Reconceptualizing Nursing Orientation: Reducing Cognitive Load to Improve Learner Outcomes

Katherine Kissel  CNE MN, RN, BScN, CNCC(C)
Christine Filipek  CNE RN, BN, CNCC(C)
Objectives

- Examine challenges faced by novice nurses during traditional orientation programs
- Overview relevant learning theory impacting learner retention & cognitive load
- Describe the reconceptualization of a nursing orientation in one mixed ICU/CCU
  - Design overview & implementation
  - Benefits, challenges and evaluation of outcomes
  - Next steps, future considerations
Challenges of Traditional Nursing Orientation Programs
About a Nurse

“You mentioned that new nurses shouldn’t be afraid to ask questions, so I have a few. I hope you have a few hours to spare.”
Challenges: Preparing the Novice Nurse to Practice in the Critical Care Setting

- Critical care areas are hiring novice RNs/GNs
  - Findings echoed our own unit experience
- Challenges are posed in ensuring adequate preparation of this cohort:
  - High acuity
  - Knowledge acquisition
  - Gaps in the literature pertaining to mixed specialty units
Challenges

- Skill, knowledge acquisition, and critical thinking take time and clinical exposure to develop.

- Though attempts may be made to provide gradual exposure to critical illness/complex scenarios, emergent scenarios may present themselves at any time in the critical care environment.\(^5\)
Challenges:
Examining the Effectiveness of Orientation

- Recognize need to reconceptualize orientation:
  - Supporting achievement of competency based goals
  - Using integrative & building techniques
  - With a flexible, learner-centered approach
  - Aiming to reduce content saturation
Challenges: Potential Consequences of Inadequate Learner Preparation

**Learner**
- Stress or Anxiety
- Reduced focus/retention* (*unit observation)
- Increased attrition in 1st year of hire

**Patient**
- Inability of learner to detect subtle changes in pt status
- Failure to Rescue

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Learning Theories & Applications
About a Nursing Student

"My brain just texted me to say it needs a break."
Learning Theory

Principles of Adult Learning

- Control
- Active Participation
- Experience
- Association
- Relevancy
- Problem Focused

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Learning Theory

➢ Acquisition of Clinical Competency$^{2,4}$

**Novice**
- Task Focused
- Trouble identifying relevant assessment findings
- Requires time, clinical experience, to master tasks
- Requires expert guidance to aid in decision making/prioritization

**Competent**
- Development of pattern recognition
- Compares current scenarios to past experiences
- Increased analysis, not yet expert in synthesizing data

**Expert**
- Gathers, synthesizes required data
- Predicts, anticipates patient responses
- Relates & integrates concepts as a whole
- Focus on knowledge acquisition, likely to experience ethical dilemmas
Learning Theory

➢ Cognitive Load Theory$^{15,17,18}$

➢ Memory Formation: A Quick Review

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➢ Definitions: $^{16,17,18}$

- Memory storage ➔ of information for later recall
- Working memory ➔ “the erasable blackboard of the mind”$^{16, p. 160}$
- Short term memory ➔ seconds to hours
- Long term memory ➔ days to years
Learning Theory

- Information Processing Model

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Cognitive Load Theory\textsuperscript{15,17,18}

- Recognizes limitations exist in cognitive processing & working memory

“It is very easy to overwhelm a learner’s limited working memory because of the cognitive processing required to work through a new task or understand a new concept. When this happens, it is impossible for meaningful learning to occur.”\textsuperscript{18, p. 1587}

Identifies working memory can only: \textsuperscript{17,18}

- \textbf{Hold} 5-9 informational elements
- \textbf{Actively Process} max. 2-4 elements simultaneously
Cognitive Load Theory\textsuperscript{15,17,18}

- Recognizes cognitive loads further limiting working memory:

- **Extraneous Load**
  - Imposed by the manner in which information is presented to learners.

- **Intrinsic Load**
  - Imposed by the learning task.

- **Germinal Load**
  - Devoted to processing information, constructing & automating schemas.
Learning Theory

➢ Cognitive Load Theory

Novices in a domain have small bits of information that are not yet formed into effective schemas.

Experts in a domain have constructed vast schemas and networks of knowledge over the years.
Cognitive Load Theory\textsuperscript{17,18}  
– Key Teaching Considerations

- Identify presence/absence of schema formation
- Task break down
- Spacing of concepts to allow for application & integration
- Repetition of key points
- Removal of distracting data
- Limiting multi-tasking
- Matching teaching modality to learning objective
Orientation
Reconceptualization
Literature Review Recap

- Few sources were found to have adopted a staged approach to orientation in critical care\textsuperscript{5,14}
- No application in mixed specialty units
Drawing upon unit based experiences & relevant learning theories, we recognize the need to reconceptualize an orientation:

- Supporting achievement of competency based goals
- Using integrative & building techniques
- With a flexible, learner-centered approach
- Aiming to reduce content saturation & cognitive load
### Orientation To RGH ICU/CCU prior to September 2014: Timetable Guidelines

<table>
<thead>
<tr>
<th>Orientation Component</th>
<th>Subcomponents</th>
<th>Timeline from Hire</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU Classroom Orientation</td>
<td>Provincial classroom with interspersed clinical orientation shifts (5 weeks)</td>
<td>Week 1 - 4</td>
</tr>
<tr>
<td></td>
<td>Electronic documentation classroom and module days (1-2 days)</td>
<td></td>
</tr>
<tr>
<td>ICU/CCU Site Specific Orientation</td>
<td>Site based initiatives, policies, procedures, specific patient population management (2 days)</td>
<td>Week 2/6</td>
</tr>
<tr>
<td>ICU/CCU Clinical Shifts with Preceptor</td>
<td>Baseline 10 shifts if prior medical surgical experience, 10+ if new graduate nurse. Additions to baseline when required and reassessed on an ongoing basis</td>
<td>Weeks 6 – 8/9</td>
</tr>
<tr>
<td>Independent Patient Assignment in ICU/CCU</td>
<td>Ongoing once above and orientation evaluation met with satisfaction</td>
<td></td>
</tr>
<tr>
<td>Code Blue/Temp Pacer Class</td>
<td>Offered relatively quickly post orientation</td>
<td>~2-3 months</td>
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### Assessments and Patient Care Delivery

1. **Consistently performs accurate clinical assessments and able to identify abnormal or concerning findings.** Able to establish priorities for patient care based on assessments, report and rounds.

<table>
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<th>Date</th>
<th>Met/Unmet</th>
<th>Initials (Preceptor and New Hire)</th>
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If *met*, point form description of how objective was met. If *unmet*, point form action plan or follow up to satisfy the objective.

2. **Consistently adheres to clinical resources/documents when performing patient care.** Reviews resources as needed prior to patient care. For example, reviews policies, checklists, learning resources.

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If *met*, point form description of how objective was met. If *unmet*, point form action plan or follow up to satisfy the objective.
Informal (verbal from learner, preceptors)

Formal (anonymous submission of post orientation learner evaluations)

BOTH indicated for the novice hire:

- Learner dissatisfaction re:
  - Amount of classroom vs. time on unit
  - Sheer volume of knowledge acquisition required
  - Excess amount of time learning differences in unit processes & routines vs. specifics related to population specific care and management
Reconceptualizing Orientation: Changes & Implementation
DID YOU MAKE THE CHANGES I ASKED FOR?

THAT DEPENDS.

DO YOU REMEMBER WHAT YOU ASKED ME TO CHANGE?

NO.

YUP, I MADE THE CHANGES.
### Implementation:

**Post-implementation Structure**

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| ICU Classroom Orientation | Provincial classroom with interspersed clinical orientation shifts  
(5 weeks)  
Electronic documentation classroom and module days  
(1-2 days) | Weeks 1-4 |
| ICU Site Specific Orientation | Site based initiatives, policies, procedures, specific patient population management  
(2 classroom days) | Week 5/6 |
| ICU Clinical Shifts with Preceptor | Baseline of 7-8 shifts if prior medical surgical experience,  
10+ if new graduate nurse. Additions to baseline when required and reassessed on an ongoing basis | Weeks 6-8/9 |
| Independent Patient Assignment in ICU | Ongoing once above and orientation evaluation met with satisfaction | |
| Code Blue Classroom Orientation | Advanced certification in defibrillation, cardioversion,  
transcutaneous and transvenous pacing, therapeutic hypothermia, rapid infusion  
(1 day plus independent preparation, certification exams and return demos required with educator post class) | Month 3-6 |
| CCU Site Specific Orientation | Site based initiatives, policies, procedures, specific patient population management  
(1 classroom day) | Month 3-6  
2-4 weeks post code class |
| CCU Clinical Preceptor Shifts | Baseline of 3, more may be required dependent on unit acuity during time of shifts and based upon learner need  
| | Same as above |
| Independent Patient Assignment in CCU | Learners are assigned 2 weeks (originally 4) of dedicated assignment to CCU. Once completed, nurses are assigned to both units. Orientation is considered completed. | Once above completed |
Implementation: Determining Learner Readiness

- Readiness to advance is determined in a number of ways:
  - Minimum Expectation Guidelines
  - ICU orientation objectives met
  - Ability to prioritize and independently manage patients with increasing complexity
  - Evidence of knowledge acquisition and application
  - Use of Step-Up-Guidelines (zonal document) to further measure readiness for advancement
  - Ongoing discussion with the learner and members of the leadership team
Implementation

- Undertaken in Fall of 2014

- Post-implementation, 22 hires have completed the novice orientation stream.

- Learner surveys, educator observations have noted positive results.
Evaluation & Discussion
Evaluation

Learner evaluation completed via:

- Post orientation surveys
  - Separate ICU/CCU
  - An overall evaluation of the orientation program
    - 50% return rate (n=11)

Orientation surveys were disseminated May-June of 2017

- Elicited data pertaining to learner perception of orientation format on perceived stress levels, ability to apply knowledge in the clinical setting, and overall satisfaction.
  - 13 responses returned (novice cohort)
**Chart 1.** Learner Evaluation Responses Post ICU/CCU Orientation Completion. Total respondents = 11, or 50% of entire cohort since implementation.
May – June 2017 Learner Survey

Chart 2. I perceived reductions in stress levels due to the interspersed approach.

Chart 3. I perceived increases in knowledge retention due to the interspersed approach.

Chart 4. Completing the interspersed orientation approach allowed myself to increase my understanding of disease pathology and treatment plans.

Chart 5. At orientation conclusion, I felt prepared to think critically about my patients, rather than focus on unit processes and procedures.
Coming to ICU from a MTU/Internal Medicine unit was daunting enough. The education alone for ICU… was enough to cause high anxiety. I was relieved to find out I’d be oriented to CCU at a later time; as cardiac related diagnoses are very new to me.

I come from a different health region and I felt overwhelmed with how different everything was. Charting, equipment, IVs, monitors and hospital processes were all different and I felt it took me some time to get used to the basics of the ICU department. There were times where I felt a bit overwhelmed and if I had to tackle CCU (a whole new unit with new processes etc) at the same time I would have been stressed and probably not mentally able to retain as much information. The separation worked for me.
Gaps exist within the evaluation methods
  – Though themes of learner survey responses post orientation convey many learners feel less overwhelmed with this interspersed approach…

Future implementations should consider:
  – Dissemination of survey questions to both pre & post implementation groups
  – Validated tools to objectively evaluate learning outcomes, ie:
    • Knowledge retention
    • Learner anxiety/stress levels
Challenges Identified

- Creation of Patient Assignments
  - Especially if new hires fall on the same rotation

- Alterations in the way senior staff are assigned to the ICU & CCU

- Removal of learner from independent practice at a later date changes staffing needs


Thanks for your time
AND
Any Questions?