Utilizing Q Methodology to Promote Research and Evidence-Based Practice Education in Baccalaureate Nursing Students

Angela G. Opsahl, DNP, RN, CPHQ, Assistant Professor, Indiana University School of Nursing, agopsahl@iu.edu

Desirée Hensel, PhD, RN, PCNS-BC, CNE, Dean and Professor, Curry College, desiree.hensel@curry.edu
Conflicts of Interest and Disclosures

- This study was unfunded
- The presenters have no real or perceived vested interests or conflicts of interest relation to this presentation

Presenters:
- Angela G. Opsahl, DNP, RN, CPHQ, Indiana University School of Nursing
- Desirée Hensel, PhD, RN, PCNS-BC, CNE, Curry College
Session Objectives

Objectives

- Describe the theoretical basis and research processes associated with Q methodology

- Identify ways that Q methodology can be used to study the affective domain in nursing education research or program evaluation.
Pre-licensure Evidence-Based Practice Competencies

• Demonstrate knowledge of scientific methods
• Explain role of evidence in determining best practices
• Read original research and evidence reports
• Base care plans on individual preferences, clinical expertise, and evidence
• Value the need for continuous improvement based on new knowledge
• Appreciate the importance of reading professional journals

(Cronenwett et al., 2007)
Need to Understand New Research Methods

- Traditional research and EBP courses have focused on quantitative and qualitative methods

- Evidence-based practice (EBP) triangulates best evidence, clinical expertise and patient preferences (Cronenwett et al., 2007)

- Research using mixed-methods designs is rising; it has the potential to uncover relationships that can lead to better outcomes (Shorten & Smith, 2017)

- Patient-Centered Outcomes Research Institute (PCORI) was created to improve outcomes with research guided by patients, caregivers, and community (https://www.pcori.org/)
Why Teach Q Methodology to BSN Students?

• With an 80 year history, Q methodology is a complete mixed-method approach for studying subjectivity (Ramlo, 2016)

• Q method is specifically designed to be person-centered and find preferences (Simon, 2013)

• Q studies appear in top-tier nursing research journals including *Journal of Nursing Scholarship*

• The steps to a Q methodology can help students simultaneously develop quantitative reasoning and interpretive skills (Hensel, 2016)
When BSN Honor Students Use Q Methodology for Undergraduate Research

• Q studies use statistical principles and small sample sizes to study subjectivity in the social and behavioral sciences.

• Q methodology’s structured process solve many design challenges faced by novices leading to meaningful research projects that are still doable by novice researchers.

• Outcomes from using Q methodology for BSN student honors projects include increased research skills, completed projects, dissemination of findings, and increased confidence (Hensel, 2016).
Outcomes of teaching Q methodology in a traditional BSN research/EBP course have not previously been explored.

The purpose of this project was to:
1. Use active learning strategies to teach a class on Q methodology in a traditional BSN EBP Course.
2. Holistically evaluate student perceptions of the class and method.
The Class

- Thirty-five traditional BSN students participated in a 2.5 hour class led by a guest lecturer with expertise in Q methodology.
  - The students were: female (N=32) male (N=3). Their age ranges were: 18-20 years (N=4), 21-25 years (N=30), and 31-35 years (N=1).
- Students engaged in creating a mock Q study on their opinions about their K through 12 substance abuse education. The instructor reviewed terms unique to Q methodology studies at each research step.
- Class objectives
  - Describe the philosophical principles associated with Q methodology
  - Practice the procedures used in a Q study
  - Discuss ways Q methodology can be utilized in nursing

(Judge, Opsahl, & Hensel, 2018)
Class Objectives

• Describe the philosophical principles associated with Q methodology

• Practice the procedures used in a Q study

• Discuss ways Q methodology can be used in Nursing
Engaging in a Mock Study

• Students populated the concourse by writing short statements about their opinions on the topic. The class then used opinion statements provided in advance by three honor students.

• The instructor showed the group how to trim the items into a Q sample for sorting.

• Students completed a Likert scale rating of 16 opinion statements about substance abuse education.

• Then students sorted same items printed individually on cards and instructed them to place each item in an agree, disagree or neutral pile based on their personal opinion.
Mock Study Continued

- Next, the students recorded their preferences on the sorting sheet from most to least agree and most to least disagree. Neutral items filled open spaces.
- Students provided written rationale for why the selected items were placed in the far right and left columns.
- The class began the process of data entry into a free online Q methodology program (Ken-Q Analysis https://shawnbanasick.github.io/ken-q-analysis-help/index.html).
- The instructor reviewed brief PowerPoint Presentation on data analysis.
- The group discussed undergraduate research Q projects.
<table>
<thead>
<tr>
<th>Most Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find Q methodology to be very confusing</td>
<td>The pace of class was too fast</td>
</tr>
<tr>
<td>The terminology needed to be better explained</td>
<td>The interactive hands on format helped me better understand the content</td>
</tr>
<tr>
<td>I think research is overemphasized at the BSN level</td>
<td>I may try doing a research project using Q methodology in the future</td>
</tr>
<tr>
<td>I learned how to ask questions in a different way after today’s session</td>
<td>I may try doing a research project using Q methodology in the future</td>
</tr>
<tr>
<td>The PowerPoint was informative</td>
<td>Being able to finish the data analysis would have been beneficial</td>
</tr>
<tr>
<td>I liked how we participated step-by-step in doing a mock study</td>
<td>Conducting a Q methodology study seems better than doing a survey</td>
</tr>
<tr>
<td>Doing a survey then a sort made me view them differently</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAMPLE DATA SORTING SHEET**
Evaluation Using Written Responses to Open-Ended Questions

1. What are your opinions about Q methodology after this course?

2. How did you feel about the crash course format?

3. How did you believe you did or did not achieve the course objectives?

4. Add any other comments
Class Evaluation Using Q Methodology

- Project met the University IRB classification as course evaluation, a non-human subject research.
- Written responses (N=162) to the 4 class evaluation questions populated the concourse, 35 were retained for sorting.
- Every class participant (N=35) anonymously recorded their preferences on a +4 to -4 sorting sheet.
- Written rationale was added for why the selected items were placed in the far right and left columns.
- Data were analyzed using centroid factor extraction and varimax rotation with PQMethod for Windows Version 2.35 (GNU Public License).
# Factor Arrays of Student Opinion Statements on Q Methodology

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>1a</th>
<th>1b</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Q methodology seems very complex for beginners</td>
<td>3</td>
<td>-3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>The PowerPoint was informative</td>
<td>0</td>
<td>-1</td>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>3</td>
<td>I need to learn more about Q methodology to understand it</td>
<td>3</td>
<td>-1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>I think Q methodology is a good way to find opinions valuable to nursing</td>
<td>-1</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Hearing about Q methodology studies done by other nursing students was helpful</td>
<td>0</td>
<td>-1</td>
<td>1</td>
<td>-3</td>
</tr>
<tr>
<td>6</td>
<td>Following the Q methodology steps seems to simplify the process of conducting a study</td>
<td>-3</td>
<td>0</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>7</td>
<td>I think Q methodology seems relatively easy to use</td>
<td>-4</td>
<td>0</td>
<td>-4</td>
<td>-3</td>
</tr>
<tr>
<td>8</td>
<td>I could use Q methodology to understand a patient’s perspectives</td>
<td>-1</td>
<td>2</td>
<td>-3</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Conducting a Q methodology study seems better than doing a survey</td>
<td>-3</td>
<td>3</td>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
<td>10</td>
<td>I find Q methodology to be very confusing</td>
<td>4</td>
<td>-4</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>11</td>
<td>Q methodology might be helpful for understanding nurses’ opinions about workplace problems</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>The data analysis in a Q methodology study is hard</td>
<td>1</td>
<td>-3</td>
<td>-1</td>
<td>0</td>
</tr>
</tbody>
</table>
The student sorts* loaded on one bipolar and two unipolar factors representing **four distinct viewpoints** depicted as factor arrays from student opinion statements:

- **General Confusion** (*N*=7),
- **Seeing Usefulness** (*N*=3),
- **Valuing Practice** (*N*=8), and
- **Ambivalence to Research** (*N*=11).

*Anonymous Q methodology responses were returned by 35 students. Those sorts with missing data were excluded from the analysis.
**Factor of General Confusion.** Students with this viewpoint found the method to be difficult to utilize and did not believe that they would use Q Methodology in their nursing career.

**Factor of Seeing Usefulness.** Students loading on this factor had the most positive attitudes toward Q Methodology and characterized the format as supportive to conducting patient-centered research in the future.
Factor of Valuing Practice. This factor was characterized by the opinions that Q methodology seems somewhat advanced for beginners. Students also found participating in the step-by-step mock study beneficial.

Factor of Ambivalence to Research. This factor was full of conflicting viewpoints ranging from disagreeing that the information was in a student-friendly format to finding the hands-on format helpful.
Discussion

• Overall, positive views of the study centered on the interactive format (Q scores= 1, 1, 3, 4) and participating in the step-by-step mock study (Q scores= 0, 2, 4, 2). Opportunities for improvement focused on having prior knowledge (Q scores= 4, 0, 3, 3) and the need for additional time with Q Methodology beyond one session (Q scores= 3, -2, 0, 4).

• Q Methodology allows for multiple unique views or areas of consensus around a topic. With a standard questionnaire or survey, our findings would only be based on overall averaged item scores.

• The Patient-Centered Outcomes Research Institute (PCORI) supports new methods of research informed by patients and caregivers to generate evidenced-based information.
Recommendations

• To facilitate advanced levels of student engagement with content synthesis and application, an overview document on Q Methodology should be provided to the students before class.

• Exposure to the interpretation of research as an EBP skill should be considered in future sessions.

• This project serves as an exemplar of an alternative method for teaching undergraduate nursing research.
Using Q methodology in undergraduate research has helped students achieve the learning outcome of developing research skills.

Students gained experience in the application of Q Methodology.

Implementing a Q methodology study for nursing program research courses may assist to increase the recognition of evidence-based practice in the nursing profession.
Resources

Software
• http://schmolck.userweb.mwn.de/qmethod/

Video Tutorials
• http://qmethod.org/

Books

Articles


Questions

Angela G. Opsahl, DNP, RN, CPHQ, Assistant Professor
Indiana University School of Nursing
agopsahl@iu.edu

Desirée Hensel, PhD, RN, PCNS-BC, CNE
Dean & Professor
Curry College
desiree.hensel@post03.curry.edu
Thank You