SKILL ACQUISITION & AUTOMATICITY

Graduate Seminar #80491-001, SPRING 2008

Tuesday 12:45-3:00, Kent Hall #380

Dr. Katherine Rawson: office 230 Kent Hall, (330) 672-3789, krawson1@kent.edu

OFFICE HOURS: Wednesday and Thursday, 12:00-2:00, or by appointment.

COURSE READINGS: For most of the readings, electronic copies are available through the library system. For those not available electronically, you can borrow the hard copy of the article from me to make your own copy (or of course, you can copy the original available on the shelves in the library).

COURSE GOALS: What I hope you will take away from this seminar is twofold: Your first goal should be to amass a good working knowledge of the literature on automaticity and skill acquisition—you may not remember every little detail, but you should at least try to come away with a good understanding of what "automaticity" is, what "skill" is, what the various theories claim, how they differ from one another, etc. To this end, I have tried to select articles that present the most influential theories and findings in the area. Your second goal should be to apply this knowledge to other cognitive domains—your own area of research, at a minimum. To this end, you will wrap up the semester by writing a paper that integrates what you've learned in this class with your own research interests.

ASSIGNMENTS: Too often, a student's ultimate goal becomes getting a grade, rather than expanding one's knowledge and thinking skills. If you have any residual "grade blinders" left over from your undergraduate days, shed them now. As a graduate student, your goal for this class (or any class) should be to continue your development as a scientist—to think critically about theoretical claims, methods, data, and their relationship to one another, and to further expand your knowledge about cognitive phenomena and research.

Note that the "work" that I am "assigning" you is first and foremost designed to support your learning and critical evaluation of the theories and research in this area, and only secondarily as stuff that can be graded. Your grade will be based on three factors: weekly responses, class participation, and a final paper.

- Weekly responses: For each week, I will only be assigning two papers, so we will have time to think carefully through each one and having meaningful discussions about both. To support this, for class each week, I would like you to write a short response for each paper. You should bring your weekly response to class with you to turn in at the end of each class.
  - Each response should begin with a <u>brief</u> summary of what you think are the most important theoretical claims and/or empirical findings in the paper—note the emphasis on brief (anyone can write a long summary; distilling down to the most important ideas is the better intellectual exercise). In other words, imagine that you were trying to give a colleague who hadn't read the paper the upshot of what the paper was about and the main take-home message.
  - Then, each response should close with at least two questions that the article raised for you. They should be the kind of question that would provide good fodder for discussion in the class. For example, "I wonder why they only ran 20 participants instead of 30" is NOT a good question. Instead, your questions should be hitting at a higher conceptual level, such as questioning theoretical assumptions, comparing one theory with another or one set of findings with other research discussed earlier, issues of generalization, etc. Good meaty stuff like that.

- Class participation: For each paper for each class, one student will be selected as the "lead" for that article. Your role will be to first provide a brief summary of the paper and then to lead discussion of the paper. (Having already written a good summary and thoughtful questions for weekly responses should make this a no-brainer.) Everyone's name will be placed in a box, and whoever is selected will present for that paper. Each of you will have one "free pass." You can use this pass either (1) because you just don't feel like presenting on a day you are chosen or (2) because you need to miss a class for whatever reason. Note, however, that even if you're not selected as the lead for a particular article, I'll expect <u>everyone</u> to be talking during <u>every</u> class.

- Final paper: You have some degrees of freedom here, and after Spring Break we'll start talking about specific ideas you'd like to pursue in your paper. Basically, you have two options:
  1. You can write a project proposal. The proposal will include two components. First, you'll set the stage for your proposed project by briefly reviewing the most relevant literature discussed in class along with at least a couple outside papers (I can help you find these). As in any good journal article, you'll want to explain the current theoretical and empirical state of the field regarding your issue of interest and how your proposed project will significantly contribute to the field. Note that this component of your paper should be concise and linear (we'll talk more about this in class). Second, you'll then describe in some detail the method for your proposed study. Ideally, I think you could shoot to devise a study that connects one or more key issues from class with work you're doing in your own research, and potentially a study that you would actually run.
  2. You can write an application paper. For this paper, you will start with any cognitive task (your choice, although I'd recommend something you're already exploring in your own research), describe what "automaticity" and/or "skill" would mean in the context of that task, discuss how two or more of the theories we read in class would explain the development of automaticity/skill in that task, and then conclude with a brief discussion of directions for future research to evaluate those theories in the context of your task.

COURSE POLICIES: I expect that all students know and will adhere to the university's honor code, and your continued enrollment in this class is taken as your agreement with this policy. The minimum penalty for failing to adhere to this honor code is an F in the course. If you are not familiar with the university's policy, you should visit http://imagine.kent.edu/policyreg and search on Policy # 3342-3-07. University policy 3342-3-18 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Disability Services (contact 330-672-3391) or visit www.kent.edu/sds for more information on registration procedures.

COURSE SCHEDULE: Note that this schedule is tentative and may be revised depending upon how quickly or slowly we move through these articles.

January	15	Introduction and course overview
January	22	Property-list accounts Schneider & Shiffrin (1977) Schneider, Dumais, & Shiffrin (1984)
January	29	Memory-based accounts: Instance Theory Logan (1988) Klapp, Boches, Trabert, & Logan (1991)
February	5	Memory-based accounts: Instance Theory (continued) and EBRW Logan, Taylor, & Etherton (1996) Palmeri (1997)
February	12	Memory-based accounts: CMPL Rickard (1997) Rickard (2004)
February	19	Attention-based accounts Haider & Frensch (1996) Gaschler & Frensch (2007)

February	26	A cognitive architecture account: ACT-R Anderson & Lebiere (1998), Chapters 1-2
March	4	A cognitive architecture account: ACT-R (continued) Anderson & Lebiere (1998), Chapters 3-4
March	11	A cognitive architecture account: ACT-R (continued) Anderson & Lebiere (1998), Chapter 12 Anderson (2007), pp. 53-54, 152-168, 174-186
March	18	SPRING BREAK
March	25	Ability differences in skill acquisition/automaticity Ackerman (1988) Ackerman & Cianciolo (2002)
April	1	Age differences in skill acquisition/automaticity Charness & Campbell (1988) Touron & Hertzog (2004)
April	8	Individual meetings to discuss project proposals
April	15	Skill retention/loss across delays Rickard (2007) Arthur, Bennett, Stanush, & McNelly (1998)
April	22	Factors that influence reliance on computation versus retrieval Bourne, Healy, Kole, & Graham (2006) Hoyer, Cerella, & Onyper (2003)
April	29	Interference in acquired skills Rehder (2001) Beilock & Carr (2001)
May	8	FINAL PAPERS DUE

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