

Humans, Computers and Cognition
(IDIA 640 Sec 185, 3 credit hours)
IDIA 640
Spring 2020

Professor: Lisa D. Harper, D.Sc.

Office hours: By appointment only

Classroom: ACC 214

Days and Times: Tuesdays 5:30-8:00 PM

Class Dates: Jan 27 – May 17 2020

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Slack: idia640-spring-2020.slack.com (preferred method of contact)

Inclement weather policy: We will still hold class on Zoom. Watch for announcements via UB email and on Slack.

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 fewer 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. (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 is a case study with a focus on persuasive design. (30 points spread (20/10) across two deliverables - a written template and poster presentation)

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. Propose and describe methods for testing a hypothesis centered on behavior change in interaction design.
5. In the form of a case study, create a persuasive design and discuss the science behind it. Present your work in a poster session as you would at a real conference.

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*. Farrar, Straus and Giroux.

Ware C. (2008). *Visual thinking for design*. Elsevier.

Topical Outline

Date	Topic	Labs	Readings (read before class)	Assignment Due Dates
28 Jan	Introduction & getting started	Github & On being an ethical designer	Video: Dark Patterns , https://darkpatterns.org	
4 Feb	HCI research methodology (Experiments)	Reading and presenting scientific papers	Mabson et al. (What is Design Ethnography?) Price Chap. 9 (Survey Research)	Case study idea
11 Feb	HCI research methodology (Surveys and ethnography)	Ethnographic research	Selected scientific paper	Critical review
18 Feb	How do we know what we see? (Sense & perception)	Case study template; who is your user?	Ware Ch. 1-4 or Johnson Ch. 1-5	Journal
25 Feb	How do we know about things? (Attention, memory, priming, and learning)	What is an insight?	Ware Ch. 6-7, Johnson Ch. 7-9,11	Journal
3 Mar	How do feelings affect our beliefs? (Emotion, feeling, and neuroaesthetics)	Defining your behavioral objective	Damasio, Nadal & Skov	Journal, Case study elevator pitch
10 Mar	How we do think? (Attention and the divided brain)	How do you craft your message?	Kahneman Ch. 1-9	Journal
17 Mar	SPRING BREAK			
24 Mar	How do we understand? (Communication as joint action)	Task flows and decision-making	Enfield, Trade publication on conversational UX, Optional: Johnson 14	Journal
31 Mar	How do we make decisions? (Heuristics and biases)	Touchpoints	Kahneman Ch. 11-14, Johnson Ch. 12	Journal
2 Apr	How do we make decisions when we are uncertain? (Rationality & decision-making)	Fogg's persuasion model	Kahneman Ch. 26, 28, 34, Thaler & Sunstein	Journal
7 Apr	How are people influenced through persuasion?	Why should we believe your design is persuasive?	Oinas-Kukkonen & Harjumaa	Journal
14 Apr	How does culture affect thinking?	Evaluating the effectiveness of your design	Hall & Hall	Journal
21 Apr	How do social networks affect behavior?	What makes a good story? Designing an effective presentation	Christakis & Fowler	Journal, Templates
28 May	Poster Presentations			Presentation

Related Reading

- Ariely, D. (2010). *Predictably irrational*. Harper Perennial; Revised and Expanded ed. edition.
- 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.
- Choy, E.K. (1017). *Let the Story do the Work*. Amacom.
- Fogg, BJ. (2002). *Persuasive technology: Using computers to change what we think and do*. Morgan Kaufmann.
- Olson, R. (2015). *Houston, we have a narrative: Why science needs story*. University of Chicago Press.
- Pearson, Bob. (2016). *Storytizing*. 1845 Publishing.
- Price, P., Jhangiani, R, & Chiang, I. (2015) *Research methods in psychology*.
<https://opentextbc.ca/researchmethods/>
- 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 you*.
- Weinschenk, S. (2011). *100 things every designer needs to know about keople*. Pearson Education.

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.
- 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
- Enfield, N.J. (2017). Chapter 2. *How we talk: the inner workings of conversation*. Basic Books.
- Hall, E. T & M.R. Hall. (1990). Chapter 1. In *Understanding cultural differences* (pp. 3–31). Anchor.
- Nadal, M., & Skov, M. (2015). Neuroesthetics. In *International encyclopedia of the social & behavioral sciences* (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