have 2-4 specific aims. Number each specific aim. List them in logical order. No aim should be dependent on the successful outcome of another. A **fatal flaw** would be if the specific aims do not follow logically from purpose statement—**2 points**.
4) **Payoff:** Include a statement of the overall impact of the research. What is the payoff, expected outcome, significance summary. Identify the innovation. Delineate main expected outcomes. This should resolve the gap/need (the payoff) if your hypotheses are supported. Summarize the significance.—**2 points.**

1)Introduction:	
2)Purpose Statement	
3)Specific Aims	
4)Payoff	

RESEARCH PLAN PART 2: Significance and Innovation (possible 8 points):

This section should explain the importance of the problem or describe the critical barrier to progress in the field. Explain how the proposed research project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved. **Recommended Length: Approximately 2 pages.**

Content: This section should cover:

- the state of existing knowledge, including literature citations and highlights of relevant data;
- rationale of the proposed research;
- explain gaps that the project is intended to fill; and
- potential contribution of this research to the scientific field(s) and public health.

Suggestions for total points:

1. **Background:** Make a compelling case for your proposed research project. Why is the topic important? Why are the specific research questions important? Establish significance through a careful review of published data in the field, including your own. Avoid outdated research. Use citations not only as support for specific statements but also to establish familiarity with all of the relevant publications and points of view. Use of subtitles is effective ways to lead readers along. Review what is known and what needs to be known (be consistent with objectives and synthesize the literature)—**2 points**

2. **Theoretical Framework:** Highlight why this research is important beyond this specific project i.e., theoretically. Provide a theoretical framework and **specifically** describe how it will be used in this project.—**2 points**

3. **Significance:** Highlight why research findings are important beyond the confines of a specific project i.e., how can the results be applied to further research in this field or related areas. Clearly state public health implications. Explain the importance of this project and how it will contribute to the field (must be strong and convincing). Suggest that in a separate section, start your sentences like this: This study in significant because…—**2 points**

4. **Innovation** Explain how the application challenges and seeks to shift current research or clinical practice paradigms. Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions developed or used, and any advantage over existing methodologies, instrumentation, or interventions. Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions. Content: The innovation section could (and should if at all possible) include the following:
   - Explain why concepts and methods are novel to the research field.
   - Focus on innovation in study design and outcomes.
   - Summarize novel findings to be presented as preliminary data in the Approach section.

   Describe how the application differs from current research or clinical practice paradigms. Provide a careful review of the current literature to support the innovative methodologies, approaches, or concepts of your research. Demonstrate familiarity with novel methodologies by citing your publications or your collaborator's publications. Be very direct by starting your sentences like this "This study is innovative because…"—**2 points**

1)Background	
2)Theoretical Framework	
3)Significance	
4)Innovation	

RESEARCH PLAN PART 3: Approach (possible 24 points):

Approach The purpose of the approach section is to describe how the research will be carried out. This section is crucial to how favorably an application is reviewed. Recommended Length: 5-10 pages. Content: The research design and methods section should include the following:

- PI's preliminary work/studies, data, and experience relevant to the application and the experimental design;
- the overview of the experimental design;
- a description of methods and analyses to be used to accomplish the specific aims of the project;
- a discussion of potential difficulties and limitations and how these will be overcome or mitigated;
- expected results, and alternative approaches that will be used if unexpected results are found;
- a projected sequence or timetable (work plan);
- if the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work;
- a detailed discussion of the way in which the results will be collected, analyzed, and interpreted;
- a description of any new methodology used and why it represents an improvement over the existing ones.

Content: The research design and methods section should include the following (not necessarily in this order):

1. **PI's preliminary work**/studies, data, and experience relevant to the application and the experimental design; Alternatively, integrate preliminary work/data with the methods description for each Specific Aim. Preliminary work can be an essential part of a research grant application and helps establish the likelihood of success of the proposed project. Include the research team here and the role and the expertise/prior work each member brings to the project. —**2 points**
2. **Overview of the experimental design** including rationale, briefly restate aims and design to address them—**2 points**; Describe the methods and analyses to be used to accomplish the specific aims of the project:
3. **Setting** [description including number of patients who might qualify for this project & rationale for setting]—**2 points**
4. **Participants** [description, with inclusion/exclusion criteria & rationale; mention race, gender, and children]—**2 points**
5. **Recruitment/sampling plan** [description & rationale]—**2 points**
6. **Measures/instruments** [connect each to the aims and/or theory directly; rationale for each; description of measure including sample items and subscales, scoring method/calibration (what do high scores mean), validity & reliability or specificity & sensitivity (actual values); for samples see good quality published research]—**2 points**
7. **Procedures** [very detailed with rationale as needed; include assignment technique and how data will be collected; include hazardous situations and precautions planned]—**2 points**
8. **Sample size calculations** [description & rationale]—**2 points**
9. **Data Analysis**: Discuss in detail the way in which the results will be collected, analyzed, and interpreted; Data analysis should be organized by specific aim [specify independent & dependent variables and covariates for each test]—**2 points**
10. **Timetable**: Projected the sequence or timetable (work plan) for completing the study [description & rationale]—**2 points**;
11. **Alternate Strategies**: Develop **alternative strategies** for potential problems. Potential problems, think about things that might go wrong that you can do something about, have a backup plan, such as not being able to recruit enough participants. Discuss potential difficulties and how these will be overcome or mitigated; Potential problems, think about things that might go wrong that you can do something about, have a backup plan, such as not being able to recruit enough participants. Point out any procedures or situations that may be hazardous and precautions to be exercised. These can be incorporated throughout, not in a separate section. [discuss alternative strategies and benchmarks for success]—**2 points**
12. **Limitations**, things you cannot do something about (describe each and plan for minimizing each). Include how this project has value in spite of these limitations.—**2 points**

Suggestions for total points:

- Number the sections in this part of the application to correspond to the numbers of the Specific Aims.
- Avoid excessive experimental detail by referring to publications that describe the methods to be employed. Publications cited should be by the applicants, if at all possible. Citing someone else's publication establishes that you know what method to use, but citing your own (or that of a collaborator) establishes that the applicant personnel are experienced with the necessary techniques.
- If relevant, explain why one approach or method will be used in preference to others. This establishes that the alternatives were not simply overlooked. Give not only the "how" but the "why."
- If employing a complex technology for the first time, take extra care to demonstrate familiarity with the experimental details and potential pitfalls. Add a co-investigator or consultant experienced with the technology, if necessary.
- Explain how the research data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.

RESEARCH PLAN PART 3: Approach continued:	
1)PI and team	
2)Overview of design	
3)Setting	
4)Participants	
5)Recruitment	
6)Measures	
7)Procedures	
8)Sample Size	
9)Data Analysis	
10)Timetable	
11)Alternate Strategies	
12)Limitations	

RESEARCH PLAN PART 1: Specific Aims (possible 8 points):	
RESEARCH PLAN PART 2: Significance and Innovation (possible 8 points):	
RESEARCH PLAN PART 3: Approach (possible 24 points):	
TOTAL (possible 40 points):	