

ANDREW T. STULL
Department of Psychological and Brain Sciences
University of California Santa Barbara
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EDUCATION

Ph.D., Psychology with an Emphasis in Cognitive Science and a Certificate in College and University Teaching (2009), Department of Psychology, University of California, Santa Barbara.

Thesis: *Anatomy learning in virtual reality: A cognitive investigation* (Advisors: Richard E. Mayer, Ph.D. and Mary Hegarty, Ph.D.)

M.S., Biology (1991), Department of Biology, California State University, Long Beach.

Thesis: *Nightly foraging movements and den fidelity of the California spiny lobster, Panulirus interruptus, at Santa Catalina Island, California.* (Advisor: Donald R. Nelson, Ph.D.)

B.S., Marine Biology (1983), Department of Biology, California State University, Long Beach.

RESEARCH EXPERIENCE

Psychology Research

Postdoctoral Fellow, National Academy of Education/Spencer Foundation, "Modeling in chemistry: Evaluating the educational merit of instructional models," 2010-present.

Postdoctoral Researcher, University of California, Santa Barbara, CA, Dr. Mary Hegarty, National Science Foundation, "Alternative Strategies for Problem Solving in Science," 2009-2010.

Graduate Student Researcher, University of California, Santa Barbara, CA, Dr. Mary Hegarty, National Science Foundation, "Alternative Strategies for Problem Solving in Science," 2008-2009.

Graduate Student Researcher, University of California, Santa Barbara, CA, Dr. Mary Hegarty, Office of Naval Research, "Comprehension and Cognition in Meteorology Displays," 2007-2008.

Graduate Student Researcher, University of California, Santa Barbara, CA, Dr. Richard E. Mayer, Andrew W. Mellon Foundation, "Assessing the Pedagogic Implications of Technology in College Courses," 2006-2007.

TEACHING EXPERIENCE

Instructor (Psychology)

Advanced Research Methods, Psychology 120L, University of California, Santa Barbara, Summer 2008 and Spring 2009.

Educational Psychology, Psychology 124, University of California, Santa Barbara, Summer 2007.

Laboratory Instructor (Psychology)

Advanced Research Methods, Psychology 120L, University of California, Santa Barbara, CA, Spring 2007

Laboratory in Human Memory and Cognition, Psychology 117L, University of California, Santa Barbara, Winter 2007

Teaching Assistant (Psychology)

Educational Psychology, Psychology 124, University of California, Santa Barbara, CA, Fall 2006.

Psychopathology, Psychology 103, University of California, Santa Barbara, CA, Summer 2006.

Introductory Psychology, Psychology 1, University of California, Santa Barbara, CA, Spring 2006.

Problem Solving, Psychology 128, University of California, Santa Barbara, CA, Winter 2006.

Introduction to Cognition, Psychology 108, University of California, Santa Barbara, CA, Fall 2005.

Curriculum and Instructional Development

Instructional Technology Consultant, Benjamin-Cummings, Pearson Education, 2003-2005.

Media Editor, Prentice Hall Engineering, Science, & Mathematics, Pearson Education, 1997-2003.

Instructional Computing Consultant, California State University, Fullerton, CA, 1991-1997.

SCHOLARLY AND CREATIVE ACTIVITIES

Publications (Psychology)

Stull, A. T. & Mayer, R. E. (2007). Learning by doing versus learning by viewing: Three experimental comparisons of learner-generated versus author-provided graphic organizers. *Journal of Educational Psychology*, *99*, 808-820.

Mayer, R. E., **Stull, A. T.**, Campbell, J., Almeroth, K., Bimber, B., Chun, D., Knight, A. (2007).

Overestimation bias in self-reported SAT scores. *Educational Psychology Review*, *19*, 443-454.

Hegarty, M, Smallman, H. S., & **Stull, A. T.** (2008). Decoupling of intuitions and performance in the use of complex visual displays. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society*. (pp. 881-886). Austin, TX: Cognitive Science Society.

Mayer, R.E., **Stull, A.**, DeLeeuw, K., Almeroth, K., Bimber, B., Chun, D., Bulger, M., Campbell, J., Knight, A., Zheng, H., (2009). Clickers in college classrooms: Fostering learning with questioning methods in large lecture classes. *Contemporary Educational Psychology*, *34*, 51-57.

Hegarty, M., Smallman, H., **Stull, A. T.**, & Canham, M. (2009). Naïve cartography: How intuitions about display configuration can hurt performance. *Cartographica* *44*, 171-186.

Stull, A. T., Hegarty, M., & Mayer, R. E. (2009). Getting a handle on learning anatomy with interactive three-dimensional graphics. *Journal of Educational Psychology*, *101*, 803-816.

Stull, A. T., Hegarty, M., & Mayer, R. E. (2010). Anatomy learning with virtual objects. In T. Barkowsky, S. Bertel, C. Hölscher, & T. F. Shipley, (Eds.), *Cognitive Shape Processing* (pp. 39-44). Papers from the AAAI Spring Symposium Series, AAAI Press, Menlo Park, CA. Technical Report SS-10-02.

Stull, A. T., Hegarty, M. Stieff, M., & Dixon, B. (2010). Does manipulating molecular models promote representation translation of diagrams in chemistry? In A. K. Goel, M. Jamnik, & N. H. Narayanan (Eds.), *Diagrams 2010, LNAI 6170*. (pp. 338-344). Heidelberg, Germany: Springer.

Manuscripts (Psychology)

Hegarty, M., & **Stull, A. T.** (in press). Visuospatial thinking. In K. J. Holyoak & R. G. Morrison (Eds.), *Oxford handbook of thinking and reasoning*. New York, Oxford University Press.

Hegarty, M., Smallman, H., & **Stull, A. T.** (in revision). Using and choosing complex visual displays: Limits of metarepresentational competence.

Stull, A. T., Hegarty, M., Dixon, B., & Stieff, M. (in review). Representational translation with concrete models: It's not what you have, it's what you do.

Stull, A. T., Hegarty, M., & Mayer, R. E. (in preparation). Reducing user disorientation in the manipulation of virtual objects.

Other Publications (Instructional Development)

Stull, A. T. (1995). *Life on the Internet: Biology*. Englewood Cliffs, NJ: Prentice Hall.

Stull, A. T. (1996). *History on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

Stull, A. T. (1997). *English on the Internet 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

Stull, A. T. (1997). *Life on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

Stull, A. T. (1996). *Political Science on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

- Stull, A. T.** (1996). *Psychology on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Adler, C., & **Stull, A. T.** (1997). *Physics on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Biology on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Brady's guide to navigating the Internet*. Upper Saddle River, NJ: Brady/Prentice Hall.
- Stull, A. T.** (1997). *Education on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Geoscience on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *History on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Mathematics on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Music on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *On the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Psychology on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Spanish on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Surfing for Success in Business, 1997-1998*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1997). *Surfing Success in Management: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.,** Benokraitis, N. V., & Benokraitis, A. T. (1997). *Sociology on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Art on the Internet, 1997-1998: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *History on the Internet: 1998-1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Mathematics of the Internet, 1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Music on the Internet, 1998-1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Political Science on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Psychology on the Internet 1998-1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1998). *Science on the Internet, 1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1999). *Art on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1999). *Electronics on the Internet, 1998-1999: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1999). *History on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1999). *Music on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (1999). *Philosophy on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

- Stull, A. T.** (1999). *Spanish on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** & Platt, J. L. (1999). *Psychology on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2000). *French on the Internet, 1999-2000: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2000). *Photography on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** & Nickla, H. (2000). *Science on the Internet, 2000-2001: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** & Benokraitis, N. V. (2000). *Sociology on the Internet, 1999-2000: A Prentice Hall Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2000). *Surfing for success in business: A student's guide to the internet*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2001). *Music on the Internet, 2001: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2001). *Political Science on the Internet, 2001: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2001). *Psychology on the Internet, 2001: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.
- Stull, A. T.** (2002). *Philosophy on the Internet: A Student's Guide*. Upper Saddle River, NJ: Prentice Hall.

PROFESSIONAL PRESENTATIONS

Presentations (Psychology)

- Stull, A. T.** & Mayer, R. E. (2006, April). *When do graphic organizers promote meaningful learning?* Poster presented at the Annual Convention of the American Educational Research Association, San Francisco, CA.
- Mayer, R. E., **Stull, A. T.**, Campbell, J. E., Almeroth, K., Bimber, B., Chun, D., & Knight, A. (2006, April). *Some shortcomings of soliciting students' self-reported SAT scores*. Poster presented at the Annual Convention of the American Educational Association. San Francisco, CA.
- Stull, A. T.** & Mayer, R. E. (2006, July). *Three experimental comparisons of learner-generated versus author-provided graphic organizers*. Poster presented at the 28th Annual Conference of the Cognitive Science Society, Vancouver, BC, Canada.
- Stull, A. T.**, Hegarty, M., & Mayer, R. E. (2007, November). *Mitigating effects of low spatial ability in the mental and manual manipulation of objects*. Poster presented at the Annual Convention of the Psychonomics Society, Long Beach, CA.
- Stull, A. T.**, Hegarty, M., & Mayer, R. E. (2008, July). *The seduction of symmetry: Bias in the manual rotation of a virtual object*. Poster presented at the 30th Annual Conference of the Cognitive Science Society. Washington, DC.
- Stull, A. T.**, Hegarty, M., & Mayer, R. E. (2009, April). *Orientation References: Getting a Handle on Spatial Learning*. Presentation at the Annual Convention of the American Educational Association. San Diego, CA.
- Stull, A. T.** (2009, September). *Data visualizing and the manipulation of virtual 3d objects*. Presentation at the Data Visualization Convening sponsored by the MacArthur Foundation, Carnegie Foundation, and Woodrow Wilson, Stanford, CA.
- Stull, A. T.** (2009, December). *Representations: Investigating cognitive challenges in virtual reality*. Presentation for the Cognition, Perception, and Cognitive Neuroscience Seminar, Department of Psychology, University of California. Santa Barbara, CA.

- Stull, A. T.,** Hegarty, M., & Mayer, R. E. (2010, March). *Anatomy learning with virtual objects*. Presentation at the Spring Symposium Series on Cognitive Shape Processing, Association for the Advancement of Artificial Intelligence, Stanford, CA.
- Stull, A. T.,** Hegarty, M., Stieff, M., & Dixon, B. (2010, August). *Does manipulating molecular models promote representation translation of diagrams in chemistry?* Poster presented at the Sixth International Conference on the Theory and Application of Diagrams, Portland, OR.
- Stull, A. T.,** Hegarty, M., Stieff, M., & Dixon, B. (2010, August). *Concrete models as aids to representation translation of molecular Diagrams*. Poster presented at the 32nd Annual Conference of the Cognitive Science Society. Portland, OR.
- Stull, A. T.,** Hegarty, M., Stieff, M., & Dixon, B. (2010, August). *Concrete models as aids to representation translation of molecular Diagrams*. Poster presented at International Conference on Spatial Cognition 2010. Mt. Hood, OR.
- Stull, A. T.,** Hegarty, M., & Mayer, R. E. (2010, November). *Cognitive and Perceptual Factors that Affect Manipulating a Virtual Object*. Poster presented at the 51st Annual meeting of the Psychonomics Society. St. Louis, MO.
- Stull, A. T.,** Hegarty, M., Stieff, M., & Dixon, B. (2010, November). *Individual Differences in Use of External Representations in Spatial Thinking*. Presented by M. Hegarty at the 51st Annual meeting of the Psychonomics Society. St. Louis, MO.

Presentations (Instructional Development)

- Stull, A. T.** (1994, October). *New Directions in Instructional Technology for Teaching and Research*. Seminar for the Department of Biological Science, California State University, Fullerton, CA.
- Stull, A. T.** (1995, May). *World Wide Web or Not: Maximizing Your Options with Hypertext-Based Teaching and Learning Resources*. Presentation at the Annual Meeting of the Southern California Academy of Science, Fullerton, CA.
- Stull, A. T. & Hartney, T.** (1995, May). *Integrating Multimedia into the Introductory Biology Lab Curriculum*. Presentation at the Annual Meeting of the Southern California Academy of Science, Fullerton, CA.
- Stull, A. T.** (1995, May). *A Beginner's Workshop on Developing Hypertext Learning Tools with HTML*. Presentation at the Annual Meeting of the Southern California Academy of Science, Fullerton, CA.
- Stull, A. T.** (1995, August). *Integrating Web Resources into Your Curriculum*. Presentation at the Faculty Day, California State University, Fullerton, CA.
- Stull, A. T.** (1996, June). *Techniques for Digital Image Capture and Editing*. Presentation at the California State University, Fullerton Summer Academy, Fullerton, CA.
- Stull, A. T.** (1996, June). *Web Design Made Easy With HotDog Pro*. Presentation at the California State University, Fullerton Summer Academy, Fullerton, CA.
- Stull, A. T.** (1996, June). *Instructional Design, HTML, and the World Wide Web*. Presentation at the California State University, Fullerton Summer Academy, Fullerton, CA.
- Stull, A. T.** (1996, August). *The Internet: Assault on the Publishing Paradigm?* Presentation at the American Institute of Biological Sciences, Seattle, WA.
- Stull, A. T.** (1997, April). *Extending the Chemistry Classroom*. Presentation at the National Meeting of the American Chemical Society, San Francisco, CA.

SCHOLARLY AND CREATIVE ACTIVITIES

Grants and Awards (Psychology)

- Stull, A. T.** (2008). *Mitigating individual differences in the use of virtual tools*. UCSB Affiliates Graduate Dissertation Fellowship, \$3000.
- Stull, A. T.** (2009). Fiona Goodchild Award for Excellence as a Graduate Student Mentor of Undergraduate Research, \$500.
- Stull, A. T.** (2010). *Modeling in chemistry: Evaluating the educational merit of instructional models*. National Academy of Education/Spencer Postdoctoral Fellowship, \$55,000.

Grants and Awards (Instructional Development)

Ono, J., Koch, R., Fromson, D., Dickson, K., Gill, D., & **Stull, A.** (1994). *Equipment for Investigative Laboratories and Scientific Communication in Physiology Courses at California State University, Fullerton*. National Science Foundation, Undergraduate Instrumentation and Laboratory Improvement. Award Number 9451565, \$40,000.

Professional Organization Memberships

American Educational Research Association (AERA)
Association for Psychological Science (APS)
Cognitive Science Society (CogSci)
Psychonomics Society (PS)

Academic Committees (Psychology/Cognitive Science)

Co-Chair, Department of Psychology Graduate Student Conference, University of California, Santa Barbara, June 2007.
Program Manager, Cognitive Science Emphasis Program, University of California, Santa Barbara, 2009-2010.
Conference Officer, Cognitive Science Society, 2010-current.

Academic Committees (Instructional Development)

Member, Computer Steering Committee for the School of Natural Science and Mathematics, California State University, Fullerton, 1994-1997.
Symposium Coordinator, New Instructional Technologies in Science, Southern California Academy of Science Annual Meeting, California State University, Fullerton, May, 1995.

Journal Reviewing

Cognition
Human Factors
Visual Cognition
Canadian Journal of Emergency Medicine

CAREER EXPERIENCE IN BIOLOGY**RESEARCH EXPERIENCE****Biology Research**

- Graduate Research Assistant, Marine Biological Laboratory, Woods Hole, MA, Dr. Mary Ann Sydlik, "Telemetry Investigation of Navigation Behavior by Horseshoe Crabs," Summer 1987 & 1988.
- Graduate Research Assistant, Scripps Institute of Oceanography, La Jolla, CA, Dr. A. Peter Klimley, "Telemetry Investigation of Homing Behavior by Hammerhead Sharks," Summer 1986 & 1989.
- Graduate Research Assistant, California Department of Fish and Game, Blyth, CA, Michael Guisti, "Telemetry Study of Striped Bass Behavior," Summer 1984 & 1985.
- Product Manager, Ultrasonic Telemetry Systems, Brea, CA, James N. McKibben, Telemetry equipment development for the study of aquatic and marine animals, 1983-1990.

TEACHING EXPERIENCE**Instructor (Biology)**

- Human Anatomy, Health Career Training Associates, Manchester, NH, Winter 2005.
- General Biology, Irvine Valley College, Irvine, CA, 1992-1994.
- Human Anatomy, New College of California, San Francisco, CA, 1992.
- Biology and Advanced Placement Biology, ABC Unified School District, Artesia, CA, 1988-1991.

Laboratory Instructor (Biology)

- General Biology Laboratory, Irvine Valley College, Irvine, CA, 1994.
- Introductory Biology, California State University, Long Beach, Long Beach, CA, 1985-1988.
- Marine Natural History, California State University, Long Beach, Long Beach, CA, 1985-1988.

Outreach Instructor (Physical Science)

- Physical Science, Southern California Edison/Jet Propulsion Laboratory, Pasadena, CA, 1990.

SCHOLARLY AND CREATIVE ACTIVITIES**Publications (Biology)**

- Sydlik, M. A., Barlow, B. B., **Stull, A.**, Nelson, D. R., & Kammire, C. (1987). Migratory behavior of individual horseshoe crabs. *Biological Bulletin*, 173, 438-439.
- Sydlik, M. A., Barlow, B. B., **Stull, A.**, & Nelson, D. (1988). Migratory decisions in mating horseshoe crabs. *American Zoologist*, 28, A80-A80.
- Klimley, A. P., Butler, S., Nelson, D. R., & **Stull, A. T.** (1988). Diel movements of scalloped hammerhead sharks *Sphyrna lewini* (Griffith and Smith) to and from a seamount in the Gulf of California, Mexico. *Journal Fishery Biology*, 33, 751-761.

Grants and Awards (Biology)

- Stull, A.** (1988). *Residency and homing of the spiny lobster, Panulirus interruptus*. Richard B. Loomis Memorial Award for Master's Thesis Research at California State University, Long Beach, \$400.

Academic Committees (Biology)

- Member, Long Range Planning Committee for the Department of Biological Science, California State University, Fullerton, 1995-1997.
- Meeting Organizer, Association of Biologists Using Computers, California State University, Fullerton, Annual Meeting, January 1996.