

Decision Architecture
Psych GU4287 (4 points)
Spring 2019

Course Information

405 Schermerhorn
Wednesdays, 10:10am-noon

Instructor Information

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Course Description

This course reviews current research in the domain of decision architecture: the application of research in cognitive and social psychology to real-world situations with the aim of influencing behavior. For example, designating a certain option as the default choice has been shown to dramatically increase rates of participation in organ-donation programs, retirement savings, vaccination, and many other socially beneficial activities. This seminar will discuss recent and classic studies, both of decision theory and of applied decision research, to explore the effectiveness—as well as the limitations—of a selection of these behavioral “nudges.”

Prerequisites

PSYC UN2235 or an equivalent course on judgment and decision making, and the instructor's permission.

Enrollment limit: 12. If the course is full, senior psychology majors, senior neuroscience and behavior majors, and psychology postbacs in the Certificate Program will have priority, followed by junior majors, followed by non-majors. Other things being equal, students who have the best preparation and strongest motivation will be selected.

Role in the Psychology Curriculum

This course is designed to give advanced undergraduates and graduate students in the Psychology Department a deeper understanding of current topics in the field of judgment and decision making, specifically in ways that decision theory can be wielded to effect behavioral change in applied situations.

Motivating Questions

1. How can researchers/practitioners/marketers/leaders use theories from the judgment and decision-making literature to influence people's choices and behavior?
2. What side effects—positive and negative—might the use of these “decision-architecture tools” bring about, beyond the particular behavior that they target?
3. What are the ethical implications of the use of decision architecture tools, and by extension, of the theory-based research that underlies those tools?

Course Overview

Decades of cognitive science research has left the field with a thorough—though of course never complete—understanding about how humans perceive the world around them, make judgments, and come to decisions. Recently, a subfield within judgment and decision research has gained both prominence and momentum: the study of decision architecture tools. Also called behavioral nudges, decision architecture tools are methods of presenting choices to people such that the structure of the choice itself helps to influence the final decision. One common description of how these nudges work is that they “make the *good* choice also the *easiest* choice to make.”

For example, more people will sign up to be an organ donor if the process is opt-out, rather than opt-in: if we have to check a box in order to indicate our willingness to become a donor, few people end up as donors, but if we instead need to check a box in order to indicate our unwillingness to be a donor, the vast majority of people end up on the donor list. This effect appears to be largely

driven by the default bias, under which we tend to stick with an option that is pre-selected for us, and are hesitant to switch to an alternative. Lab studies have shown this effect, but it also appears, in quite dramatic fashion, in the real world: nations with opt-in donor registries tend to have donor rates in the 10-20% range, while countries using the opt-out system typically see more than 90% of their eligible citizens signing up to be donors.

Although there can be a clear public good to nudging people toward one decision over another, the use of these decision architecture tools in real-world settings (as opposed to carefully constructed laboratory situations) carries ethical and moral questions, as well as practical ones. Nudges are supposed to make the good choice the easy choice, but who decides which choice is good? Should the public be more aware of instances where their decisions are being manipulated? Is it even possible to construct a decision situation that doesn't involve some form of decision architecture? Does knowing about the power of nudges help people to remain unswayed by them? And what side effects might nudges have: does "tricking" a person into recycling produce positive spillover and thus encourage more environmentally friendly behaviors in the future, or might it give that person license to actually waste more in the future? These side effects, sometimes called "dodges," represent the current wave of research on decision architecture.

This course will explore decision architecture tools and methods from several angles: the cognitive theories that explain how, when, and why they work; the ethical implications of their use; and the unintended consequences they might have beyond their central effects.

Course Objectives

1. Students will gain a deeper understanding of the normative and descriptive theories of decision-making and judgment that have been used to develop prescriptive decision tools (decision architecture, or "nudges").
2. Students will be able to recognize instances of behavioral nudges in research and in the real world, and to discuss both their efficacy and the cognitive mechanisms by which they operate.
3. Students will develop nuanced and likely diverse opinions, backed by empirical results and real-world evidence, about the ethical and moral implications of the use of decision architecture tools in a variety of contexts.
4. Students will leave the course with a deep familiarity with current research on decision making: they will be able to recognize and critique commonly used methodologies, to assess the validity and reliability of experimental designs, and to interpret and judge the inferences and conclusions that other researchers lay out in their papers.

Course Organization

Class

This class will meet once a week. Each two-hour course meeting will consist primarily of student-led presentations of one of the assigned readings, and discussion of the topics of those readings. Whether or not it is your day to present, please come to class prepared to actively participate!

Assignments

Note: more detail on each assignment will be available on our Canvas site once the semester starts.

Response posts. Before each week's class, you will submit a short (300- to 500-word) response to one of the assigned readings. You'll post your response on our Canvas discussion board, which will allow you to preview what your classmates are thinking about the topic of the week. Your posts will also help me and the week's student presenter get a sense for what everyone is thinking about the week's papers, including any common points of confusion.

Response posts should demonstrate a thorough reading of the week's papers, and should show that you are thinking carefully about the topics at hand. Although they don't need to be perfectly crafted examples of scientific prose, they should be clearly written, with appropriate

attention to grammar, spelling, etc. (translation: you need to read back through what you've written before posting it). All that said, the content and focus of your posts can vary quite widely. You might identify a connection between a theory or method discussed in the current paper and one used in another reading; you could lay out a theoretical or empirical question that the paper sparked in you; you could offer a substantive critique of a paper's methods or its interpretations of results; you could identify a real-world application for a theory or effect from the paper and discuss its possible implications. You might also choose to write a response to another student's response post, e.g., if someone else asks a question that you feel inspired to try to answer.

Each post is due by 10am on the day before class (Tuesdays), starting with our second week of class, and is worth 2% of your grade. Posts made after 10am on Tuesday but before class begins on Wednesday are worth 1%. Since there will be 11 weeks of presentations but response posts count for no more than 20% of your overall course grade, you may either skip one response post, or submit two late posts, and still end up with the full 20% for response posts.

“Policy” paper. You won't write a response post for the final class meeting; instead, imagine that you're the Behavioral Science Advisor to a future President, and he or she has asked you for a concise statement of your recommendations for a National Decision Architecture Policy. For this assignment, you will write a short (500- to 1000-word) “policy” paper that reflects your personal view of how, when, and under what conditions behavioral nudges should be used. This paper is due in place of the response post for the final class meeting, and can be submitted via Canvas.

Student presentations. Each student will briefly present an assigned paper during one class period. Your job as presenter is to be our “resident expert” on the readings for this week, so while you can assume everyone has read the paper, your presentation should help to clarify any particularly tricky methods or results from the paper, and address any questions that your fellow students have. I'll be there to help you with this both as you prepare your presentation and during class, but it's your show!

Your 10- to 15-minute presentation should briefly cover the paper's important points and scientific value, recap the study's methods and results, and also offer a critical assessment of the work in the context of other course materials. Presentations should also include questions to start our discussion.

Detailed requirements for the presentation will be discussed during the first class meeting, when we will also go over the list of topics and tentative schedule. Please bring your calendars with you to the first class meeting to facilitate our creation of the schedule.

Final paper. The paper is a 10-page assessment of a particular decision architecture tool. The paper should: (1) review the theory or theories that underlie the tool (e.g., a paper on use of defaults would discuss Prospect Theory's reference point, the status quo effect, and possibly also Query Theory or other topics that help us to understand how default effects work); (2) describe the history and scope of the *use* of the tool in real-world situations, and/or the *testing* of the tool in laboratory studies (i.e., in what contexts or domains has the tool been used or tested, and are its effects consistent across all contexts? does it work the same way across different populations? does it interact with any individual difference measures, or with other behavioral nudges?); (3) examine what the current understanding of how this tool works might tell us about the theories that underlie it; (4) make predictions (hypotheses) about a few additional real-world contexts in which this tool likely would (or wouldn't) work, based on our theoretical understanding of it.

Students who are interested in writing a research proposal paper, or any other format of final paper that is around the same length and scope as the assignment described above, are heartily encouraged to do so. If you think you might like to write a different kind of paper, please come talk to me about your ideas as soon as possible, but no less than two weeks before the final paper is due.

Detailed requirements and grading information for the paper will be posted midway through the semester. Final papers are due via Canvas by **11:59pm on Sunday, May 12**. If your final exam schedule would make it particularly difficult to submit your paper by this due date, please contact me

at least two weeks beforehand to discuss an extension. I am generally happy to arrange short extensions, but only for students who consult with me *before* the due date, so plan ahead! Note that if you are a graduating senior, it may

Grading

Participation:	20%
Response posts:	20%
“Policy” paper:	5%
Class presentation:	15%
Final Paper:	40%

There is no extra credit for this course. For students who are on the border between grades, I will consider their participation in discussions throughout the term to decide whether to bump them up to the next highest grade (e.g., a very high B+ could be bumped to an A-).

Class Policies

Class attendance. Participation is an essential component of this course and of your grade, and you are expected to attend each class period. Each student may miss one class meeting, for any reason, without any penalty to their participation grade. After that free miss, excused absences require a note from your doctor or advising dean, and unexcused absences will count against your participation grade.

Late assignments are generally marked down by 10% per day, unless you have contacted me *before* the due date to discuss an extension. Overall, I would prefer to have you all write quality papers and learn a lot in the process, but hand them in late, rather than dashing off some incoherent ideas in order to make the deadline—so if something comes up, please check in with me. But that said, “I can’t finish the paper on time because I started it too late” is not a particularly convincing argument for an extension.

Class Conduct. Please turn off or silence your cell phones during class. Laptops are fine to use, but please respect your classmates and instructor by refraining from non-class-related activities such as email, Facebook browsing, and online shopping (unless you are buying stylish, nudge-themed T-shirts for the whole class, in which case: proceed). Though you may have a preternatural ability to multi-task, using a laptop for purposes other than taking notes can be distracting to those around you (and also, studies show that humans are actually pretty terrible at multitasking, although we rarely realize how bad we are).

Academic Integrity. Academic honesty includes presenting only your own work in exams and assignments, and correctly attributing others’ ideas where appropriate. Taking credit for work that is not your own is a serious violation within the academic community, and anyone found to be cheating or plagiarizing in this class will be reported to the university. Detailed definitions and examples of academic dishonesty (and a rundown of the consequences) are available in Columbia’s Guide to Academic Integrity (<http://www.college.columbia.edu/academics/integrity>)—it might not be the most riveting text on the internet, but since you’ll be held to it, you should probably give it a read.

I assume you’re all here because you’re interested in the course topics and enthusiastic to learn as much as you can. But I know that in real life, stuff happens. I always prefer to deal with any issues before they get so bad that they become overwhelming, or so bad that a student feels that cheating or plagiarism is his or her best (or only) option. After all, this is a course about focusing on prevention, and avoiding messy aftermaths. So please do come to me if you have any questions about how to properly cite a source or build upon others’ ideas, or if you’re feeling stressed out about the class workload (or about anything else). If you have an issue that you’d rather not talk about with me, you might consider speaking with your academic advisor or dean; with one of the Psych Department’s other Directors of Undergraduate Studies (Trisha Lindemann or Caroline Marvin); or

with the counselors at Columbia's Counseling and Psychological Services (<http://health.columbia.edu/services/cps>).

Students With Disabilities. Students with special needs who may require accommodations should make an appointment to see me as soon as possible, at least by the end of the second week of class. If you have not already done so, stop by the Office of Disability Services (ODS) on the 7th floor of Lerner Hall to register for support services. ODS often requires two weeks to process an application, so please contact them as soon as you can, preferably before the course begins.

Tentative List of Topics

Each class period after the first week will be devoted to one topic related to decision architecture. **The topics listed below are not necessarily in the order in which we will cover them**—we'll determine the final schedule for which topics we'll cover each week during the first course meeting.

Depending on student interest, we may end up skipping some of these topics and spending more than one week on others. If you are interested in a decision architecture topic that you don't see listed here, let me know! This field is currently very popular among researchers, so there are almost always new and interesting studies that we could add to this list.

The final reading list, with links to PDFs of all of the readings and the dates on which we'll cover each topic, will be posted on Canvas after the first class meeting.

There are no required textbooks for this course.

Week #: date	Topics	<u>Tentative</u> reading assignments (those in bold may be presented by students)
Week 1: 1/23	Introduction to the course <ul style="list-style-type: none"> • What is decision architecture/behavioral nudges? • What are different ways of classifying nudges (mindful vs. mindless; aligning vs. encouraging; context vs. presentation)? • In what domains have nudges been studied? 	Johnson et al., 2012 Ly, Mazar, Zhao, & Soman, 2013 Thaler & Sunstein, 2009 (introduction, pp. 1-14)
Week 2: 1/30	Exploring the Default Effect: how and why do defaults work, and in what variety of settings do we see results? <ul style="list-style-type: none"> • Action vs. no-action defaults • Type I vs. Type II errors • Arguments for the ethics of using defaults 	Ansher et al., 2014 Smith, Johnson, & Goldstein, 2013 Johnson & Goldstein, 2004
Week 3: 2/6	Revisiting defaults: which DA tools might influence choices for health insurance options? Are there any interactions between domain (e.g., health) and DA tool (e.g., default effects)? <ul style="list-style-type: none"> • Default effects on healthcare decisions • Effectiveness of defaults compared with that of calculation tools, education, & financial incentives 	Johnson, Hassin, Baker Bajger, & Treuer, 2013 Gigerenzer, 2015 Johnson & Goldstein, 2003 Larrick & Soll, 2008
Week 4: 2/13	Social Influence & environmental behavior: how can you manipulate perceptions of the social setting to encourage good behavior?	Hamann et al, 2015

	<ul style="list-style-type: none"> • Social norm theory • Use of descriptive norms & injunctive norms and their interactions 	Jacobson, Mortensen, & Cialdini, 2011 Cialdini, Reno, & Kallgren, 1990
Week 5: 2/20	Nudging for academic honesty: how can DA tools be used to reduce cheating, both in undergraduate populations and among researchers themselves? <ul style="list-style-type: none"> • Effectiveness of defaults • Effectiveness of social norms messaging 	Mazar & Hawkins, 2015 Anderson & Adam, 2014 Smaldino & McElreath, 2016 (note: this paper is fairly long, so leave plenty of time for it)
Week 6: 2/27	How might DA tools be effectively used to alleviate the problem of patient non-compliance in healthcare settings? <ul style="list-style-type: none"> • Shared Decision Making & agency 	Wilson et al. 2010 Gold & Lichtenberg, 2012 Blumenthal-Barby & Burroughs, 2012
Week 7: 3/6	How can motivation theory (specifically, Regulatory Focus) be wielded to improve pro-environmental behavior? <ul style="list-style-type: none"> • Motivational focus as a DA tool • Framing effects • motivation & framing interactions • How do defaults and motivational theory relate to the Status Quo Bias? 	Baxter & Gram-Hanssen, 2016 Boldero & Higgins, 2011 Samuelson & Zeckhauser, 1988
Week 8: 3/13	How could removing price tags from consumable items actually encourage higher spending in consumers? <ul style="list-style-type: none"> • Self-signaling and identity as DA tools 	Gneezy, et al. 2012 Ariely, Loewenstein, & Prelec 2003
Week 9: 3/27	Choice Overload: what factors might influence whether choice overload is experienced or not, and what implications does this theory have on leadership decisions? <ul style="list-style-type: none"> • Review paper on the theory behind choice overload • Implications of CO theory for various domains, including decisions made on behalf of others 	Chernev et al., 2015 (note: as a review paper, this reading is fairly long and denser than normal, so leave plenty of time for it!) Levy & Thompson, Chapter 5
Week 10: 4/3	How might DA tools be implemented in a legal setting? <ul style="list-style-type: none"> • Mindset priming and its effect on jury decisions • Is it fair to consider priming as a DA tool? 	O'Brien & Oyserman, 2008 Bargh & Chartrand, 2000 Stanchi, 2010

Week 11: 4/10	How might nudges be implemented in the field of UX (user experience)? <ul style="list-style-type: none"> How could the DA tool of partitioning lead to different choices for users of web pages and phone apps? 	Fox, Ratner, & Lieb, 2005 Reichelson et al. 2017 Lockton, Harrison, & Stanton, 2009
Week 12: 4/17	What types of positive spillover effects might we see as a consequence of nudging? <ul style="list-style-type: none"> How and when can use of a DA tool lead indirectly to subsequent good behaviors? Which DA tools should, in theory, lead to positive spillover, and which would be expected to lead to negative spillover? 	Mochon et al., 2016 Thøgersen & Crompton, 2009 Truelove et al., 2014
Week 13: 4/24	What types of negative spillover effects might we see as a consequence of nudging? <ul style="list-style-type: none"> What are “dodges” and what factors may predict when they will occur? What are the theories behind the different reasons for negative spillover after good behavior? Spillover in the domains of healthcare decisions, healthy eating, pro-environmental behaviors, and exercise 	Colby, Li, & Chapman, 2014 Ibuka, et al., 2014 Policastro, Smith, & Chapman, 2015 Tiefenbeck, et al., 2013 Werle, Wansink, & Payne, 2015 Truelove et al., 2014 (review)
Week 14: 5/1	Wrap-up discussion: <ul style="list-style-type: none"> When and where do behavioral nudges work? How do nudges interact with each other, and with their context? (How) can nudges be implemented ethically? Transparently? 	Hansen & Jespersen, 2013 Sunstein, 2015 <i>In preparation for our discussion, please also read each of the “Policy” Papers your classmates have posted on Canvas.</i>

Partial List of Readings

Anderson, M. S., & Adam, J. A. (2014). A proposal for considering research integrity from the perspective of behavioral economics. *Journal of microbiology & biology education*, 15(2), 173.

Ansher, C., Ariely, D., Nagler, A., Rudd, M., Schwartz, J., & Shah, A. (2014). Better medicine by default. *Medical Decision Making*, 34(2), 147-158.

Ariely, D., Loewenstein, G., & Prelec, D. (2003). “Coherent arbitrariness”: Stable demand curves without stable preferences. *The Quarterly Journal of Economics*, 118(1), 73-106.

Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle. *Handbook of research methods in social and personality psychology*, 253-285.

- Baxter, J., & Gram-Hanssen, I. (2016). Environmental message framing: Enhancing consumer recycling of mobile phones. *Resources, Conservation and Recycling*, 109, 96-101.
- Blumenthal-Barby, J. S., & Burroughs, H. (2012). Seeking better health care outcomes: the ethics of using the “nudge”. *The American Journal of Bioethics*, 12(2), 1-10.
- Boldero, J. M., & Higgins, E. T. (2011). Regulatory focus and political decision making: When people favor reform over the status quo. *Political Psychology*, 32(3), 399-418.
- Colby, H., Li, M., & Chapman, G. (2014). Carrots By Default: Are Healthy Defaults a Blessing Or a Curse?. *NA-Advances in Consumer Research Volume 42*.
- Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, 25(2), 333-358.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of personality and social psychology*, 58(6), 1015.
- Gigerenzer, G. (2015). Towards a paradigm shift in cancer screening: informed citizens instead of greater participation. *BMJ: British Medical Journal (Online)*, 350.
- Gneezy, A., Gneezy, U., Riener, G., & Nelson, L. D. (2012). Pay-what-you-want, identity, & self-signaling in markets. *Proceedings of the National Academy of Sciences*, 109(19), 7236-7240.
- Gold, A., & Lichtenberg, P. (2012). Don't Call Me “Nudge”: The Ethical Obligation to Use Effective Interventions to Promote Public Health. *American Journal of Bioethics*, 12(2), 18-20.
- Hamann, K. R., Reese, G., Seewald, D., & Loeschinger, D. C. (2015). Affixing the theory of normative conduct (to your mailbox): Injunctive and descriptive norms as predictors of anti-ads sticker use. *Journal of Environmental Psychology*, 44, 1-9.
- Hansen, P.G., & Jespersen, A.M. (2013). Nudge & the manipulation of choice: A framework for responsible use of the nudge approach to behavior change in public policy. *Eur. J. Risk Reg.*, 3.
- Ibuka, Y., Li, M., Vietri, J., Chapman, G. B., & Galvani, A. P. (2014). Free-riding behavior in vaccination decisions: An experimental study. *PloS one*, 9(1), e87164.
- Jacobson, R. P., Mortensen, C. R., & Cialdini, R. B. (2011). Bodies obliged and unbound: differentiated response tendencies for injunctive and descriptive social norms. *Journal of personality and social psychology*, 100(3), 433.
- Johnson, E. J., & Goldstein, D. G. (2004). Defaults and donation decisions. *Transplantation*, 78(12), 1713-1716.
- Johnson, E. J., Hassin, R., Baker, T., Bajger, A. T., & Treuer, G. (2013). Can consumers make affordable care affordable? The value of choice architecture. *PloS one*, 8(12), e81521.
- Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives?. *Science*, 302(5649), 1338-1339.
- Johnson, E. J., Shu, S. B., Dellaert, B. G., Fox, C., Goldstein, D. G., Häubl, G., ... & Wansink, B. (2012). Beyond nudges: Tools of a choice architecture. *Marketing Letters*, 23(2), 487-504.
- Larrick, R. P., & Soll, J. B. (2008). The MPG illusion. *Science*, 320(5883), 1593.

- Levy, J. S., & Thompson, W. R. (2011). *Causes of war*. John Wiley & Sons.
- Ly, K., Mažar, N., Zhao, M., & Soman, D. (2013). Nudging. 1-28.
- Mazar, N., & Hawkins, S. A. (2015). Choice architecture in conflicts of interest: Defaults as physical and psychological barriers to (dis) honesty. *Journal of Experimental Social Psychology*, 59, 113-117.
- Mochon, D., Schwartz, J., Maroba, J., Patel, D., & Ariely, D. (2016). Gain without pain: The extended effects of a behavioral health intervention. *Management Science*.
- O'Brien, B., & Oyserman, D. (2008). It's Not Just What You Think But Also How You Think About it: The Effect of Situationally Primed Mindsets on Legal Judgments and Decision Making.
- Policastro, P., Smith, Z., & Chapman, G. (2015). Put the healthy item first: Order of ingredient listing influences consumer selection. *Journal of health psychology*, 1359105315617328.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of risk and uncertainty*, 1(1), 7-59.
- Smaldino, P. E., & McElreath, R. (2016). The natural selection of bad science. *Royal Society Open Science*, 3(9), 160384.
- Smith, N. C., Goldstein, D. G., & Johnson, E. J. (2013). Choice without awareness: Ethical and policy implications of defaults. *Journal of Public Policy & Marketing*, 32(2), 159-172.
- Stanchi, K. (2010). The Power of Priming in Legal Advocacy: Using the Science of First Impressions to Persuade the Reader.
- Sunstein, C. (2015). What, Exactly, Do You Want? *New York Times* Op-Ed.
- Tiefenbeck, V., Staake, T., Roth, K., & Sachs, O. (2013). For better or for worse? Empirical evidence of moral licensing in a behavioral energy conservation campaign. *Energy Policy*, 57, 160-171.
- Thaler, R. & Sunstein, C. (2009). *Nudge: Improving Decisions about Health, Wealth, and Happiness*. Penguin: New York.
- Thøgersen, J., & Crompton, T. (2009). Simple and painless? The limitations of spillover in environmental campaigning. *Journal of Consumer Policy*, 32(2), 141-163.
- Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenberg, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change*, 29, 127-138.
- Werle, C. O., Wansink, B., & Payne, C. R. (2015). Is it fun or exercise? The framing of physical activity biases subsequent snacking. *Marketing Letters*, 26(4), 691-702.
- Wilson, S. R., Strub, P., Buist, A. S., Knowles, S. B., Lavori, P. W., Lapidus, J., & Vollmer, W. M. (2010). Shared treatment decision making improves adherence and outcomes in poorly controlled asthma. *American journal of respiratory and critical care medicine*, 181(6), 566-577.