A case study of a multi-method evaluation design: Correcional Nurse Competency Program

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Background
In only a few studies have improved nurse-patient care outcomes associated with professional education programs been demonstrated. Provided that professional development is among the most commonly used strategy to improve quality of patient care in health settings, it is vital to test their efficacy, to identify their key components and to test their effects on direct patient outcomes.

Attention to high profile errors in professional practice in correctional settings has precipitated increased involvement of state and federal government as the regulatory accounting for these errors is dramatic. How skillfully a task is performed has become central to the notion of professionalism. The ability to measure skills and link it to quality care outcomes is essential.

Challenges exist in the design of studies to measure continuing education outcomes. Situational and research factors impact implementation; cost and burden conscious approaches may impact sustainability. Triangulation, the use of multiple approaches to enhance confidence in findings is essential to this process. Triangulation includes four forms:
- data triangulation;
- investigator triangulation;
- theoretical triangulation;
- methodological triangulation

Setting
A northeastern state correctional system
- 12 jails and prisons: 2-jails; 10- prisons; 1-women’s facility;
- 1-Mental Health facility
- > 18,000 incarcerated persons
- 3 year project
- 443 nurses: RNs - 288; LPNs - 138; APRNs -17 (serving.
- Medical and psychiatric care provided through an academic managed care contract

Method
A mixed methods design measured outcomes of a state-wide correctional nurse competency program providing modules and simulation for professional development.

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<td>Institutional workforce data</td>
<td>Data Employment data: turnover; certifications; licensure; gender; awards; presentations; publications</td>
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| QUALITATIVE               |                       |                    |
| Leadership Team          | Data Investigator Within-method | Collated from minutes; themes | Formulate strategy; analyze data; reflective understanding of process |
| Nurse Supervisors Meetings | Data Investigator Within-method | Collated from minutes; themes | Formulate strategy; synthesize data; reflective understanding of process |
| Staff Nurse Committees: Education - Simulation | Data Investigator Between-method | Collated from minutes; Observations; | Formulate strategy; design and implementation; collect and synthesize data; reflection |
| Staff nurse telephone interviews | Data Theoretical Between-method | Taped, transcribed, analyzed for codes/themes; N-Vivo; descriptive data | Outcome measures: satisfaction and learning; cluster analysis linked to theoretical assumptions |

Procedure
1. Data triangulation:
- Data collected from different samples: RNs, LPNs, Supervisors, Administrators, Educators
- Data collected from different sources: records, self-report surveys, interviews
2. Investigator triangulation:
- Team based observations
- Process evaluation
3. Theoretical/method triangulation:
- Simulation
- Peer assessment
- Observation
- On-line Survey
4. Methodological triangulation:
- Construct, predictive & content validity

Results
Advantages of the concurrent, or triangulation design:
- Easier for a team to implement because of the multiple activities conducted in parallel.
- Amenable to joint publication and dissemination.
- Deficiencies of one method are compensated for by the advantages of another providing a more complete view of competency.

Challenges of the concurrent, or triangulation design:
- Need to manage group dynamics and power issues
- Can be expensive
- May compound error (Fotheringham, 2009)

Conclusion
- The study illustrates how triangulation in a mixed-methods study was used to gain depth of understanding (with different interpretations emerging from data analysis) and allow apparent contradictions to be explored (Williamson, 2005)
- These approaches are useful for complex real-world problems (Wilkinson, 2007)
- Competence: defined as “clinical competence-performing to professional standards while in the practice environment” (Jessup, 1991; Wilkinson, 2007)
- Convergent function of triangulation- develop correctional measures (Bradley, 1995)
- Completeness function - alternative to reliability & validity (Pish, 1990; Adams & Kiger, 2000)

Significance
Combining types of triangulation allows a comparative framework to emerge from the data.