Critical Thinking in Online Discussion Forums

Research Notes

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Summary of the Community of Inquiry (COI) Theory

1. The heart of higher education is collaborative critical inquiry to build and apply discipline knowledge to relevant issues and problems.

2. Asynchronous discussion is an ideal medium for collaborative critical inquiry because it affords full participation in discussion and time for reflection between messages.

3. Collaborative critical inquiry requires the social presence of all participants to support open communication and group cohesion.

4. Collaborative critical inquiry requires the cognitive presence of all participants in a process of problem recognition, exploration, integration, and resolution.

5. Collaborative critical inquiry requires a teaching presence to foster and guide the social and cognitive presence of participants.
Detailed Elements of the Community of Inquiry Theory

<table>
<thead>
<tr>
<th>Social presence</th>
<th>Projecting oneself socially and emotionally as a real person</th>
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<tbody>
<tr>
<td>Open and effective communication</td>
<td>Exchanging and critically examining information and ideas</td>
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<tr>
<td>Group cohesion</td>
<td>Working collaboratively toward a common goal</td>
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See [http://novaonline.nvcc.edu/faculty/chilestips/player.htm](http://novaonline.nvcc.edu/faculty/chilestips/player.htm) for tips on creating social presence.

<table>
<thead>
<tr>
<th>Cognitive presence</th>
<th>Engagement in critical inquiry through sustained reflection and discourse</th>
<th>Involves many aspects of critical and creative thinking</th>
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<tbody>
<tr>
<td>Trigger event</td>
<td>Identifying or recognizing an issue or problem</td>
<td>Analysis</td>
</tr>
<tr>
<td>Exploration phase</td>
<td>Examining all aspects of the problem; gathering information; considering knowledge that may be relevant</td>
<td>Knowledge transfer; questioning assumptions; brainstorming; creative insights; diverse perspectives; citation</td>
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<tr>
<td>Integration phase</td>
<td>Making sense of data and ideas generated; constructing meaning (new knowledge); identifying potential solutions</td>
<td>Analysis; synthesis; inductive and deductive reasoning</td>
</tr>
<tr>
<td>Resolution phase</td>
<td>Building consensus for one solution</td>
<td>Evaluation; informed judgment; warrants and argument; hypothetical reasoning</td>
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Garrison, Anderson, & Archer (2001)

<table>
<thead>
<tr>
<th>Teaching presence</th>
<th>Management of social and cognitive processes to obtain learning outcomes</th>
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<tbody>
<tr>
<td>Design</td>
<td>Planning learning activities and preparing support materials</td>
</tr>
<tr>
<td>Facilitating discourse and direct instruction</td>
<td>Supporting and guiding the learning process as it happens</td>
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Garrison (2007)
## Principles for Practice

<table>
<thead>
<tr>
<th>Design Strategies</th>
<th>Facilitation Strategies</th>
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<tr>
<td>• Assign authentic, meaningful, open-ended issues or problems to resolve. (Bain, 2004; Fink, 2003; Garrison, 2007)</td>
<td>• Insert feedback messages that let students know when they are on or off track relative to the inquiry process (Ambrose et al., 2010)</td>
</tr>
<tr>
<td>• Prepare students for critical inquiry and collaboration by defining and explaining value. (Garrison, 2007; Palloff &amp; Pratt, 2005)</td>
<td>• Insert direct instruction messages to aid/reinforce key content understanding. (Garrison, 2007)</td>
</tr>
</tbody>
</table>
| • Structure the collaborative inquiry process with clear directions, rubrics, and examples. (Garrison, 2007; Palloff & Pratt, 2005) | • Use questions to promote deeper inquiry and critical thinking:  
  o Clarification questions prompt better understanding of the problem and related ideas.  
  o Evidence questions prompt informed thinking.  
  o Linking questions prompt construction of meaning.  
  o Hypothetical and cause-and-effect questions prompt virtual testing of ideas.  
  o Summary and synthesis questions prompt consensus and conclusions. (Brookfield, 2005) |
| | • Insert messages early enough in the process to change behavior. (Ambrose et al., 2010) |
| | • Model good critical inquiry and social presence practices in your messages. (Palloff & Pratt, 2005) |
Bibliography


Studies of critical thinking instruction show a positive effect, especially when it is an explicit objective and element of a course, and when instructors have been trained.


A review of findings from seven broad areas of research on learning, and the implications for teachers.


A content analysis protocol for assessing teaching presence in course materials and discussion forum transcripts.


Teaching presence, social presence, and cognitive presence predict perceived learning.


A comparison of online courses with discussion used to promote critical thinking shows students report higher use of critical thinking in courses in which 1) discussion was used more frequently and consistently, 2) discussion was a significant element of the course grade (at least 10%), 3) a separate forum was available for socializing, 4) critical thinking was explicitly encouraged, 5) students were given explicit directions for how to participate, 5) instructors posted approximately every 2-10 student postings and purposefully, and 6) instructor comments were neutral regarding ideas, but asked questions and encouraged further thought and discussion.


Findings from a qualitative study of the practices of exemplary professors. The best teachers create a natural critical learning environment by 1) posing intriguing problems or questions, 2) helping students recognize the significance of the problem, 3) asking students to answer the question or solve the problem using higher-order thinking, 4) helping students answer the question or solve the problem, and 5) encouraging students to ask the next question and continue inquiring.

The number of interpersonal messages correlates positively with the amount of interactive content of discussions.


A classic for instructors on why discussion is an important element of teaching, how to initiate discussion, how to keep it going, and how to deal with issues that may hinder it.


A handbook for instructors that defines critical thinking from an adult education perspective, examines critical thinking traditions across different disciplines, provides a variety of strategies and techniques for teaching critical thinking skills within and across disciplines, and suggests ways to handle common pitfalls.


Student discussions can exhibit all phases of inquiry and result in integration and creation of new knowledge, depending on “intensity” of interaction in the integration phase (building on ideas stated by others). The level and style of tutor participation is important to the achievement of higher levels of meaningful learning.


A consensus definition of critical thinking developed by a panel of experts using the Delphi method.


A guide for designing college courses that are meaningful and memorable.


A review of research related to the COI framework and discussion of construct validity and methodological issues.


The seminal article presenting the community of inquiry (CoI) framework.

A content analysis protocol for assessing cognitive presence in discussion forum transcripts.


A review of research related to the community of inquiry theory.


Students adopt a deep learning approach in a course with required critical discourse and high teaching presence.


A review of research on group productivity shows that group performance is generally superior to the performance of the average individual in both quantity and quality.


Students in a course with no discussion participation by the instructor scored lower on a subsequent critical thinking task than either students in a course with high discussion participation by the instructor or students in a face-to-face course with high discussion participation by the instructor.


In a meta-analysis of studies comparing classroom and online instruction, online instruction was slightly more effective than classroom, and hybrid even more so. This effect was strongest when online conditions supported expanded time on task and opportunities for collaboration.


The bulk of postings in threaded discussions fall into the exploration phase, but integration and resolution also occur. Students cite increased time on task and
increased time for reflection as advantages of online discussion, and immediacy and energy as advantages of face to face discussions.


A practical guide for online teachers for designing and facilitating collaborative learning activities.


Both perceived social presence and number of postings correlated positively to performance on a written case study assignment designed to assess integration of multiple perspectives, but not to performance on an objective multiple-choice examination.


Students with high perceptions of social presence also show high perceptions of learning and satisfaction with the instructor.


A content analysis protocol for assessing social presence in discussion forum transcripts.


A definition of critical thinking.


Students’ perceptions of their instructors’ teaching presence skills and their own social presence skills account for 70% of the variance in their perceived level of cognitive presence. Students appreciate instructors’ judicious participation in discussions that helps keep participants focused on relevant topics.


Student perception of learning and satisfaction correlate with perception of all three aspects of teaching presence (design, facilitation, and direct instruction).

Student perceptions of learning and satisfaction correlate with clarity and consistency of course design, contact with instructors, and active and valued discussion.


Teamwork orientation and group cohesiveness predict team-based student learning.