Humans, Computers and Cognition
(IDIA 640.WB1 Fa18)
IDIA 640
Fall 2018

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Course description

How can you as an interaction designer positively affect what a user thinks and does? This course will introduce you to a range of concepts, theories, and empirical methods from social psychology, linguistics, cognitive science, and neurobiology. These theoretical underpinnings will enable you to better predict under what conditions user confusion or miscommunication may occur and potential strategies for repair. They will also provide you foundational tools for creating more positive and persuasive interactions.

Overarching questions we will address together:

1. How can you use knowledge of how people process information to design more usable interfaces?
2. How can you use knowledge of how people communicate to design less confusing interactions?
3. How can you use knowledge of how people think to guide behavior?

Some beliefs we will examine closely include:

- We believe our senses (what we see, is what we believe)
- We believe we are rational beings
- We believe our thinking is largely conscious
- We believe what we say to be largely unambiguous
- We believe we make our own decisions

We will question these basic beliefs and show how they sometimes get us into trouble in communications design – and also how we can use them to advantage.

Course Requirements

Weekly Reading and Writing Assignments: Each week will include one or more readings of a topical nature. Students are expected to compose a short journal entry on that topic. (45% (5 points each, 1 point deducted for each day late)

Critical Review: Each student will write a short, critical review of a scientific article. A list of articles to choose from will be provided. (10 points/percent. 1 point deducted for each day late)

Presentation (Critical Review): During the course of the semester, each student will present her/his selected critical review to the class and lead a discussion. (5 points/percent)

Case Study: Each student is required to complete a course project and present that project to peers at the end of course. The project will focus on persuasive design. (30 points/percent)

Participation: Class participation on Slack and via Zoom. Excessive absences without pre-coordination will result in lost points. (10 points/percent)

Course Objectives

Students will be able to:

1. Critically review scientific papers and communicate key findings to peers.
2. Communicate how theories of cognition and information processing apply to the design of interactive media.
3. Understand when and how to apply key research methodologies used in the study of Human Computer Interaction (HCI).
4. In the form of a case study, create a persuasive design and discuss the science behind it.
5. Propose and describe methods for testing a hypothesis centered on behavior change in interaction design.

Required Texts

Johnson, J. (2014). *Designing with the Mind in Mind*. (2nd ed.). Morgan Kaufman. ISBN 978-0124079144

Kahneman, D. (2011). *Thinking, Fast and Slow*. Farrah, Straus and Giroux.

Ware C. (2008). *Visual Thinking for Design*. Elsevier.

Related Reading

Akerlof, G., Shiller R.J. (2015). *Phishing for phools: The economics of manipulation and deception*. Princeton University Press.

Cialdini, R. B. (2003). *Influence: The Psychology of Persuasion*. Harper-Collins.

Fogg, BJ. (2002). *Persuasive Technology: Using Computers to Change What We Think and Do.* Morgan Kaufmann.

Thaler,R. & Sunstein, C. (2009). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Penguin Books.

Sedivy, J., & Carlson, G. (2011). *Sold on Language: How Advertisers Talk to You and What This Says about Yo*u.

Weinschenk, S. (2011). *100 Things Every Designer Needs to Know about People*. Pearson Education.

Topical Outline

There will be one or two classes that don't meet this semester. These dates will be announced in advance. Additionally, if the class cannot get through final presentations on Dec 5, a make-up date will be scheduled.

Date	Topic	Readings (read before class)	Assignment Due Dates
August 28	Introduction, Getting started with GitHub		
September 4	HCI research methodology (Experiments)	Mabson et al. (What is Design Ethnography?) Price Chap. 9 (Survey Research)	Github practice, Case Study Proposal
September 11	HCI research methodology (Surveys and ethnography)	Selected scientific paper	Critical review
September 18	How do we know what we see? (Sense & perception)	Ware Ch. 1-4 or Johnson Ch. 1-5	Journal
September 25	How do we know about things? (Attention, memory, priming, and learning)	Ware Ch. 6-7, Johnson Ch. 7-9,11	Journal, Case Study - elevator speech
October 2	How we do think? (Attention and the divided brain)	Kahneman Ch. 1-9	Journal

October 9	How do feelings affect our beliefs? (Emotion, feeling, and neuroaesthics)	Damasio, Nadal & Skov	Journal
October 16	How do we understand? (Communication as joint action)	Clark, TBD Trade pub on Conversational UI, Optional: Johnson 14	Journal
October 23	How do we make decisions? (Heuristics and biases)	Kahneman Ch. 11-14, Johnson Ch. 12	Journal
October 30	How do we make decisions when we are uncertain? (Rationality & decision-making)	Kahneman Ch. 26, 28, 34, Thaler & Sunstein	Journal
November 6	How are people influenced through persuasion?	Oinas-Kukkonen & Harjumaa	Journal
November 13	How does culture affect thinking?	Hall (85-103)	Journal
November 20	Thanksgiving week – no class		
November 27	How do social networks affect behavior?	Christakis & Fowler	Journal
December 4	Case Study Presentations		Case Study

Paper Citations (From Syllabus)

Christakis, N. A., & Fowler, J. H. (2009). Chapter 1. In *Connected: The surprising power of our social networks and how they shape our lives* (pp. 3–32). Little, Brown.

Clark, H. (1996). Chapter 1. In *Using language* (pp. 3–25). Cambridge University Press.

Damasio, A. R. (1994). In *Descartes' Error: Emotion, reason and the human brain* (pp. 29-69). New York. Or alternative interview with Damasio: http://library.fora.tv/2009/07/04/Antonio_Damasio_This_Time_With_Feeling

Hall, E. T. (1989). Chapter 3. In *Beyond culture* (pp. 85–103). Anchor.

Nadal, M., & Skov, M. (2015). Neuroesthetics. In *International encyclopedia of the social & behavioral science*s (2nd ed., Vol. 16, pp. 656–663). Elsevier.

Oinas-Kukkonen, H., & Harjumaa, M. (2008). A systematic framework for designing and evaluating persuasive systems. In *International conference on persuasive technology* (pp. 164–176).

Price, P., Jhangiani, R, & Chiang, I. (2015) Research Methods in Psychology. https://opentextbc.ca/researchmethods/

Mabson, M., Jawad, A, Young, M., & Daly, S. (2016) What is Design Ethnography? Insitu Center for Social Engaged Design.

Salkind, N. J. (2010). Research design. In L. M. Given (Ed.), *The sage encyclopedia of qualitative research methods* (pp. 1260–1261). Sage Publications.

Thaler, R. H., Sunstein, C. R., & Balz, J. P. (2014). Choice architecture.

UB Resources

http://www.ubalt.edu/about-ub/offices-and-services/provost/faculty-affairs/Student_Resource_List--Spr2017_FINAL.docx