An Exploration of the Effects of Learning Attitudes and Behaviors through the Use of Authentic Assessment Pedagogy

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One ITE System, Three Colleges

Model of Education and Governance

"Thinking Hands and caring hearts"
Redesigning Pedagogy

Current Pedagogy + Innovative Pedagogy = Authentic Assessment

- Knowledge & Skills building
  - Authentic Learning Exposure
- Self-reflection & Self-assessment
- Apply knowledge & skills during Clinical Practice
- Peer-assessment
- Teacher-assessment

Clinical Reasoning
Decision-Making
Clinical Performance
What is Authentic Assessment (AA)?

“A form of assessment in which students are asked to perform real-world tasks that demonstrate meaningful application of essential knowledge and skills”. – Jon Mueller

<table>
<thead>
<tr>
<th>TRADITIONAL</th>
<th>AUTHENTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting a Response</td>
<td>Performing a Task</td>
</tr>
<tr>
<td>Contrived</td>
<td>Real-life</td>
</tr>
<tr>
<td>Recall/Recognition</td>
<td>Construction/Application</td>
</tr>
<tr>
<td>Teacher-structured</td>
<td>Student-structured</td>
</tr>
<tr>
<td>Indirect Evidence</td>
<td>Direct Evidence</td>
</tr>
</tbody>
</table>
## AA DOMAINS AND RUBRICS

<table>
<thead>
<tr>
<th>Cognitive Domain</th>
<th>Psychomotor Domain</th>
<th>Critical Thinking Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient Assessment</td>
<td>1. Nursing Interventions</td>
<td>1. Situational Analysis</td>
</tr>
<tr>
<td>3. Patient Education</td>
<td>3. Respond to Clinical Situation</td>
<td></td>
</tr>
</tbody>
</table>

**Authentic Assessment as a Pedagogical Approach to Learning**

- **Cognitive Domain**
  - Critical Thinking Skills
- **Psychomotor Domain**
- **Affective Domain**

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Mr Lim, 85 y/o, admitted for fever for investigation; Staff Nurse instructs Student Nurse to check temperature

Cognitive Domain

Psychomotor Domain

Critical Thinking Skills

1. Patient Assessment
   • Gathering of background information; past medical history
   • Student can ask patient if he has undergone any strenuous exercise

2. Plan of Care
   • Prepares equipment needed
   • Prepares the environment
   • Prepares self; K&S?

3. Patient Education
   • Give health teaching advice

Affective Domain

Nursing Interventions

• Actual carrying out of the procedures – Check Temperature

• Sequencing

Communication

• Attitudes
• Verbal and non-verbal communication
• Tone of voice

Caring

• Therapeutic touch
• Eye contact

Critical Thinking Skills

Situational Analysis

• Analysis of Data
• Normal range of temperature

Clinical Judgment

• Comparison from normal to abnormal results

Respond to Clinical Situation

• How do I respond to a clinical situation?
• Nursing Interventions
The AA Process

PERFORMANCE TASK
AA DOMAINS

360° Degrees Feedback (Holistic)

- Peer
- Self
- Patient
- Teacher

Authentic Assessment Pedagogy

Students express their views; active learners and engaged in learning
Learning Behaviors and Attitudes

✎ Self – centered Pedagogy led to significant improvement of self-reported student engagement and satisfaction and increased academic performance. (Armbruster, Patel, Johnson, Weiss, 2009)

✎ A substantial studies have shown that active learning instructional approaches can lead to improved students’ attitude and increase learning outcomes. (Armbruster, Patel, Johnson, Weiss, 2009)

✎ Usage of the learning behavior scale is helpful in identifying learning – related behaviors that could be of value for recommending learning related interventions. (Canivez et al, 1999)
The aim of the study is to evaluate the change of learning attitudes and behaviors in nursing students as a result of the use of authentic assessment pedagogy.
Research Design and Methodology

- **Quasi – experimental study**

- **Experimental group (34 students)**
  - Procedural practice in the nursing lab + Use of Authentic Assessment Pedagogy with increase in frequency (3x per week)

- **Control group (34 students)**
  - Procedural practice in the nursing lab + Use of Authentic Assessment Pedagogy (1x per week)

**Instruments**

- Learning Attitude Pre & Post Survey
- Learning Behavioral Monitoring Indicator Through classroom observation (Pre and Post)

**Findings**

- Analysis (SPSS)
FINDINGS
<table>
<thead>
<tr>
<th></th>
<th>Hardly Ever</th>
<th>Occasionally</th>
<th>About Half the Time</th>
<th>Usually</th>
<th>Nearly Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In school, even if I'm not sure about the answer, I will shout it out in class.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.</td>
<td>I think out loud, telling out my ideas to other people.</td>
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<tr>
<td>3.</td>
<td>I worry a lot about making mistakes.</td>
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<td>4.</td>
<td>I want to think first all the possible answers before I respond to the question.</td>
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<tr>
<td>5.</td>
<td>I concentrate hard in my studies.</td>
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<tr>
<td>6.</td>
<td>I take time to do self-revision.</td>
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<tr>
<td>7.</td>
<td>I approach my teacher or peers for help in my studies.</td>
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<tr>
<td>8.</td>
<td>I ask teacher questions in class.</td>
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<tr>
<td>9.</td>
<td>I seek for information when needed.</td>
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</tr>
<tr>
<td>10.</td>
<td>I am interested to learn new things about the lesson.</td>
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</tr>
<tr>
<td>11.</td>
<td>I clarify my doubts about the lesson to my teacher.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>12.</td>
<td>If I make mistakes, I work until I have corrected them.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>If I can’t perform a skill, I keep practising till I master it.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15.</td>
<td>I am confident with my study.</td>
<td></td>
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</tr>
<tr>
<td>16.</td>
<td>I’m afraid people will laugh at me if I don’t say things right.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>17.</td>
<td>I can get good results in study.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>18.</td>
<td>Learning is enjoyable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I get a sense of satisfaction when I am able to answer a question correctly.</td>
<td></td>
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</tr>
<tr>
<td>20.</td>
<td>I look forward coming to school everyday.</td>
<td></td>
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</tbody>
</table>
Learning Attitude
Pre & Post Survey Result

Pre – Survey
- Nearly Always: 33%
- Usually: 25%
- Occasionally: 17%
- Hardly Ever: 7%

Post – Survey
- Nearly Always: 24%
- Usually: 35%
- Occasionally: 11%
- Hardly Ever: 7%

Legend:
- Orange: Hardly Ever
- Gray: Occasionally
- Brown: About Half
- Blue: Usually

Institute of Technical Education
## Behavioral Monitoring Indicators

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Carelessness</td>
</tr>
<tr>
<td>2</td>
<td>Having Poor Concentration</td>
</tr>
<tr>
<td>3</td>
<td>Distraction By Activities</td>
</tr>
<tr>
<td>4</td>
<td>Difficulty In Maintaining Attention</td>
</tr>
<tr>
<td>5</td>
<td>Difficulty in Remembering</td>
</tr>
<tr>
<td>6</td>
<td>Leaving Seat During Lesson</td>
</tr>
<tr>
<td>7</td>
<td>Having Little Energy</td>
</tr>
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<td>8</td>
<td>Being Easily Annoyed</td>
</tr>
<tr>
<td>9</td>
<td>Fidgets and Squirms</td>
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</table>
Results and Analysis Presentation Format

Behavioral Monitoring Indicators

- Pre-Intervention of AA Pedagogy
- Post-Intervention of AA Pedagogy

<table>
<thead>
<tr>
<th>Group</th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Pre-Intervention</td>
<td>increase</td>
<td>increase</td>
</tr>
<tr>
<td>Post-Intervention</td>
<td>increase</td>
<td>increase</td>
</tr>
</tbody>
</table>
Behavioral Monitoring Indicator

Having Poor Concentration

Before 27.6%

After 20.7%

Before 41.4%

After 10.3%
Results and Analysis

Behavioral Monitoring Indicator

Distraction By Activities

Before

Control

40%

2.48

40.00%

After

37%

2.30

37.07%

Experimental

Before

15%

0.94

15.12%

After

7.8%

0.48

7.80%
Result and Analysis

Behavioral Monitoring Indicator

Carelessness

Before 74.4%
After 0%

Difficulty In Maintaining Attention

Before 48.4%
After 0%

Before 52.5%
After 0%
Results and Analysis

Behavioral Monitoring Indicator

Leaving Seat During Lesson

- Before: 0%
- After: 13%
- Before: 86.9%
- After: 0%
Results and Analysis

Behavioral Monitoring Indicator

Difficulty in Remembering

- Control Group: Before 0%, After 65% (0.39, 65.00%)
- Experimental Group: Before 0%, After 35% (0.21, 35.00%)
Behavioral Monitoring Indicator

Having Little Energy

Before 60.9%

After 30.4%

Before 0%

After 8.3%

Groups:
- Control
- Experimental
Results and Analysis

Behavioral Monitoring Indicator

Being Easily Annoyed

Before 0%

After 54%

Before 37.8%

After 8.1%

Fidgets and Squirms

Before 24.2%

After 54%

Before 31.9%

After 11%
## Results and Analysis

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Behavioral Monitoring Indicator</th>
<th>Control</th>
<th>Experimental</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Carelessness</td>
<td>(0%)</td>
<td>(0%)</td>
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<td>(20.7%)</td>
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<td>(0%)</td>
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<td>(65%)</td>
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<td>(54%)</td>
<td>(11%)</td>
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**Overall – More Positive Outcomes**

12 ↓ vs 6 ↑
Conclusion

With the increased frequency of using Authentic Assessment as teaching pedagogy reduced students’ negative learning behaviors and improved their attitude of learning.

CAUSE
Frequency of Authentic Assessment as teaching pedagogy

EFFECT
Students’ negative learning behaviors and
Improved students’ attitude in learning.
Limitations and Recommendations

<table>
<thead>
<tr>
<th>LIMITATIONS</th>
<th>RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of the researchers involved in the pre &amp; post observation</td>
<td>Increase in the ratio of researchers</td>
</tr>
<tr>
<td>Visibility of researchers/observers while doing the pre &amp; post observation survey</td>
<td>Video taping</td>
</tr>
<tr>
<td>Observer’s bias</td>
<td>To involve more independent researchers</td>
</tr>
</tbody>
</table>

Future Directions

- Authentic Assessment through E-Learning
- To carry on a study on the occurrences of positive behavior.
- Authentic Assessment to be incorporated in the curriculum (e.g. Critical Thinking module)
- Correlation study between learning attitude & behavior


The team would like to give thanks to the following contributors:

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- Ms Yvonne Wu, LT/NUS
- Ms Vivien Lau, SH/NR
- Mr Ronnie Tan Hock Leng, LT/ITE

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