Thinking, Learning, and Computers
CRCRTH 670 (online)
Syllabus – Fall 2009

Critical and Creative Thinking Program, Graduate College of Education, UMass-Boston

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Online chat office hours: Tuesdays from 8:00-9:00pm, Eastern time (use the Blackboard system), or other times by appointment.

Required materials:

- **headset earphones with a built-in microphone**, for online live-voice communications that will happen occasionally throughout the course; please do not use your computer's built-in microphone with desktop speakers - this will create distracting feedback during these sessions

No books are required. All readings will be distributed electronically through the Blackboard system.

Course Description

This course considers the consequences of using computers to aid our thinking, learning, communication, and action in classrooms, organizations, and social interactions. Class activities acquaint students with specific computer-based tools, the ideas and research behind them, and themes for critical thinking about these ideas and tools.

We will focus on the idea of information literacy in particular, as we seek to understand the growing complexity that is taking place in the way that computers and digital technology influence, and are influenced by, thinking and learning. This includes the need to use critical thinking skills to make sense of the enormous amount of information that becomes accessible through computers, as well as the way that various formats of information and computer-based resources might support thinking and learning. We consider computers in contexts such as collaborative thinking, applications to education and other fields, and understanding ourselves in a digital culture.

Goals and Objectives

- Develop an understanding of how computers may influence critical and creative thinking and learning within professional and personal life
- Establish a framework for defining information literacy within your area of work and defining the role of computers within that framework
- Identify the benefits and limitations of computers in enhancing thinking and learning and consider the balance between using computer-based tools vs. other tools or approaches to developing thinking and learning
- Experience and explore a number of specific personal and collaborative computer-based resources that create new possibilities for understanding information and relationships between ideas, and determine how and when it is appropriate to use them in your own work

Overview of Course Schedule

Generally, we will move through four themes related to thinking, learning, and computers:

Theme 1: Information Literacy

We explore the idea of information literacy as a way to think about the abundant information that becomes accessible through computer-based resources. In particular, we seek to relate critical thinking to information literacy by extending the idea of simply finding and evaluating information to understanding how the information that we find can be used along with other strategies for "knowing". We'll consider how information literacy, the media, and our thinking are interconnected when it comes to understanding the world and think about how the information literacy skill influences the roles we play in work and life.

- Session 1: Understanding Information Literacy (Sept. 14-20)
- Session 2: Information Literacy and Media (Sept. 21-27)
- Session 3: Information Literacy and Personal Identity and Roles (Sept. 28-Oct. 4)

Theme 2: Computers and Collaborative Thinking Within Social Contexts

Particularly due to the expansion of the Internet and World Wide Web, computers become powerful resources for connecting with others. We will consider how our thinking and learning are influenced when we can access not only the basic information of the world but also the minds of others through written, verbal, artistic, and other expressions. We will also practice with a number of online and collaborative tools and make observations about how they affect our thinking.

- Session 4: Computers and Collaborative Thinking I (Oct. 5-11)
- Session 5: Computers and Collaborative Thinking II (Oct. 12-18)
- Session 6: Computers, Culture, and Community (Oct. 19-25)

Theme 3: Field-Specific Applications of Thinking, Learning

In addition to the way that computers can support collaborative thinking, they can also be used as specific tools that can shape information in ways that allow us to view it differently and find unique understanding. Computers present information not only in the form of the written word but also through a number of visual representations. Also, many computer applications and resources claim to directly support learning and even enhance critical and creative thinking. We will explore this idea and examine if, why, and how computers try to accomplish this in ways that are not possible in non-computer approaches.

- Session 7: Computers as Educational/Research Tools I (Oct. 26-Nov. 1)
- Session 8: Computers and Educational/Research Tools II (Nov. 2-8)
- Session 9: Computers and Visualization Tools (Nov. 9-15)
- Session 10: Computers, Thinking, and Writing (Nov. 16-22)
- Session 11: Computers Within Other Fields of Work: Science, Art, Business (Nov. 23-29)

Theme 4: Future Directions of Human and Computer Thinking

Trends and advancements in thinking, learning, and computers often center around the idea of "intelligence", where computers are designed to mimic the problem-solving and decision-making ability of people, and then

go beyond it. We will examine our own thinking through a basic understanding of how computers are designed according to what we believe we know about human thinking. We'll also imagine how the culture of thinking and learning might change as computer technology becomes more integrated into life and is used to automate more and more processes.

- Session 12: Computers as Representations of Human Thought (Nov. 30-Dec. 6)
- Session 13: Future Directions and Considerations (Dec. 7-13)

Online Course Elements

Please see the CCT program's Student Guide for Getting Started in Online Courses.

This course is offered online through UMass-Boston's division of Corporate, Continuing, and Distance Education (CCDE). We use the UMassOnline web-based system (http://boston.umassonline.com/), which uses the software product Blackboard Vista, a content learning management system, to store and present class materials. You will hear this commonly referred to simply as "Blackboard". Each student will receive an account to log in to this system and access the materials (separate from your other UMass accounts), and weekly activities and readings will be located there. Students will also submit assignments through the Blackboard system.

As required by UMass-Boston for fully online courses, our course will have at least 2 live-voice sessions throughout the semester, and participation is required. Most likely, these will be scheduled on Tuesday or Thursday evening, and we will make a strong effort to make sure that they take place when the greatest number of students are available. These sessions take place by using the Blackboard system, which includes a type of online conference call feature where we will have a live-voice, real-time conversation (using headphone microphones). There will be a chance to practice using the Blackboard tools in advance of the scheduled session.

Interactions in our online course depend largely on written communication, primarily by sending messages to each other through the Blackboard system. While we may not have the same opportunity for immediate, highly attentive face-to-face involvement that occurs when sharing the physical space and time of a classroom, we create flexibility by allowing students to decide when and how to complete the work during a week of time. At the same time, we still look to establish a "community" of learners among ourselves, which can be enhanced through some basic principles, such as the following:

- sending messages or posing questions to the whole class whenever appropriate, rather than to individuals, so that all benefit from the discussion and responses
- being timely when responding to messages from others
- being explicit in written communications so that meaning, intentions, and motivations are clear
- following rules of etiquette for online communications

Structure of Each Class Session

Each week, we will participate in some activities that support the topics and themes discussed above. Each session has 3 main segments:

Prereading Activities: These activities serve as an introduction to the week's topic, often involving you directly in using computer-based tools, giving you space to reflect on what you already know and believe, and providing a warm-up to the topic. These activities vary based on the topic and may include a small number of

live-voice conversations as a whole class. The Prereading Activities will always total 15 points.

Readings: These are a set of articles that provide research, news on current events, and commentary on the weekly topic. Typically, around 3-4 required articles will be assigned each week, and there may be times when you are asked to choose a few out of several options as they match your particular interest.

Postreading Activities: These activities serve to help you process the readings and engage with others to develop your understanding of thinking, learning, and computers. These will typically include a 1-2 page written response to the readings, participation in a discussion board with others in the class, and your own identification of another article, web site, project, editorial, or other resource to share with the class that relates to the readings. Later in the course, some other activities might be included, but they will always total 20 points.

The materials for each class session (=weekly period) will be available to students no later than the Monday morning of that session. The entire set of materials for the course, such as readings and activities, are not available to students for all weeks of the course. Just like it would not make sense in a face-to-face classroom to force a whole month of 2-hour class sessions into a single long day, it creates a potential for confusion if all materials were available all of the time. Even in a well-organized online system, everything begins to blend together in a mass of text and links if too much is presented at once. Also, because some assignments involve commenting on the materials, it is helpful to make sure that comments are being made to materials that have already been read by others.

Expectations for Assignments and Grading Structure

Unless otherwise indicated in the specific instructions, please submit all assignments as attachments. Microsoft Word documents (.doc) or Rich Text Format (.rtf) is preferred. Some assignments allow you to interact with or type directly on the course page, but many ask you to submit a document, and you can do this through the Blackboard system.

Instructions for each assignments are included in each one. It is strongly recommended to go through the assignments in the order presented. You will have 1 week to complete all of the assignments for each class session, and all assignments and readings must be completed properly and on time to receive credit. In order for an assignment to be considered "proper", it must include more than a superficial response or idea. Often, there is a source to which you are responding (like a fellow classmate's discussion board post, or an editorial article). Use the idea of "value-added" as a rule of thumb. It is not enough to write on a discussion post that you agree or disagree with someone else – explain why and include an example if possible. Anything that you submit must add value to the original source – is it worth someone else's time to read or view your contribution? Keep in mind that this does not require being completely creative or original, and may include questioning the source,

Each course week runs from Monday to Sunday, as indicated from the weekly schedule above. Generally, all assignments for a previous week will be due at 9:00am on Monday of the current week. Late assignments will not be accepted since many of our assignments involve discussion with and response to messages from other students. Typically in this course, simply completing the assignment properly, as described above, and according to the instructions, provides full credit. For some assignments, the points are indicated as the sum of two values, such as "8 + 2 = 10 points". This means that the assignment is worth 10 points. You receive 8 points upon submitting the assignment on time. After review, you may receive comments, feedback, or additional questions from the instructor. If you respond and address the comments, you will receive the other 2 points. We do this to allow for an additional type of dialogue to occur, where an assignment is not a product

that needs to be submitted in perfect form just to please the instructor, but a way to help yourself to make progress toward new understanding but acknowledge that it may not be your final and unchangeable perspective.

Some work may change based on student interest and emerging innovations that may become apparent in the computer/digital world, but amount of work will not increase once the semester starts. Everyone has lives and responsibilities outside of the course, so we acknowledge that online learning can require both time and patience. Please inform the instructor about any concerns or questions that you may have about completing the work.

Course points and Grading:

- 15 points (prereading) + 20 points (postreading) = 35 points/week x 13 weeks = 455 points
- Mid-term reflection paper = 25 points (see Special Projects below)
- Final project = 75 points (see Special Projects below)
- = 555 TOTAL POINTS

Grading: minimum points for A = 515, A- = 483, B+ = 444, B = 415, B- = 385, C+ = 355, C = 305

Mutual Teaching and Learning

In this course, we will make an effort to create a community of mutual teaching and learning, and some of the activities require engaging with others in the class, responding in a timely way, and getting feedback. Keep in mind that all of the activities are intended to enhance your understanding of thinking, learning, and computers by providing a variety of hands-on practice and conceptual inspiration. Please consider that we all depend upon each other and benefit from our interactions.

At all times, you are welcome to approach the material with respect to your own field of work and use it to make sense out of issues that are important to you.

In other online courses, we know that some of the logistical challenges of online learning come up – technological, communication, etc., and the instructor and students try to "get around" them to get on with the course work. In this course, I propose that we make any of these issues part of the course – let's keep track of them and be particularly conscious of how the online environment affects our ability to learn from each other, especially in the face of what we lose from face-to-face contact.

In this course, some of the assignments are intentionally designed to allow for some ambiguity in the instructions or lack of organization in the presentation. This is a part of what it means to understanding thinking and learning with computers. If you feel that this is the case, please bring up the inconsistency, confusion, or ambiguity in our discussions and messages. It is preferred to bring these out in the open as a very real part of online learning rather than assume that you are unsure about something that everyone else understands.

Special Projects

Two special projects will be assigned along with the weekly activities:

Mid-term Reflection Paper (3-4 pages): This assignment will be due at the end of week 7 of the course. You will submit a written paper that reflects upon the first half of the course, including your perspective on the

course material and the course itself, questions or challenges that you have faced, and/or further explorations of concepts that you have found particularly meaningful.

Final Project: Expert Teaching and Learning Portfolio (2-3 page essay + exhibits) Throughout the course, you will work toward an expertise of a specific type of resource related to computers and thinking and develop a "Teaching and Learning Portfolio", which might be used to encapsulate essential details about the resource, suggest best practices for using it, and teach someone else about the resource. Along with an essay describing your project and process, your portfolio might include some (but not necessarily all) of the following exhibits: a lesson plan to be used in a workshop, an instructional video that gives a demonstration of the resource, a wiki page that builds a collection of knowledge about the resource, or a narrative outline that leads a reader through a series of web links that show good examples of the resource in use. You will create the portfolio, share it with others, and have the chance to engage with the portfolio of at least one other student.

Several of the Prereading and Postreading activities directly help you to take steps toward the Expert Portfolio, so you will be creating material along the way that will help you to complete it. These activities are built in to the weekly sessions and are part of the points for that week, they are not "extra work" that you need to do.

Accommodations

Sections 504 and the Americans with Disabilities Act of 1990 offer guidelines for curriculum modifications and adaptations for students with documented disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center (287-7430). The student must present these recommendations to each professor within a reasonable period, preferably by the end of the Drop/Add period.

If you have a disability that may have some impact on your work in this class and for which you may require accommodations, please contact the Ross Center for Disability Services. The Ross Center for Disability Services is located in the Campus Center, UL 211. You can contact them by calling: 617-287-7430 or sending an email to: ross.center@umb.edu. Once you have received your accommodation letters, please meet with the instructor to discuss the provisions of those accommodations as soon as possible.