ECI 709  CREATIVITY AND CRITICAL THINKING

Spring 2013
Thursday 4:10pm-6:55pm, 209 Poe Hall
3 credit hours
Graduate standing requirement

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Office Hours: Tues./Thurs. 1-3pm and by appointment

COURSE DESCRIPTION
This course provides an in-depth study of how creativity and critical thinking impacts learning in a variety of ways. The emphasis in the course will be a survey and critical examination seminal research articles related to both topics.

TEXTS, READINGS AND INSTRUCTIONAL RESOURCES

Required Text: Research article packet

LEAD and SERVE constitute the conceptual framework for all programs for professional educators in the College of Education at NC State. They are the touchstones that assure that our students graduate with the following:

- **LEAD**: four forms of knowledge; general pedagogy, content-specific pedagogical strategies, content or discipline knowledge as well as knowledge of the content of education, including foundations, historical perspectives and school settings.

- **SERVE**: elements that show the range of dispositions developed in our candidates; scholarly, ethical, reflective, valuing diversity and experienced in practical application of knowledge.
Course Overview

This course objectives address the following elements of the conceptual framework:

- **L**: Learn general pedagogy
- **E**: Educate with content specific strategies for teaching, may include technology
- **A**: Apply discipline or content specific knowledge
  - Translate findings from existing literature into a unique research proposal.
  - Articulate how findings from studies of creativity and critical thinking impact personal professional development.
  - Compare and contrast theories of creativity and critical thinking and discuss their implications for teaching and learning.
- **D**: Demonstrate understanding the educational context, i.e., school culture, societal issues
- **S**: Scholarly knowledge base to guide educational decisions
  - Define creativity and critical thinking and explain their significance for learning.
  - Develop a knowledge base about the role of creativity and critical thinking in learning and cite current research findings related to educational implications of such research.
  - Identify strategies for encouraging creative abilities and critical thinking in students.
  - Develop empirical research proposals to further research in the field of creativity and critical thinking.
  - Develop critical evaluation skills when reading journal articles with empirical investigations.
- **E**: Ethical disposition for behaving with respect, integrity, personal responsibility
- **R**: Reflective and self-evaluative
- **V**: Value diversity with a sensitivity to cultural, economic, developmental, ethnic, racial, gender, religious and sexual orientation differences
- **E**: Experienced in practical application of knowledge

**Teaching strategies**: Class discussions, group work, reflection, electronic communication, inquiry activities, lecture
Major Assignments:

<table>
<thead>
<tr>
<th>Class Format</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation &amp; Manuscript Review</td>
<td>20</td>
</tr>
<tr>
<td>Session Leadership</td>
<td>20</td>
</tr>
<tr>
<td>Weekly Response Sheets</td>
<td>20</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>40</td>
</tr>
</tbody>
</table>

**Class Format**

The purpose of this course is for you to develop a coherent understanding of research in the areas of creativity and critical thinking. In addition, a focus will be on you translating this knowledge into something that is usable to you in your present/future career and/or research agenda. Being a doctoral seminar, I expect you to take ownership over the course and work in a self-directed manner.

A variety of topics will be covered (see tentative schedule) and class members will take turns leading the discussion each week. Assigned articles should be read before coming to class, and you should have access to them in class on the day they are to be discussed. Each student will lead or co-lead two class sessions. Session leaders will: (a) facilitate the class discussion by preparing discussion questions, (b) present one outside empirical article related to the week’s topic, and (c) conduct a short activity (10 minutes) illustrating the use/practice of one creative strategy or one approach to critical thinking (see provided strategies). When you present your additional article please take 5-10 minutes to give an overall summary of the findings, the major research questions, the target population, the dependent measures, and any important implications. Your strategy/skill illustration exercise should be something relevant and challenging for the class members (as opposed to other populations). All students are expected to attend each class ready to discuss the topic assigned for that week. The typical class format will be an interactive discussion involving the instructor and all students.

**Grading Scale**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>% Correct Needed</th>
<th>What this grade means</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97%</td>
<td>Demonstrated the highest level of mastery of concepts, including the ability to apply these concepts to real situations</td>
</tr>
<tr>
<td>A</td>
<td>93%</td>
<td>Demonstrated mastery and ability to apply at least some of these concepts to real situations</td>
</tr>
<tr>
<td>A-</td>
<td>90%</td>
<td>Demonstrated mastery of basic concepts</td>
</tr>
<tr>
<td>B+</td>
<td>87%</td>
<td>Demonstrated minimal mastery of topics</td>
</tr>
<tr>
<td>B</td>
<td>83%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>B-</td>
<td>80%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>C+</td>
<td>77%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>C</td>
<td>73%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>C-</td>
<td>70%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>D+</td>
<td>67%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>D</td>
<td>63%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>D-</td>
<td>60%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60%</td>
<td>Failed to demonstrate mastery of any topics</td>
</tr>
</tbody>
</table>

*Class Participation (20%).* The class participation grade will be determined by class attendance, active participation in class discussions, and completion of one manuscript review. Absences will affect the participation score (1 point deducted for each of the first two misses; 2 points deducted for each miss after this). The manuscript review (5pts.) will involve you taking the role of a journal reviewer and writing a review of a blind manuscript provided by John.

*Session Leadership (20%).* The session leadership grade (10 points per each leadership session) is determined by: (a) the ability to engage the group in active discussion, (b) the outside article presentation, and (c) presentation of the creativity/critical thinking activity. A high-quality supplemental exercise/reading is one that stimulates thought and relates to the week’s topic. Successful facilitation will hinge on you having thought provoking questions and well-organized summaries. In addition, consider a novel or creative activity or exercise to illustrate your topic and/or the readings. The goal here is to promote discussion and elaborate on the readings so that class members gain well-organized knowledge
and also consider what to do next with this knowledge. For the outside article presentation, the
session leader should select an article that is relevant, send a digital copy to the class at least one
day in advance of class, present the material clearly, and field questions about the article as they
arise.

Weekly Response Sheets (20%). I will provide you with a template (Word doc) that provides
questions for you to answer regarding each session’s readings. You should complete a
Response Sheet for each class session and bring it to class with you and email it to John before
class. The Response Sheets will aid us in our group discussion and hopefully provide you with
a succinct set of notes that you can refer back to in the future.

Research Proposal (40%). Each student will write a proposal for an empirical research study,
preparation of an empirical paper for publication, or a conceptual overview or argumentative
manuscript related to creativity or critical thinking. The final form of the project will include (a)
a written paper between 10 and 20 pages in length; and (b) an oral presentation of that paper in
class. Research proposals should conform to APA style. The paper should center on a study
that could conceivably be executed and submitted in the next year to a national or international
conference (e.g., AERA, APA, IRA, etc.) or to a journal for publication. In the middle of the
semester class time will be set aside for individual meetings to discuss your proposal.

Class Discussion

This is a doctoral seminar class and a unique opportunity for you to delve deeply into a subject
area with your peers. The success of the class depends upon your interactions with each other
and your conscientiousness towards the readings and subject area. I strongly encourage you to
participate in classroom discussion and to ask questions when you do not understand
something. I hope to encourage a class with a relaxed atmosphere in which all students feel
comfortable participating. It is my goal that you look back on this class as a challenging yet
rewarding learning experience that furthers your career and ability to think and analyze
research in general.

IMPORTANT INFORMATION

Students are bound by the academic integrity policy as stated in the code of student conduct.
Therefore, students are required to uphold the university pledge of honor and exercise honesty
in completing any assignment. See the website for a full explanation:
http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php

Reasonable accommodations will be made for students with verifiable disabilities. In order to
take advantage of available accommodations, students must register with Disability Services for
Students at 1900 Student Health Center, Campus Box 7509, 515-7653.
http://www.ncsu.edu/provost/offices/affirm_action/dss/ For more information on NC
State’s policy on working with students with disabilities, please see
http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php

The College of Education’s Conceptual Framework may be found in its entirety at
http://ced.ncsu.edu/about/conceptual_framework.htm
Creative Strategies and Critical Thinking Skills

Creativity Strategies:

1. Brainstorming / Reverse Brainstorming
2. Lateral Thinking
3. Random Input
4. Analogy Technique / Forced Analogy / Mind Mapping
5. Metaphorical Thinking
6. Synectics
7. The Discontinuity Principle
8. Storyboarding
9. Lotus Blossom Technique
10. Assumption Smashing
11. Escapism Technique
12. Search and Reapply Technique
13. Idea Checklist / SCAMPER
14. Attribute Listing / Morphological Charts / Morphological Forced

Collegiate Learning Assessment (CLA) skills important for critical thinking:

1. Determine what information is or is not pertinent
2. Distinguish between rational claims and emotional one
3. Separate fact from opinion
4. Recognize the ways in which evidence might be limited or compromised
5. Spot deception and holes in the arguments of others
6. Present his/her own analysis of the data or information
7. Recognize logical flaws in arguments
8. Draw connections between discrete sources of data and information
9. Attend to contradictory, inadequate, or ambiguous information
10. Construct cogent arguments rooted in data rather than opinion
11. Select the strongest set of supporting data
12. Avoid overstated conclusions
13. Identify holes in the evidence and suggest additional information to collect
14. Recognize that a problem may have no clear answer or single solution
15. Propose other options and weigh them in the decision
16. Consider all stakeholders or affected parties in suggesting a course of action
17. Articulate the argument and the context for that argument
18. Correctly and precisely use evidence to defend the argument
19. Logically and cohesively organize the argument
20. Avoid extraneous elements in an argument’s development
21. Present evidence in or order that contributes to a persuasive argument?
# Tentative Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/10</td>
<td>Course Overview</td>
</tr>
<tr>
<td>1/17</td>
<td>An Overview of Creativity (Michael, Meghan)</td>
</tr>
<tr>
<td>1/24</td>
<td>An Overview of Critical Thinking (Seung)</td>
</tr>
<tr>
<td>1/31</td>
<td>Assessing Creativity and Critical Thinking (FuFu, Ondra)</td>
</tr>
<tr>
<td>2/7</td>
<td>Instructional Approaches to Enhance Creativity (Michael, Meghan)</td>
</tr>
<tr>
<td>2/14</td>
<td>Instructional Approaches to Enhance Critical Thinking (Daniell)</td>
</tr>
<tr>
<td>2/21</td>
<td>Cross Cultural Issues in Creativity &amp; Critical Thinking (FuFu, Ondra)</td>
</tr>
</tbody>
</table>
| 2/28  | The Relationship between Metacognition and Creativity and Critical Thinking (Dan)  
        | Manuscript Review Discussion; Research Proposal Discussions           |
| 3/7   | Spring Break – No Class!                                              |
| 3/14  | Creativity in Advanced Learning Technologies (Melissa)                |
| 3/21  | Critical Thinking in Advanced Learning Technologies (Melissa)         |
| 3/28  | Spring Holiday – No Class!                                            |
| 4/4   | The Impact of Rewards on Creativity (Seung)                            |
| 4/11  | Issues of Transfer in Creativity and Critical Thinking (Daniell, Dan)  |
| 4/18  | Open Topic                                                            |
| 4/25  | *Research Proposal Presentations*                                     |
| 4/29  | *Research Proposal Papers Due*                                        |
Readings in Creativity and Critical Thinking

An Overview of Creativity:


An Overview of Critical Thinking:


Assessing Creativity and Critical Thinking

Instructional Approaches to Enhance Creativity:

Instructional Approaches to Enhance Critical Thinking:

Cross Cultural Issues in Creativity and Critical Thinking

The Relationship between Metacognition and Creativity and Critical Thinking:

Creativity in Advanced Learning Technologies:

Critical Thinking in Advanced Learning Technologies:

The Impact of Rewards on Creativity


Issues of Transfer in Creativity and Critical Thinking:

Open Topic: