CRITICAL THINKING

- How do you define critical thinking?
- Where is it most important to engage in critical thinking in your discipline (teaching environment)?
- Where do you see students having the biggest challenges with it?
- What are some strategies you have used to incorporate it into the classroom and your course(s)?
Defining Critical Thinking

“The intellectually disciplined process of **actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating** information gathered from, or generated by, **observation, experience, reflection, reasoning, or communication** as a guide to belief and action in its exemplary form. It is based on universal intellectual values that **transcend subject matter divisions**: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.” (3)

Critical thinking is the active, persistent, and careful consideration of a belief or form of knowledge, the grounds that support it, and the conclusions that follow. It involves analyzing and evaluating one’s own thinking and that of others. In the context of college teaching and learning, critical thinking deliberately and actively engages students in:

- Raising vital questions and problems and formulating these clearly and precisely;
- Gathering and assessing relevant information;
- Reaching well-reasoned conclusions and testing them against appropriate criteria and standards;
- Openly considering alternative systems of thought or points of view; and
- Effectively communicating to others the analysis of and/or proposed solutions to questions or problems.

The Intellectual Standards for evaluating Critical Thinking are:

- **Clarity**: easy to understand; free from confusion or ambiguity; lacking obscurities.
- **Accuracy**: free from errors, mistakes, or distortions; conforming to fact, truth, or some standard.
- **Precision**: accurate, definite, and exact.
- **Relevance**: bearing upon or relating to the matter at hand; having a close logical relationship to the matter under consideration.
- **Significance**: having relative importance.
- **Depth**: dealing with the complexities of the issue.
- **Breadth**: recognizing insights in more than one side of a question.
- **Logic**: reasoning correctly within the system of principles, concepts, and assumptions that underlie a discipline, activity, or practice; understanding the set of rational considerations that bear upon the truth/justification of any belief or the settlement of any question(s).
- **Fairness**: treating all sides alike without reference to one’s own feelings or interests.
CREATIVE THINKING

- How do you define creative thinking?
- What are the biggest challenges to incorporating creative thinking into your discipline or curriculum?
- Where do students struggle with creative thinking?
- Why is it important in your discipline to use creative thinking?
- Can you see opportunities for how it might be incorporated?

Testing Creativity

Creativity Tests (including TTCT- Torrance Test of Creative Thinking) measures creativity primarily by discrete, non-judgmental tasks that focus on:

- Fluency of thought – number of alternatives generated
- Flexibility of thought -- diversity of topics/types represented in alternatives
- Originality of thought -- statistical rarity of the responses
- Elaboration of one’s own thinking -- the ability to add details and fill in the gaps

TTCT Test Developed by Ellis Paul Torrance building on the work of J.P. Guilford in 1996 and has been renormed 4 times since.
Testing Creativity: TTCT

Starting Shapes

Use

Combine

Complete

Sample TTCT question Developed by Ellis Paul Torrance.

Testing Creativity: TTCT

<table>
<thead>
<tr>
<th>Starting Shapes</th>
<th>Completed Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>Mickey Mouse</td>
</tr>
<tr>
<td>Combine</td>
<td>King</td>
</tr>
<tr>
<td>Complete</td>
<td>A fish on vacation</td>
</tr>
</tbody>
</table>

Sample TTCT question Developed by Ellis Paul Torrance.
Expanding What Defines Creativity

In addition to having eccentric or unique thoughts- creativity involves preparation, incubation, insight, evaluation, and elaboration. (1)

Judgements about the appropriateness and usefulness of ideas and the ability to be adaptive within task constraints are essential criteria for creative thinking. (2)

It is important for creative thinking to move across vehicles of thought, from numbers to verbal language to visual imagery. (3)


QEP Definition of Creative Thinking

“Creative Thinking is generating new ideas within or across domains of knowledge, drawing upon or intentionally breaking with established symbolic rules and procedures. In the context of college teaching and learning, creative thinking, deliberately and actively engages students in bringing together existing ideas into new configurations, developing new properties or possibilities for something that already exists, and discovering or imagining something entirely new.”
Creative Thinking Intellectual Standards

The intellectual standards for judging Creative Thinking are:

- **Originality** – constructive imagination and independent thought.
- **Adaptability and flexibility** – the ability to adjust thinking under new or unstable conditions and to move among various vehicles of thought (numerical, linguistic, visual) depending on the situation or context.
- **Appropriateness** – goodness of fit between the constraints of the problem and the properties of the solution.
- **Contribution to the domain** – the accepted worth of new ideas within the discipline.

“CREATIVICAL” THOUGHT

- How might creative and critical thought be merged in your classroom?
- Is there an assignment or a module where you could emphasize these two things concurrently?
- Is your motivation for being part of Th!nk to inject more creativity in the classroom? More criticality? a mixture?
- Where have you seen the biggest issues?
In the late nineteen-forties, Alex Osborn, a partner in the advertising agency B.B.D.O., decided to write a book in which he shared his creative secrets. At the time, B.B.D.O. was widely regarded as the most innovative firm on Madison Avenue. Born in 1888, Osborn had spent much of his career in Buffalo, where he started out working in newspapers, and his life at B.B.D.O. began when he teamed up with another young adman he’d met volunteering for the United War Work Campaign.

By the forties, he was one of the industry's grand old men, ready to pass on the lessons he’d learned. His book “Your Creative Power” was published in 1948. An amalgam of pop...
TH!NK Video
Discipline-specific Critical + Creative Process Activity
Gather information to empathize more fully with users.

Define, analyze and redefine wicked problems

Evaluate constraints, reach conclusion about production.

Communicate functionality, usability and innovation.

Translate, test and program and solutions.

Consider alternative programs and solutions.

Critical and Creative Thinking in Design.

- Is my idea clear?
- What gap does it fill?
- Is my research connected to my outcome?
- Have I been thorough?
- How is this contributing to future designs and to the world?

- What are user needs and wants?
- What is their frame of reference?
- How has past experience shaped current understanding or use?
- What are the different points of view?
- What are my assumptions about the users and product?

- Do I have enough time?
- Is this feasible to produce?
- Will it be economical?
- Will there be a market?
- Are my compromises worthwhile?

- What are the wicked problems?
- What are the subproblems?
- What other problems that might arise?
- Have I looked at this from all angles?

- How will this work?
- How will it be produced?
- How will it look?
- What are the potential consequences?
- Am I being flexible and adapting what I’ve learned?

- What are the components that need to be included?
- What is the experience of using it?
- How do the form and function relate?
- How can I challenge myself to gain insight? Have I explored all possibilities?

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Critical and Creative Thinking in the Humanities

Define the problematic.

Examine primary texts/images/films/theory, formulate a question.

Gather secondary sources, refine problematic.

Consider alternative solutions.

Communicate argument effectively.

Reach reasoned and novel conclusions.

- Does I clearly defined the problematic?
- Have I thoroughly addressed all areas defined in the problematic?
- Does the organization/visual presentation aid the argument?
- Does it address audience at their level of expertise/interest?

- What questions arise from the text(s)?
- What specifically elicits these questions (key notions)?
- What are the relations between the key notions/texts/forms?
- Which question is most pertinent (to CFP, conference, course, interest, etc.)?

- What is the literary/historical/theoretical context of "text"?
- What is the critical consensus on this topic/text?
- What remains to be examined (gaps)?
- What are possible theoretical approaches to the question?
- Why does this question matter?

- What are the main axes of analysis?
- What subquestions must be addressed to reach a reasoned conclusion?
- What is the scope of the question to be considered?

- What is the quality of my sources (scholarship record, publication, etc.)?
- What contradictions arise within primary and/or secondary sources?
- Should I consider alternative theoretical approaches?

- Does what I conclude follow from the evidence I present?
- How and in what ways does my argument differ from or expand upon other analyses?
- What does my argument contribute to the domain?
Tailor to Behaviors in Your Discipline