Benefits of Critical Thinking Instruction on Student Knowledge and Dispositions

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Abstract
The importance of critical thinking is widely recognized among educators. However, ongoing literature continues to evaluate the most effective methods for implementing critical thinking instruction. Building upon previous research, the current study examines the effects of critical thinking instruction on student critical thinking-related knowledge and dispositions. Researchers administered pre-tests and post-tests to 25 classes (spring 2012 to fall 2014) in order to gather data on the six recognized levels of knowledge: definition, identification, application, metacognitive processes, and metacognitive knowledge. Additionally, pre-tests, mid-tests, and post-tests measured seven self-reported student dispositions. The data was examined using a Repeating Measures ANOVA and revealed statistically and practically significant findings across the majority of student dispositions and levels of knowledge. The results of this study highlight the advantages of explicit critical instruction within the classroom.

Results

<table>
<thead>
<tr>
<th>Levels of Knowledge</th>
<th>Dispositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define</td>
<td>Truth-Seeking</td>
</tr>
<tr>
<td>Identify</td>
<td>Openmindedness</td>
</tr>
<tr>
<td>Application</td>
<td>Analytical</td>
</tr>
<tr>
<td>Metacognitive Processes</td>
<td>Systematic</td>
</tr>
<tr>
<td>Metacognitive Knowledge</td>
<td>Inquisitiveness</td>
</tr>
<tr>
<td></td>
<td>Cognitive Maturity</td>
</tr>
<tr>
<td></td>
<td>Cognitive Self-Conf.</td>
</tr>
</tbody>
</table>

Fig 1.3: CT Skills & Dispositions

Critical Thinking Skills Test & Disposition Tests
- Test design based on compilation of previous Critical Thinking research and literature reviews
- Study included two instruments:
  - Short-answer examination of five levels of knowledge
  - Likert scale instrument (1-6) measuring seven dispositions
- Tests scored by student researchers using standardized rubric
- Critical thinking skills taught and assessed were dependent upon individual class
- Dispositions assessed remained constant for all classes

Cronbach’s Alpha for CT Skills Test α=.820
Cronbach’s Alpha for Disposition Test α=.913

Fig 1.2: Cronbach’s Alpha Scores

Fig 1.4: Levels of Knowledge Scores

Fig 1.5: Levels of Knowledge Graph

Implications
- Results revealed a high statistically significant difference (p<.001) and a medium practically significant difference (η²>50) for all the CT skills data.
- Results also revealed a statistically significant difference (p<.01) and a practically significant difference (η²>20) for all of the disposition data.
- Findings from the critical thinking tests and disposition tests support the effectiveness of the critical thinking and disposition instruction.

References