Case-Based Learning in a Flipped Classroom to Promote Critical Reasoning

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Disclosure

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• No conflict of interest

• No commercial endorsements or compensation for products
Objectives

• The learner will evaluate the correlation between using a flipped classroom model and student learning outcomes.

• The learner will explain the use of case scenarios in developing problem-solving skills to promote higher level learning outcomes.

• The learner will identify and integrate teaching strategies that promote critical reasoning in nursing students.
The Flipped Classroom

• Definition

• Purpose and application: Bloom’s Taxonomy of learning
  • Pre-class activities: knowledge, comprehension
  • In-class activities: application, analysis, synthesis, evaluation

Honeycutt, 2016
Flipped

- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge

In Class
At Home
Theoretical Framework: Constructivism

• Principles
  • New knowledge constructed from previous ideas and experiences
  • Search for and constructing meaning is personal based on unique experiences

• Elements
  • Student-centered and self-regulated
  • Interactive knowledge sharing between teachers and students
  • Collaborative and multi-modal
  • Self-awareness
  • Realistic problem-solving

Bada, 2015
# Case-based learning application

- Virtual Intensive Care Unit
  - Patient Scenarios
  - Small group activities
- Patient-specific concept mapping
- Classroom discussions
- Other multi-modal strategies
  - Simulation
  - Videos
  - Hands-on demonstrations
  - Role-playing
  - Teach-back
Evaluating case-based learning in a flipped classroom

<table>
<thead>
<tr>
<th>Quantitative Data</th>
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</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td></td>
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<tr>
<td>Research design</td>
<td></td>
</tr>
<tr>
<td>Assessment Technologies Institute Proctored Exam</td>
<td></td>
</tr>
<tr>
<td>Pre-test and post-test</td>
<td></td>
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<tr>
<td>Participants</td>
<td></td>
</tr>
<tr>
<td>Institutional Review Board (IRB): Exempted Review</td>
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<tr>
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<tr>
<td>End-of-course evaluation</td>
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<tr>
<td>Student responses</td>
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</tbody>
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## Pre-test/Post-test Results

<table>
<thead>
<tr>
<th>Cohort 1: Traditional BSN</th>
<th>Cohort 2: Traditional BSN</th>
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</thead>
<tbody>
<tr>
<td>N=18</td>
<td>N = 33</td>
</tr>
<tr>
<td>Significance level 0.05</td>
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<tr>
<td>Two-tailed t-test</td>
<td>Two tailed t-test</td>
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<tr>
<td>t value = 6.7</td>
<td>t value = 2.529</td>
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<tr>
<td>p value = &lt;0.00001</td>
<td>p value = 0.01656</td>
</tr>
</tbody>
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Pre-test/Post-test Results

Cohort 1: Accelerated BSN

- N=15
- Significance level 0.05
- Two-tailed t-test
  - t value = 2.71
- p value = 0.0169

Cohort 2: Accelerated BSN

- N = 13
- Significance level 0.05
- Two tailed t-test
  - t value 7.53
- p value = < 0.00001

Qualitative Data

- Themes from student responses
  - Challenging
  - Rewarding
  - More meaningful learning
  - More lecture
  - Use PowerPoint
Limitations, Conclusion and Implications

- Limitations
  - Sample size
  - Variables

- Conclusion
  - Student-learning outcomes
  - Transforming pedagogical design

- Implications
  - Future of healthcare and nursing education
References


