KMD COLLABORATIVE PROGRAM (KMDCP)
Office: Room 310, iSchool
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July 2011

KMD 2004S:
Knowledge Media, Culture & Society:
Designing Disruptive Technologies
!!! DRAFT !!!

Course Outline

Course Code:
Course Section:
Semester Offered: Summer 2011
Course Meeting Time: Tue & Thr 4 – 6pm
Course Location: DiDMiT [Basement, 376 Bathurst, (North of Dundas Street West)]
Credit Value: 0.5

Pre-requisites:
Exclusion:
Prerequisite:

Instructor(s)

Lecturer: Joseph Ferenbok
Contact Information: joseph.ferenbok@utoronto.ca
Office Hours: TBA
Blackboard: Lec 101

Teaching Assistant(s): N/A
Contact Information:
Office Hours:

> **…this invention will produce forgetfulness in the minds of those who learn to use it, because they will not practice their memory…. You have invented an elixir not of memory, but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom, for they will read many things without instruction and will therefore seem to know many things, when they are for the most part ignorant and hard to get along with, since they are not wise, but only appear wise.**
>
> -Socrates on writing, Phaedrus

Course Description

Technology can be disruptive in the sense that new technologies can change established ways of doing things. But technologies can also be disrupted in the sense that they can be hacked changed beyond intended purposes and initiating political agendas of primary stakeholders. During the early phases of deployment—as stakeholders negotiate future trajectories of technologies— new technologies inevitably interact with and often challenge established power relations and communication patterns. This is especially true of knowledge media. Knowledge Media (KM) is a class of ICT that are designed specifically to support and enhance the ability of people, groups and communities to work, learn, and create knowledge.

New KM technologies frequently produce disruptive and controversial outcomes not unlike those forecast by Socrates about the written word. This course examines contemporary controversial technologies in context explicitly resisting the conventional overly simplistic notion of 'social impacts of technology'. The course instead treats technological development as a complex socio-technical phenomenon with multiple stakeholders vying with each other to shape trajectories of development and to define 'success' and 'failure'.

Drawing mainly on the field of science and technology studies (STS *aka* social studies of science and technology, techno-science studies, and other variations on this theme), we will explore and deploy a more nuanced conceptual apparatus than 'impacts' to help reveal the dynamics of technological development and stabilization, the social issues at stake, the actors in contention, and the possibilities for alternative courses of development and implementation.

The course will focus on selected emerging technologies that are still in their formative stages and the subject of public controversies. The controversies are highlighted because these offer insights into the forces at play and provide some (modest) opportunities for influencing the outcomes, before the technologies become relatively 'closed' or taken for granted as norms, and much harder to repair.

Our Seminar style exploration of disruptive technologies will touch on:

- Biometric identification technologies, especially facial recognition (e.g. in e-passports, national ID cards,..)
- Video surveillance, especially in public places
- Workplace monitoring, notably Automatic Call Distributors in Call Centres
- Radio Frequency ID tags (RFIDs)
- Peer-to-peer networking/file sharing (e.g. Skype)
- Digital Rights Management (DRM)
- Social networks (e.g. Linked-in, Facebook)

We will consider these both as disruptive technologies and technologies that we may still help to disrupt. These ideas and discussions will help to inform and guide the collaborative prototyping project. The project will ask students to 're-envision' collaborative/performance space.

Goals and Learning Objectives

Upon successful completion of the course the student should be able to demonstrate specific knowledge about the above technologies and techno-social issues. The student should be able demonstrate the ability to apply the intellectual framework discussed to new technological domains. The student should be able to demonstrate the ability to research, work in groups and present information on socio-technical issues; demonstrate critical thinking and analytical skills inside and outside the discipline and show an understanding of methods of enquiry or creative activity. The student should be able to apply relevant concepts, principles, and techniques to express information, arguments, and critical thinking accurately and with clarity, both orally and in writing.

Learning Outcomes

On completion, students have learned about:

Knowledge and Understanding:

1. Identify the role and significance of design
2. Recognize the impact of Human-Centered design on development of systems.

Cognitive Skills:

3. Analyze the needs of potential audiences/users.
4. Critically evaluate the importance of new media in the constructions of knowledge.
5. Conduct design research (field work, ethnographic methods)

Practical and Professional Skills

6. Management (managing deadlines, identifying target audiences) collaboration (working in teams, using the knowledge of and learning from other disciplines, etc.)
7. design (visual, content development and evaluation)

Transferable and Key Skills

8. Ability to work in groups as well as individually.
9. Ability to follow guidelines, meet deadlines, and effectively communicate information.

Course Requirements

Students are required to come to lectures with materials read and prepared for discussion. Students are required to use APA or MLA citation formats for all writing. Students are required to find online readings using University of Toronto Library resources.

Teaching Methods

In this course teaching will be performed through a variety of methods, including (but not limited to): seminars, audio/visual presentations and individual and group assignments, group discussions and collaborative design challenges. Instruction will be supplemented by required tutorials, multimedia presentations and class discussion based on readings and presented materials.

Required Materials

There are no required texts in this course; however **students are required to locate and read all assigned materials before each class.**

Assessment and Grading Policies

Late assignments 3% per day, late assignments over a week will not be accepted and will receive a grade of 0. Assignments that do not meet minimum university expectations will not be accepted for marking. Attendance is required and participation will be based on how students interact in class and online and engage with the materials read and presented in class.

Grading Scheme

Assignment	Weight	Due Date	Type
Paper 1	**15%**	July 21, 2011	Individual
Paper 2	**25%**	August 4, 2011	Individual
Prototype Presentation I	**15%**	July 19, 2011	Group
Prototype Presentation II	**25%**	August 11, 2011	Group
Participation	**20%**	On Going	Individual

Paper1: **15%**

Research skills are critical for good scholarship, but most students underestimate the amount of work involved in researching a topic or issue. The challenge of this paper is to research a specific 'disruptive technology' in communication. The telephone, telegraph, cell phone are all obvious examples, but how did they change social practices? How did the typewriter change the American workplace? These disruptive technologies and their social changes are often much more difficult to locate. In 4 – 5 pages present a 'knowledge media' and argue why it can be considered a disruptive technology.

Paper2: **25%**

Major disruptions to established ways of doing things are usually neither entirely good nor entirely bad. Choose a case study of a disruptive technology and in 4 – 5 pages critically analyze the good and the bad socio-technological changes the resulted in its stabilization (the processes of becoming a black-box).

Prototype Presentation I: **15%**

Details will be provided during the first class

Prototype Presentation II: **25%**

Details will be provided during the first class

Participation: **20%**

One of the greatest values of research is the interaction sparked among fellow researchers and colleagues. Your participation in this course will be evaluated in *ongoing* and *reflective* activities.

- *Ongoing:* Sharing our views with others and reflecting on them are among the most effective ways to develop ideas. On a week-to-week basis, you will be expected to contribute to the discussion in a manner that enhances the learning environment. Grades for participation are not assessed according to the number of times that you make a point. The value and inciting potential of your discussion points are critical. Reading and engaging with current literature are necessary to demonstrate your ability to participate effectively in discussion.

- *Reflective:* During the last lecture, you will be asked to submit a maximum 2 page, double-spaced summary outlining your five most substantial examples of participation over the course of the term. Your reflective submissions will be used to augment the professors' notes and records of ongoing participation.

Marking Guide

Your individual papers (and presentations) will be graded on the following elements as appropriate--each of which will be given approximately equal weighting:

1. **Presentation:** The essay must adhere to the **formal requirements of style**, including the title page, spacing and margins, references, and footnotes.
2. **Quality of the writing (material):** The essay must be well written. Please proofread it carefully to ensure that it does not contain errors in spelling and grammar.
3. **Value of the contribution:** The central thesis of the argument must make a genuine contribution to the field. It should not repeat an argument already made by another scholar, and it **should not be self-evident**.
4. **Quality of the argument:** The arguments made in the essay should not be general and impressionistic but should be supported by careful analysis, and through the use of a wide range of relevant examples.
5. **Organization:** The ideas raised in the essay should be carefully sequenced and organized. The summarizing introduction should persuade the reader that the topic is significant, and should outline the basic argument that will be made. In developing this argument throughout the essay, each point should lead to the next in a reasoned way, ultimately leading to a defensible conclusion.

We expect and will endeavor to support high achievement in this course. An interdisciplinary graduate class means that students from different disciplines all have the same opportunity to excel. Nonetheless, a range of final grades is inevitable.

See the KMDI website for the policies concerning the interpretations of the various letter grades. Note that most of the mark for the Group Project Assignment is a group grade. The identical mark will be assigned to all members of a group. If it is clear that there are vastly unequal contributions to the team project, this will be reflected in the class participation mark.

Weekly Class Schedule and Readings

Seminar 1 | July 5
Introduction: Disruptive Technologies and interpretive Flexibility
Key concepts: Science and Technology Studies, black-box, forking, network actors, stakeholders …

Select teams for Prototyping I

Seminar 2 | July 7
STS approaches I - Actor Network Theory (ANT)

Readings:
Stalder, Felix (1997). Actor-Network-Theory and Communication Networks: Toward Convergence. FIS research paper. Openflows.
Suchman, Lucy (2000) Organizing Alignment: A Case of Bridge-building. Organization. 7(2): 311–327

Seminar 3 | July 12
STS Approaches: SCOT

Readings:

Hughes, Thomas P. "The Evolution of Large Technological Systems." In *The Social Construction of Technological Systems*. Edited by Wiebe Bijker, Thomas Hughes and Trevor Pinch. Cambridge, Mass.: The MIT Press, 1987, pp. 51-82.

Bijker, Wiebe (1992). The Social Construction of Fluorescent Light, Or How an Artifact was Invented in its Diffusion Stage. in Bijker, Wiebe; Law, John (eds.) *Shaping Technology / Building Society Studies in Sociotechnological Change*. Cambridge, MA: MIT Press.

Lea, M, T. O'Shea, and P. Fung (1995) "Constructing the Networked Organization: Content and Context in the Development of Electronic Communications," *Organization Science*, 6:4, 462-478.

Seminar 4 | July 14
Biometrics and Social Sorting

Readings:

Lyon, David. (2004, November) Identity cards: Social sorting by database. OII Internet Issue Brief, No.3. pp. 11. (plus commentary by Combert and Rule) available on-line at: www.oii.ox.ac.uk/resources/publications/IB3all.pdf

Lyon, David. (2005). The border is everywhere: ID cards, surveillance and the other. in Elia Zureik and Mark Salter (Eds.) Global surveillance and policing: Borders, security, identity. Cullompton: Willan. Robarts: JZ6374 .G58 2005 [Check availability]

Seminar 5 | July 19
Student Prototype Presentations

Whittington, J. "The process of effective critiques," Computer Graphics 28 (3): 401-407, June 2004.

THREE APPROACHES TO TAKE THE USER PERSPECTIVE INTO ACCOUNT DURING NEW PRODUCT DESIGN. International journal of innovation management 2009 12 (3), 275-294.

Paper 1: Instructions

Seminar 6 | July 21
Workplace monitoring: Fordism, Taylorism and the Electric eye

Readings:

Ellis, V. and P. Taylor (2006). "'You don't know what you've got till it's gone': re-contextualising the origins, development and impact of the call centre" *New Technology, Work and Employment* 21:2, 107-122.

Thompson, Paul (2003) "Fantasy Island: A Labour Process critique of the 'age of surveillance'". *Surveillance & Society* 1 (2): 138-151. available on-line at: http://www.surveillance-and-society.org/articles1(2)/fantasyisland.pdf

Seminar 7 | July 26
Critique
READINGS:

Newman, M. W. and Landay, J. A. 2000. Sitemaps, storyboards, and specifications: a sketch of Web site design practice. In *Proceedings of the 3rd Conference on Designing interactive Systems: Processes, Practices, Methods, and Techniques* DIS '00. ACM, New York, NY, 263-274. DOI= http://doi.acm.org.myaccess.library.utoronto.ca/10.1145/347642.347758

Snyder, C. 2001. Paper prototyping. http://www.snyderconsulting.net/us-paper.pdf

Paper 1 Due

Video Lecture: TBA

Seminar 8 | July 28
Social Networks and the data shadow

Decima Research (2009) Focus Testing Privacy Issues and Potential Risks of Social Networking Sites . Available online: http://priv.gc.ca/information/survey/2009/decima_2009_02_e.pdf [Commissioned by the Office of the Privacy Commissioner of Canada]

Canadian Internet Policy and Public Interest Clinic (2008). PIPEDA Complaint: Facebook. Available online at: http://cippic.ca/uploads/CIPPICFacebookComplaint_29May08.pdf

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Seminar 9 | August 2
Prototyping 2

READINGS:

Lottridge, D. and Mackay, W. E. 2010. Generative walkthroughs: to support creative redesign. In *Proceeding of the Seventh ACM Conference on Creativity and Cognition* (Berkeley, California, USA, October 26 - 30, 2010). C&C '09. ACM, New York, NY, 175-184. DOI= http://doi.acm.org.myaccess.library.utoronto.ca/10.1145/1640233.1640261

Tohidi, M., Buxton, W., Baecker, R., and Sellen, A. 2006. Getting the right design and the design right. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* CHI '06. ACM, New York, NY, 1243-1252. DOI= http://doi.acm.org.myaccess.library.utoronto.ca/10.1145/1124772.1124960

Paper 2 Instructions

Seminar 10 | August 4
Hidden Changes: Video Surveillance and the right to be left alone

Readings:
Agre, P. (2001, 10 September 2003). Your Face is not a bar code: arguments against automatic face recognition in public places. Retrieved November 14, 2004, from http://polaris.gseis.ucla.edu/pagre/bar-code.html

Marx, G. T., & Muschert, G. W. (2007). Personal information, borders, and the new surveillance studies. *Annual Review of Law and Social Science, 3*, 375-395.

Seminar 11 | August 9
Engineering Privacy: Collecting and sharing personal information

Solove, D. J. (2002). Conceptualizing Privacy. *California Law Review 90*(4), 1087 - 1155.
Video: http://www.youtube.com/watch?v=4iBAM4HGXfo

Kobsa, A. (2007). Privacy-Enhancing Personalization. *Communications of the ACM*, August 2007, Vol. 50, No. 8, pp. 24-33.

Bellovin, S. (2005). Security and privacy: Enemies or allies? *Ieee Security & Privacy, 3*(3), 92-92.
Alexander, J., & Smith, J. (2003). Engineering privacy in public: Confounding face recognition. In *Privacy Enhancing Technologies* (Vol. 2760, pp. 88-106).

PIPEDA (2000). Canada. http://laws.justice.gc.ca/en/ShowDoc/cs/P-8.6//20090818/en?page=1

Seminar 12 | August 11
Private Critique

Paper 2 Due

Seminar 13 | August 15
Prototype Presentations II

Public Demos

E-Culture Policy

Only student Utormail accounts should be used for course communication and all emails from students must include the course code in the subject line and should be signed with the full student name and student number.

Teaching staff will endeavour to return e-mails within 48 hours with the exception of weekends and immediately before a test or an assignment is due.

Students are strongly discouraged from surfing or streaming media unrelated to class lectures or discussions during class and tutorial times.

Cite it Right! No Plagiarism

Each student in this course is expected to abide by the U of T Code of Behaviour on Academic Matters. Any work submitted by a student in this course for academic credit must be the student's own work and must have been written for this course specifically. There are rules and techniques to signal when you, as a writer, are relying on other people's work and ideas (citation, quotation, etc). Plagiarism is the failure to mark sufficiently – for whatever reason – somebody else's work in your own writing. It constitutes a serious violation of academic conduct. Please make yourselves familiar with this important issue. This means you are responsible for doing your own intellectual work, carefully citing all sources, and NOT buying, borrowing, or stealing material from others. Failure to do so can result in an "F" for the term, or worse. When in doubt about citation practices, ask.

Deadlines

Unless otherwise specified I expect you to submit your papers (type-written, 12 point, double-spaced, printed) on time, i.e. until midnight on the date indicated unless they are explicitly required in class as indicated above.