Michelene (Micki) T. H. Chi
Curriculum Vitae
June 21, 2019 [older]

PERSONAL DATA

Birth Place: Chiang-Mai, Thailand

Immigrant: From Indonesia (now a U.S. citizen)

Home Address	Office Address	Email & Phone
1770 E Carver Rd	Learning and Cognition Lab	Michelene.Chi@asu.edu
Tempe, AZ 85284	Payne Hall, Room 122F	Office: 480-727-0041
Home phone: 480-268-9188	1000 S Forest Mall	
	Tempe, AZ 85287-2111	

EDUCATION

1970	B.Sc. in Mathematics, Carnegie-Mellon University
1975	Ph.D. in Psychology, Carnegie-Mellon University

Thesis: *The Development of Short-term Memory Capacity*
Committee: David Klahr, Patricia Carpenter, and Herbert Simon (Nobel Laureate)

RESEARCH AND TEACHING POSITIONS

1970-1974	NIE Trainee, supervised by Prof. David Klahr, Cognitive Developmental Group, Dept. of Psychology, Carnegie Mellon University.
1974-1975	Post-Doctoral Trainee, The Experimental Group, supervised by Profs. Mike Posner & Steve Keele, Department of Psychology, University of Oregon
1975-1977	Post-Doctoral Fellow, supervised by Prof. Robert Glaser, Learning Research and Development Center (LRDC), University of Pittsburgh
1977-2008	Research Associate to Senior Scientist Learning Research and Development Center, University of Pittsburgh
1982-1990	Assistant to Associate to Full Professor, Department of Psychology, University of Pittsburgh
1990-2008	Professor of Psychology, Department of Psychology, University of Pittsburgh
1994-1998	Cognitive Program Chair, Department of Psychology, University of Pittsburgh
1996-2001	Adjunct Faculty Member, Section of Medical Informatics, University of Pittsburgh Medical Center
2008-2010	Professor, Psychology in Education, Graduate School of Education, Arizona State University (ASU)
2010-2012	Professor, Dept. of Psychology, College of Liberal Arts and Sciences, ASU
2012-present	Foundation Professor, MLF Teachers College (MLFTC), ASU
2013-2015	Director, Learning Sciences Institute, ASU
2015 - present	Dorothy Bray Endowed Professor of Science and Teaching, MLFTC

2018 – present   Regents' Professor, ASU

GRANTS COMPLETED in 2013 and 2014

2009 – 2013   *Using a Cognitive Framework of Differentiated Overt Learning Activities (DOLA) for Designing Effective Classroom Instruction in Materials Science and Nanotechnology.* **M.T.H. Chi (P.I.)** & S. Krause (co-P.I.) (Materials Science Engineering), NSF Engineering Education Program, Award No. 0935235, $400,000.

2011 – 2014   *Comprehension SEEDING: Comprehension through Self-Explanation, Enhanced Discussion, and Inquiry Generation.* Rodney D. Nielsen (P.I.) (Boulder Language Technologies, CO) and **M.T.H. Chi (co-P.I.),** Institute of Education Science (R305A110811). Budget for ASU sub-award to Chi, $409,003. (Coeus Award No. 024969-001)

GRANTS COMPLETED in 2015 and 2016

Learning from Observing Learning with Dynamic Simulations. **M.T.H. Chi (P.I.)**, The Spencer Foundation Major Grant Program, Award No. 200800196, $500,000.

The ICAP Module: Guidelines for Teachers to Increase Students' Engagement with Learning. **M.T.H. Chi (P.I.)**, & Roy Levy (co-P.I.), Institute of Education Science, (R305A110090), $1,399,212. (Coeus Award No. 024405-001).

GRANTS COMPLETED IN 2017

2015-2017   *Learning from Dialog versus Monolog Videos.* **M.T.H. Chi (P.I.),** & Sara Brownell (co-PI), National Science Foundation, $249,995.

CURRENTLY ACTIVE GRANTS

2015 – 2019   *Developing and Revising Instructional Activities to Optimize Cognitive Engagement.* **M.T.H. Chi (P.I.)** & Joi Merritt (co-P.I.). Institute of Education Sciences, $1,456,185.

2015 – 2019   *Teaching the Crosscutting Concept of Emergent Cause-and- Effect to Overcome Misconceptions.* **M.T.H. Chi (P.I.)** & Joi Merritt (co-P.I.). Institute of Education Sciences, $1,456,431.

SCHOLARLY IMPACT

1993   Chi, Feltovich & Glaser (1981), (Publication #15 in the reference list) was identified as a Citation Classic.

2000   Chi (1997) (Publication #65), was noted in the editorial of the *Journal of the Learning Sciences* (Kolodner, 2000, p. 2), as one of its "most cited papers" on methodology.

2002   Highlighted in "Reach for the Stars," a basic research poster session that showcased the research careers of distinguished scholars, AERA.

2002	Chi (1978) (Publication #12) was voted as the 7th "Most Fascinating Studies in Child Psychology," as surveyed by the Society for Research in Child Development, published in their Oct. newsletter.
2006	Two papers (#15 & #41) were ranked 1st and 7th most highly cited papers published in *Cognitive Science* (from Goldstone's 2006 Editor's report).
2007	Noted by the journal *Auditing: A Journal of Practice and Theory,* as one of its most frequently cited authors.
2014	Menekse, Stump, Krause & Chi (#110) received the William Elgin Wickenden Award from the American Society for Engineering Education, recognizing it as representing "the highest standards of scholarly research in engineering education published in the *Journal of Engineering Education* in 2013.
2016	Selected by the American Educational Research Association (AERA) as a Knowledge Forum Scholar to give a talk on her ICAP research as part of their "Ed-Talk" video series. https://www.youtube.com/watch?v=uC-9lViDGL0&feature=youtu.be
2016	Cited as one of the top most influential scholars in education research in a Brookings Institution study. https://www.brookings.edu/wp-content/uploads/2016/07/influence-in-research2.pdf
2016	Chi (2005)"Commonsense conceptions of emergent processes: Why some misconceptions are robust" (#88) was listed as one of the most cited papers on science education in the Web of Science database, ranked first under the subcategory, "Student's Thinking About Science".
2017	Chi, M. T. H. (2009). Active-Constructive-Interactive: A conceptual framework for differentiating learning activities. *Topics in Cognitive Science, 1*, 73-105. (#100) was the most downloaded paper from the publisher's website, at 3521 times, as of Sept. 2017.
2018	Chi, Kang, & Yaghmourian (2018) (Paper #120) received the inaugural Best Paper Award from the International Society of the Learning Sciences, for a paper published in the *Journal of the Learning Sciences* in 2017.
2018	ICAP paper (Chi & Wylie, 2014) has been translated and published in Chinese. Titled "Engagement Means Competence: A Summary of the Research and Value of the ICAP Framework" written by QunLi Sheng—a professor at Zhejiang University. The article is published on Open Education Research in Chinese, Volume 23, No. 2, April 2017.

| 2018 | Google Scholar Page: Total citations exceed 52,000. http://scholar.google.com/citations?user=AlW99VQAAAAJ&hl=en |

HONORS (Post Ph.D.)

<u>**Fellow and Scholar (all elected or invited)**</u>

1986	Fellow, Division 7, APA
1992	Fellow, Association for Psychological Science
1996 – 1997	Resident Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, CA
2002-2005	Fellow, Center for Philosophy of Science, Univ. of Pittsburgh
2003	One of the 7 inaugural Fellows, Cognitive Science Society
2013	Fellow, AERA
2016	Education Research Knowledge Forum Scholar, one of 32 scholars selected by a crowdsourcing method to engage with policy leaders in a forum about educational research; initiated on AERA Centennial' year.

<u>**Awards and Recognition**</u>

1977-1982	Spencer Fellowship, awarded by the National Academy of Education, for promising research and professional development contributing to the theory and practice of education.
1982	Boyd R. McCandless Young Scientist Award, presented by Division 7 of APA, for distinguished theoretical contribution and programmatic research efforts in the field of developmental psychology
2001	Cited in Carnegie-Mellon University's Centennial Magazine as one of its 87 most successful undergraduates
2006	Chancellor's Distinguished Research Award, Senior Category, for "innovative research of landmark impact in several research areas", University of Pittsburgh
2010	Elected to the National Academy of Education
2013	Faculty Achievement Award, for excellence in defining edge research/creative activities, Professional Application, ASU
2013	Sylvia Scribner Award, AERA, Division 3. The award recognizes a program of work that has significantly influenced thinking and research in the field of learning and instruction.
2014	Wickenden Award, from the American Society for Engineering Education, for a paper that shows "the highest standards of scholarly research in engineering education published in the *Journal of Engineering Education"* in 2013.
2014	MLF Teachers College Outstanding Research Achievement with Impact Award
2015	Dorothy Bray Endowed Professor of Science and Teaching

2015	Edward Lee Thorndike Career Achievement Award for Distinguished Contribution to Education, American Psychological Association, in recognition for original, scientific, and empirically-based research that contributes significantly to knowledge, theory, or practice in educational psychology.
2016	The American Educational Research Association Distinguished Contribution to Research in Education Career Award, is the premier acknowledgment of outstanding achievement and success in education research. It is designed to publicize, motivate, encourage, and suggest models for education research at its best.
2016	Inducted into the American Academy of Arts and Sciences.
2018	Best Paper Published in *Journal of the Learning Sciences*: Awarded by the International Society of the Learning Sciences
2018	Recipient of the David E. Rumelhart Prize, from the Cognitive Science Society, for significant contribution to the theoretical foundations of human cognition.

Keynote or Plenary Speaker at Conferences (exclude declined ones)

1993	The 10th International Conference on Machine Learning
1995	The 17th Annual Conference of the Cognitive Science Society
1999	Annual meeting of the American Society for Engineering Education, St. Louis, June.
2003	The 10th European Association for Research on Learning and Instruction, Padova, Italy.
2006, 2007	Lead discussant on Transfer (2006) and Expertise (2007), at the National Science Foundation meetings, Oct. 2006, 2007.
2008	The VI European Meeting in Conceptual Change, Turku, Finland
2010	Communication Analysis Workshop, Tempe, AZ
2011	"Highlighted Session Speaker" at International Conference on Computers in Education, for the sub-conference track Computer-supported Collaborative Learning, Chiang-Mai, Thailand, Nov.
2012	Mastering Leadership Conference, sponsored by Pearson, Scottsdale, March.
2014	Sylvia Scribner Award Address, AERA, April.
2014	Plenary speaker on "Conceptual Change Across Domain: Science," for the Conceptual Change Sig on *Generic and Specific Issues in Conceptual Change in Science,* Bologna, Italy, August.
2015	Featured speaker at the "Rice Workshop on Personalized Learning," April.

2015	Award address: E.L. Thorndike Career Achievement Award, American Psychological Association, in recognition for original, scientific, and empirically-based research that contributes significantly to knowledge, theory, or practice in educational psychology, July.
2016	Public Scholarship Ed-Talk, presented at a Presidential Session on *Challenging Common Sense Conceptions of Learning,* Feb.
2016	Keynote speaker*: "Counter-intuitive Findings and Implications for Teaching from the Sciences of Learning*." Snell Conference: Practicing the Art and Science of Teaching, Center for the Art and Science of Teaching, Oct.
2017:	Invited as a featured scholar in the Wisconsin Ideas in Education Series (WIES) at the University of Wisconsin-Madison to present a talk titled: *"ICAP: A theoretical framework for how to engage students to promote deeper learning,"* Feb.
2017	Invited as a featured scholar in the Wisconsin Ideas in Education Series (WIES) at the University of Wisconsin-Madison to present a talk titled: *"ICAP: A theoretical framework for how to engage students to promote deeper learning,"* Feb, 2017.
2017	Plenary speaker on "*Teaching Emergence: An Attempt at Differentiating Science Concepts of Processes"* at the National Association for Research in Science Teaching (NARST) conference for *Challenges in Learning Science Concepts*. April.
2017	Presented at the 2017 AERA Presidential Session on *Acquired Wisdom. Lessons Learned by Distinguished Researchers* with the session paper:
2017	Award address, presented at the Distinguished Contributions to Research in Education Award session: *Translating ICAP on Student Engagement into Practice*.
2017	Keynote at the TRUSE (Transforming Research in Undergraduate STEM Education) conference on STEM education hosted at St. Thomas University with the talk, "ICAP: How to Promote Deeper Active Learning Engagement"
2017	Keynote speaker at the National Conference on Technology-Enhanced Learning hosted by the National University of Singapore. Keynote titled, "*Implications of ICAP, a Theory of Student Engagement, for Technology-enhanced Practices*".
2018	Keynote speaker, "Conceptual change in understanding collective causality versus cumulative causalit," at the 2nd Interdisciplinary REASON Spring School hosted by the Munich Center of the Learning Sciences in Munich, Germany

2018	Keynote speaker, "Teachers Translating a Theory of Cognitive Engagement into Practice," at the 11th Annnual Subway Summmit hosted by Columbia University
2018	Keynote speaker, "How to Promote Deeper Learning by Engaging Students Cognitively" at the College of Developmental and Educational Psychology, Key Laboratory of Modern Teaching Technology, Ministry of Education Shaanxi Normal Univeristy in China
2018	Keynote speaker, "ICAP: How to Promote Deeper Learning by Engaging Students Cognitively," at the 6th Computational Behavior Science Summit—Behavioral Data Analysis and Application in Wuhan, China
2018	Colloqium: "Why is it Important for Students tgo be *Constructive* While Learning?" presented to the Graduate College, Central China Normal Univeristy in Wuhan, China
2018	Colloqium: "ICAP: How to Promote Deeper Learning by Engaging Students Constructively." Talk presented to the Tsinghua Institute of Education at Tsinghua Univeristy

RESEARCH

Research Interests

I am basically a cognitive learning scientist interested in how students learn, and was trained originally as a cognitive developmental psychologist. My overarching interest is in understanding how students learn complex concepts in STEM (Science Technology Engineering and Mathematics) domains, as well as in ways to improve their learning. In short, my research on learning takes the perspective of the students, rather than the perspective of the instructors. Of course, understanding how students learn has direct implications for how instructors can teach to optimize students' learning. I use both quantitative and qualitative methods. The qualitative coding methods are the ones that I have developed over the years for verbal explanations (see the first description of it in Publication #65 below).

I have several lines of active research. Three primary ones are briefly described here. First, I study ways of improving students' learning. In the past, this has included demonstrating how students can learn better by self-explaining (Publications #38, #41, #45, #46, #47, #58, #61, #69 #77, #79, #89, #104, #105, #115, #116), and understanding why tutoring is an effective instructional method, from the students' perspective (Publications #66, #73, #84, #85, #95, #96, #97, #102, #114). More recently, I have proposed a new method of learning, by observing and overhearing human tutorial dialogues in videos instead of listening to didactic lecture-style monologue-videos. Such human tutorial dialogues can be easily captured in video files and delivered online. Basically, we found that the observers can learn as well as the tutees in the video files (Publication #96, #101, #111; #114, #120), suggesting that we can easily and cheaply scale up the advantages of human tutoring without the need for directly interacting with a tutor. Moreover, this method of learning is particularly beneficial for low performing students. Although we don't yet have a satisfactory explanation for why dialogue-videos enhance learning more so than monologue-videos, we surmise that it may have to do with the social and motivational benefits of watching a peer (the tutee) struggling to learn, with the observing students sharing the same level of

understanding as the tutee in the dialogue-videos. An additional focus will be on issue of how we might script tutorial dialogues so we can produce these videos at scale. This work has implications for a variety of application contexts, the most obvious one is optimizing ways of delivering online learning materials instead of a talking head.

A second line of work tries to understand why many science concepts of processes, taught in school subjects, such as diffusion, heat transfer, natural selection, and electrical current flow, are so difficult to learn with deep understanding. These are core concepts that students have to understand and are assessed on the Next Generation Science Standards. Instead, students typically hold robust misconceptions. I have developed a theoretical explanation for their difficulty and how to achieve conceptual change. (See Publications #37, #42, #48, #50, #51, #56, #57, #59, #60, #63, #67, #69, #70, #74, #76, #81, #88, #90, #98, #99, #106, #107, #108, #112.) The gist of the idea is that children grow up in environments in which their daily encounters with events, narrative stories, and other phenomena, enable them to understand these events, stories and phenomena as sequential, linearly causal events. Perhaps children have an innate predisposition to understand linear causality. Regardless of the underlying causes, they fail to understand emergent causality, a causality that arises from the interactions of multiple agents simultaneously. I have tested this theory by designing an online module that teaches students this idea of emergence, then seeing whether knowing about emergence might enable students to better understand non-linear processes that they have to learn in school, such as concepts of diffusion and natural selection.

A third line of work concerns a framework that I have developed recently that defines "active learning" and "passive learning" in terms of overt observable student activities that I refer to as engagement activities. In particular, I offer a way to differentiate "active learning" in terms of both the overt engagement activities as well as its associated underlying cognitive processes. From this framework, I can generate a hypothesis that makes predictions about outcomes of numerous studies, design new studies, and so forth. (This work is described in Publication #100, #104, #110, #113, #118.) Based on this framework, we can offer ways to help teachers and instructors to modify their assigned seatwork and homework in ways that make them more active. The NSF-funded project (with Prof. Steve Krause in Materials Science Engineering) explored the potential of such modifications in an engineering classroom. The IES-funded project pertains to our development of an online module that will help primary and secondary school teachers to modify their homework and seatwork assignments themselves.

Aside from these three lines of work, many of my research projects explore the benefit of collaboration. That is, we seek to understand what causes the benefits of collaboration (#64, #71, #77, #86, #94, #100, #110, #117, #118, #119), and not just for learning but also for innovation. My current approach is to explore collaboration in the context of dialogic interactions, in terms of trying to capture two people co-constructing together. By co-constructing, we do not mean one person's ideas converging with another person's ideas (the predominant view in the literature on co-construction, see Publication #94), but we mean that in interacting, there is the potential of creating something new to both partners. We have empirically captured such innovations of new ideas in two separate studies, but because the frequency of creating ideas is low (about 10-15%), we have not tried to publish them. However, if ideas and products can be co-constructed even in 5% of the times peers collaborate, that's an exciting outcome. In short, although difficult to capture, I believe co-constructing is an empirically tractable question, but a very difficult one. I am interested in pursuing this research area more actively in the future.

I continue to write many papers on expertise (see Publications #2. #14. #15, #18, #19, #22, #23, #24, #29, #32, #35, #39, #44, #49, #52, #53, #54, #55, #82, #91, #93, #103, #105, #109).

Publications [The 20 most cited publications are indicated with their Google counts, as of the beginning of 2019. Postdocs and students' names are underlined.]

Edited Books

1. Chi, M. T. H. (Ed.). (1983). *Trends in memory development research.* (Vol. 9). Basel: NY: S. Karger.

2. Chi, M. T. H., Glaser, R., & Farr, M. (Eds.). (1988). *The nature of expertise.* Hillsdale, NJ: Erlbaum. **[Google citations: 3,174]**

3. Durso, F. T., Nickerson, R. S., Schvaneveldt, R. W., Dumais, S. T., Lindsay, D, S., Chi, M. T. H. (Eds.) (1999). *Handbook of Applied Cognition.* England: John Wiley & Sons.

Papers

4. Chi, M. T. H., & Chase, W. G. (1972). Effects of modality and similarity on context recall. *Journal of Experimental Psychology, 96,* 219-222.

5. Chi, M. T. H., & Klahr, D. (1975). Span and rate of apprehension in children and adults. *Journal of Experimental Child Psychology, 19,* 434-439.

6. Chi, M. T. H. (1975). *The development of short-term memory capacity.* Doctoral dissertation, Carnegie-Mellon University, Pittsburgh, PA.

7. Chi, M. T. H. (1976). The representation of knowledge. *Contemporary Psychology, 21,* 784-785. (Review of Norman and Rumelhart's *Exploration in cognition.)*

8. Chi, M. T. H. (1976). Short-term memory limitations in children: Capacity or processing deficits? *Memory & Cognition, 4,* 559-572.

9. Chi, M. T. H. (1977). Age differences in memory span. *Journal of Experimental Child Psychology, 23,* 266-281.

10. Kail, R. V., Chi, M. T. H., <u>Ingram, A. L</u>., & <u>Danner, F. W</u>. (1977). Constructive aspects of children's reading comprehension. *Child Development, 48,* 684-688.

11. Chi, M. T. H. (1977). Age differences in the speed of processing: A critique. *Developmental Psychology*, 13, 543-544.

12. Chi, M. T. H. (1978). Knowledge structures and memory development. In R. Siegler (Ed.), *Children's Thinking: What Develops?* (pp. 73-96). Hillsdale, NJ: Erlbaum.
    Reprinted in: (1993) *Worlds of Childhood Reader*, Wozniak R (ed.), 232-239. **[Google citations: 1,388]**

13. Chi, M. T. H. (1979). The growth and development of knowledge. *Contemporary Psychology, 24,* 760-761. (Review of P. Ornstein (Ed.), *Memory Development in Children*.)

14. Chi, M. T. H., & Glaser, R. (1980). The measurement of expertise: Analysis of the development of knowledge and skill as a basis for assessing achievement. In E. L. Baker & E. L. Quellmalz (Eds.),

Design, Analysis, and Policy in Testing and Evaluation (pp. 37-48). Beverly Hills, CA: Sage Publications.
(Abstract also published in *Evaluation Comment*, 1978, 5, 9.)

15.   Chi, M. T. H., <u>Feltovich, P.</u>, & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices**.** *Cognitive Science***,** 5**,** 121-152**.** (a citation classic) **[Google citations: 6,716]**

16.   Chi, M. T. H. (1981). Sources of memory development. *Proceedings of the North American Society for the Psychology of Sport and Physical Activity* Annual Conference.

17.   Chi, M. T. H. (1981). Knowledge development and memory performance. In M. Friedman, J. P. Das, & N. O'Conner (Eds.), *Intelligence and Learning* (pp. 221-230). New York, NY: Plenum Press.

18.   Chase, W. G., & Chi, M. T. H. (1981). Cognitive skill: Implications for spatial skill in large-scale environments. In J. Harvey (Ed.), *Cognition, Social Behaviors, and the Environment* (pp. 111-136). Hillsdale, NJ: Erlbaum.

19.   Chi, M. T. H., Glaser, R. & <u>Rees, E.</u> (1982). Expertise in problem solving. In R. Sternberg (Ed.), *Advances in the Psychology of Human Intelligence* (Vol. 1, pp. 7-76). Hillsdale, NJ: Erlbaum. **[Google citations: 2,930]**

20.   Chi, M. T. H., & Gallagher, J. D. (1982). Speed of processing: A developmental source of limitation. Special Issue, H. Lee Swanson (Ed.), *Topics in Learning and Learning Disabilities, 2,* 23-32.

21.   Chi, M. T. H. (1983). The role of knowledge on problem solving and consumer choice behavior. In R. P. Bagozzi & A. M. Tybout (Eds.), *Advances in Consumer Research (Vol. X)*.

22.   Chi, M. T. H. (1983). Knowledge-derived categorization in young children. In D. R. Rogers & J. A. Sloboda (Eds.), *The acquisition of symbolic skills* (pp. 327-334). New York, NY: Plenum Press.

23.   Chi, M. T. H., & Koeske, R. (1983). Network representation of a child's dinosaur knowledge. *Developmental Psychology, 19,* 29-39. **[Google citations: 575]**

24.   Chi, M. T. H. & <u>Rees, E</u>. (1983). A learning framework for development. In M. T. H. Chi (Ed.), *Trends in memory development research* (Vol. 9, pp. 71-107), Basel, New York, NY: S. Karger.

25.   Chi, M. T. H. (1984). Representing knowledge and metaknowledge: Implications for interpreting metamemory research. In F. E. Weinert & R. Kluwe (Eds.), *Learning by thinking* (pp. 239-266). Stuttgart, West Germany: Kohlhammor.

   *Also reprinted in F. E. Weinert & R. H. Kluwe (Eds.) (1987). *Metacognition, motivation and understanding* (pp. 211-232). Hillsdale, NJ: Erlbaum.)

26.   Chi, M. T. H. (1985). Changing conception of sources of memory development. *Human Development, 28,* 50-56.

27. Chi, M. T. H. (1985). Interactive roles of knowledge and strategies in the development of organized sorting and recall. In S. Chipman, J. Segal, & R. Glaser (Eds.), *Thinking and Learning Skills: Current Research and Open Questions* (Vol. 2, pp. 457-485). Hillsdale, NJ: Erlbaum. (Abstract reprinted in the Franklin Institute Press, December 1980.)

28. Chi, M. T. H., & Glaser, R. (1985). Problem solving ability. In R. Sternberg (Ed.), *Human Abilities: An Information-processing Approach* (pp. 227-257). San Francisco, CA: W. H. Freeman & Co.

29. Gobbo, C., & Chi, M. T. H. (1986). How knowledge is structured and used by expert and novice children. *Cognitive Development, 1,* 221-237.

30. Mitchell, A. A., & Chi, M. T. H. (1986). Measuring knowledge within a domain. In P. Nagy (Ed.), *The Representation of Cognitive Structures* (pp. 85-116). Toronto: Ontario Institute for Studies in Education.

31. Rabinowitz, M. & Chi, M. T. H. (1986). An interactive model of strategic processing. In S. J. Ceci (Ed.), *Handbook of the Cognitive, Social, and Neuropsychological Aspects of Learning Disabilities* (pp. 83-102). Hillsdale, NJ: Erlbaum.

32. Chi, M. T. H., & Ceci, S. J. (1987). Content knowledge: Its role, representation and restructuring in memory development. In H. W. Reese (Ed.), *Advances in Child Development and Behavior* (Vol. 20, pp. 91-142). New York: Academic Press. **[Google citations: 449]**

33. Chi, M. T. H., & Greeno, J. G. (1987). Cognitive research relevant to education. *Psychology and Educational Policy, 517,* 39-57.

34. Chi, M. T. H. (1988). Children's lack of access and knowledge reorganization: An example from the concept of animism. In F. Weinert & M. Perlmutter (Eds.), *Memory Development: Universal Changes and Individual Differences* (pp. 169-194). Hillsdale, NJ: Erlbaum.

35. Glaser, R., & Chi, M. T. H. (1988). Overview. In M. T. H. Chi, R. Glaser, & M. Farr (Eds.), *The Nature of Expertise* (pp. xv-xxviii). Hillsdale, NJ: Erlbaum. **[Google citations: 3,171]**

36. Resnick, L., & Chi, M. T. H. (1988). Cognitive psychology and science learning. In M. Druger (Ed.), *Science for the Fun of It* (pp. 24-31). Washington, DC: National Science Teachers Association.

37. Reiner, M., Chi, M. T. H., & Resnick, L. (1988). Naive materialistic belief: An underlying epistemological commitment. *Proceedings of the Tenth Annual Conference of the Cognitive Science Society* (pp. 544-551). Hillsdale, NJ: Erlbaum.

38. Chi, M. T. H., & Bassok, M. (1989). Learning from examples via self-explanations. In L. B. Resnick (Ed.), *Knowing, Learning, and Instruction: Essays in honor of Robert Glaser* (pp. 251-282). Hillsdale, NJ: Erlbaum.

39. Reimann, P., & Chi, M. T. H. (1989). Expertise in complex problem solving. In K. J. Gilhooly (Ed.), *Human and Machine Problem Solving* (pp. 161-192). New York, NY: Plenum Press.

40. Chi, M. T. H., Hutchinson, J., & Robin, A. F. (1989). How inferences about novel domain-related concepts can be constrained by structured knowledge. *Merrill-Palmer Quarterly, 35,* 27-62.

41. Chi, M. T. H., Bassok, M., Lewis, M., Reimann, P., & Glaser, R. (1989). Self-explanations: How students study and use examples in learning to solve problems. *Cognitive Science, 13,* 145-182*.* (Lead article) **[Google citations: 3,412]**

42. Chi, M. T. H. (1989). Assimilating evidence: The key to revision? (Commentary on P. Thagard's Explanatory Coherence paper). *Behavioral and Brain Sciences, 12(3)*, 470-471.

43. Chi, M. T. H. (1991). Memory development. In M.W. Eysenck, A. Ellis, and E. Hunt, & P. Johnson-Laird (Eds.) *The Blackwell Dictionary of Cognitive Psychology* (pp. 218-222). Oxford, England: Basil. Blackwell.

44. Chi, M. T. H. & Bjork, R. (1991). Modelling expertise. In D. Druckman & R. Bjork (Eds.) *In the Mind's Eye: Understanding Human Performance* (pp. 57-79)*.* National Academy Press: Washington, D.C.

45. VanLehn, K. A., Jones, R. M., & Chi, M. T. H. (1991). Modeling the self-explanation effects with Cascade 3.   In K. Hammond & D. Gentner (Eds.), *Proceedings of the Thirteenth Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Erlbaum.

46. Chi, M. T. H. & VanLehn, K. A. (1991). The content of physics self-explanations. *Journal of the Learning Sciences, 1*, 69-105. **[Google citations: 438]**

47. VanLehn, K. A., Jones, R. M. & Chi, M. T. H. (1992). A model of the self-explanation effect. *Journal of the Learning Sciences, 2*, 1-59. (Lead article) **[Google citations: 414**]

48. Chi, M. T. H. (1992). Conceptual change within and across ontological categories: Examples from learning and discovery in science. In R. Giere (Ed.), *Cognitive Models of Science: Minnesota Studies in the Philosophy of Science*, (pp. 129-186). University of Minnesota Press: Minneapolis, MN. **(Google citations: 1,012)**

49. Bedard, J. & Chi, M. T. H. (1992) Expertise. *Current Directions in Psychological Science, 1*(4)*,* 135-139.

50. Chi, M. T. H. (1993). Barriers to conceptual change in learning science concepts: A theoretical conjecture. In W. Kintsch (Ed.), *Proceedings of the Fifteenth Annual Cognitive Science Society Conference* (pp. 312-317). Hillsdale, NJ: Erlbaum.

51. Chi, M. T. H. & Slotta, J. D. (1993). The ontological coherence of intuitive physics. *Cognition and Instruction, 10*, 249-260.

52. Chi, M. T. H. (1993). Experts vs novices knowledge—A citation-classic commentary on Categorization and representation of physics problems by experts and novices, by Chi, M.T.H., Feltovich, P., Glaser, R. *Current Contents/Social & Behavioral Sciences, 42*, 8.

53. Leas, R. L. & Chi, M. T. H. (1993). Analyzing diagnostic expertise of competitive swimming coaches.

In J. Starkes (Ed.) *Advances in Psychology: Cognitive Issues in Motor Expertise* (pp. 75-94). New York, NY: North-Holland.

54. Chi, M. T. H. (1993). Experts' versus novices' knowledge. *Current Contents,* 15, 12.

55. Bedard, J. & Chi, M. T. H. (1993). Expertise in auditing. *Auditing: A Journal of Practice and Theory (Supplement 1993), 12,* 21-45. **[Google citations: 459]**

56. Chi, M. T. H., Slotta, J. D. and de Leeuw, N. (1994). From things to processes: A theory of conceptual change for learning science concepts. *Learning and Instruction, 4,* 27-43. (**Google citations: 1,354)**

57. Larreamendy-Joerns, J. & Chi, M. T. H. (1994). Conceptual change as ontological shift. *Human Development, 37,* 246-256.

58. Chi, M. T. H., de Leeuw, N., Chiu, M.H., LaVancher, C. (1994). Eliciting self-explanations improves understanding. *Cognitive Science, 18,* 439-477. **[Google citations: 2,898]**

59. Slotta, J. D., Chi, M. T. H., Joram, E. (1995). Assessing students' misclassifications of physics concepts: An ontological basis for conceptual change. *Cognition and Instruction, 13*, 373-400.

60. Slotta, J. D., & Chi, M. T. H. (1996). Understanding constraint-based processes: A precursor to conceptual change in physics. In G.W. Cottrell (Ed.), *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society* (pp. 306-311). Mahwah, NJ: Lawrence Erlbaum Associates.

61. Chi, M. T. H. (1996). Constructing self-explanations and scaffolded explanations in tutoring. *Applied Cognitive Psychology, 10*, 33-49.

62. Beach, L. R., Chi, M. T. H., Klein, G., Smith, P., Vicente, K. (1996). Naturalistic decision making and related research lines. In C.E. Zsambok & G. Klein (Eds.), *Naturalistic Decision Making* (pp. 29-35). Mahwah, NJ: Lawrence Erlbaum Associates.

63. Chi, M. T. H. (1997). Creativity: Shifting across ontological categories flexibly. In T. B. Ward, S. M. Smith, & J. Vaid (Eds.), *Conceptual Structures and Processes: Emergence, Discovery and Change.* (pp. 209-234) Washington, DC: American Psychological Association.

64. Jeong, H., & Chi, M. T. H. (1997). Construction of shared knowledge during collaborative learning. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of Computer-Supported Collaborative Learning* (pp. 124-128). Hilldale, NJ: Erlbaum.

65. Chi, M. T. H. (1997). Quantifying qualitative analyses of verbal data: A practical guide. *Journal of the Learning Sciences, 6*(3), 271-315. (Lead article) **[Google citations: 1,860]**

66. Jeong, H., Siler, S., & Chi, M. T. H. (1997). Can tutors diagnose students' understanding? In M. G. Shafto & P. Langley (Eds.), *Proceedings of the Nineteenth Annual Conference of the Cognitive Science Society* (p. 959). Mahwah, NJ: Erlbaum.

67. Ferrari, M. & Chi, M. T. H. (1998). The nature of naive explanations of natural selection. *International Journal of Science Education, 20*(10), 1231-1256.

68. Chi, M. T. H. (2000). Cognitive Understanding Levels. In A.E. Kazdin (Ed), *Encyclopedia of Psychology* (2: pp. 146-151). New York, NY: APA and Oxford University Press.

69. Chi, M. T. H. (2000). Self-Explaining Expository Texts: The Dual Processes of Generating Inferences and Repairing Mental Models. In R. Glaser (Ed.), *Advances in Instructional Psychology* (pp. 161-238). Mahwah, NJ: Lawrence Erlbaum Associates. (**Google citations: 958)**

70. Reiner, M., Slotta, J. D., Chi, M. T. H., Resnick, L. B. (2000). Naive physics reasoning: A Commitment to substance-based conceptions. *Cognition and Instruction 18*(1): 1-34. (Lead article)

71. Jeong, H. & Chi, M. T. H. (2000). Does collaborative learning lead to the construction of common knowledge? In *Proceedings of the Twenty-second Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Erlbaum.

72. Jeong, H., Taylor, R. & Chi, M. T. H. (2000). Learning from a computer workplace simulation. *Twenty-second Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Erlbaum.

73. Chi, M. T. H., Siler, S., Jeong, H., Yamauchi, T. & Hausmann, R. G. (2001) Learning from human tutoring. *Cognitive Science*, *25*, 471-533. (Lead article) **(Google citations: 1,059)**

74. Chi, M. T. H. & Roscoe, R. D. (2002). The processes and challenges of conceptual change. In M. Limon and L. Mason (Eds). *Reconsidering Conceptual Change: Issues in Theory and Practice* (pp. 3-27). Dordrect, Netherlands: Kluwer Academic Publishers. **[Google citations: 552]**

75. Chi, M. T. H. (2002). Understanding children's capacity for abstract reasoning. On WEB site of *Parent's Companion* to *Click Magazine*. www.cricketmag.com

76. Engle, R. A. & Chi, M. T. H. (2002). Categorization of emergent processes by students at different levels of expertise. In W. D. Gray & C. D. Schunn (Eds.)*Proceedings of the Twenty-Fourth Cognitive Science Society* (p 1001). Hillsdale, NJ: Erlbaum.

77. De Leeuw, N. & Chi, M. T. H. (2002). The role of self-explanation in conceptual change learning. In G. Sinatra & P. Pintrich (Eds.), *Intentional Conceptual Change* (pp. 55-78). Hillsdale, NJ: Erlbaum.

78. McGregor, M. U., & Chi, M. T. H. (2002) Collaborative interactions: The process of joint production and individual reuse of novel ideas. *Proceedings of the Twenty-Fourth Annual Conference of the Cognitive Science Society.* Hillsdale, NJ: Erlbaum.

79. Hausmann, R. G. & Chi, M. T. H. (2002). Can a computer interface support self- explaining? *Cognitive Technology,* 7, 4-14.

80. Roy, M., Taylor, R. & Chi, M. T. H. (2003). Searching for information on-line and off-line: Gender differences in searching for information on the WEB. *Journal of Educational Computing Research*,

29(2), 229-252.

81. Chi, M. T. H. & Hausmann, R. G. M. (2003). Do radical discoveries require ontological shifts? In L.V. Shavinina (Ed.) *International Handbook on Innovation* (pp. 430-444). Oxford, England: Pergamon.

82. Hashem, A., Chi, M. T. H. & Friedman, C. P. (2003). Medical errors as a result of specialization. *Journal of Biomedical Informatics*, *36*(1-2), 61-69.

83. Roy, M. & Chi, M. T. H. (2003). Searching for Information On-line and Off-line: Gender Differences among Middle School Students. *Journal of Educational Computing Research: Special Issue on the Psychology of e-Learning*, *29*(3), 335-348.

84. Chi, M. T. H., Siler, S., & Jeong, H. (2004). Can tutors monitor students' understanding accurately? *Cognition and Instruction, 22*, 363-387.

85. Roscoe, R. & Chi, M. T. H. (2004). The influence of the tutee in learning by peer tutoring. In the *Twenty-sixth Cognitive Science Proceedings*.

86. Hausmann, R. G. M., Chi, M. T. H. & Roy, M. (2004). Learning from collaborative problem solving: An analysis of three dialogue patterns. In the *Twenty-sixth Cognitive Science Proceedings*.

87. Chi, M. T. H. & Ohlsson, S. (2005). Complex declarative learning. In: Holyoak, K. J. & Morrison, R. G. (Eds.) *The Cambridge Handbook of Thinking and Reasoning* (pp. 371-399). New York, NY: Cambridge University Press.

88. Chi, M. T. H. (2005). Common sense conceptions of emergent processes: Why some misconceptions are robust. *Journal of the Learning Sciences, 14*, 161-199. (Lead article) **(Google citations: 883)**

89. Roy, M. & Chi, M. T. H. (2005). Self-explanation in a multi-media context. In R. Mayer (Ed.), *Cambridge Handbook of Multimedia Learning* (pp. 271-286). New York, NY: Cambridge Press. **[Google citations: 4,038]**

90. Slotta, J. D. & Chi, M. T. H. (2006). The impact of ontology training on conceptual change: Helping students understand the challenging topics in science. *Cognition and Instruction, 24*, 261-289.

91. Chi, M. T. H. (2006). Two approaches to the study of experts' characteristics. In K. A. Ericsson, N. Charness, P. Feltovich, & R. Hoffman (Eds.), *The Cambridge Handbook of Expertise and Expert Performance* (pp. 121-30), New York, NY: Cambridge University Press. [**Google citations: 835]**

92. Taylor, R., & Chi, M. T. H. (2006). Simulation versus text: Acquisition of implicit and explicit information. *Journal of Educational Computing Research; 35*, 289-313.

93. Chi, M. T. H. (2006). Laboratory methods for assessing experts' and novices' knowledge. In K. A. Ericsson, N. Charness, P. Feltovich, & R. Hoffman (Eds.), *The Cambridge Handbook of Expertise and Expert Performance* (pp. 167-184), New York, NY: Cambridge University Press.

94. Jeong, H. & Chi, M. T. H. (2007). Knowledge convergence during collaborative learning. *Instructional Science, 35*, 287-315.

95. Roscoe, R. D. & Chi, M. T. H. (2007). Understanding tutor learning: Reflecting knowledge building and knowledge telling in peer tutors' explanations and questions. *Review of Educational Research, 77*, 534-574. **[Google citations: 492]**

96. Chi, M. T. H., Roy, M., & Hausmann, R. (2008). Observing tutorial dialogues collaboratively: Insights about human tutoring effectiveness from vicarious learning. *Cognitive Science, 32*, 301-341.

97. Roscoe, R. D. & Chi, M. T. H. (2008). Tutor learning: the role of explaining and responding to questions. *Instructional Science, 36*, 321-350.

98. Chi, M. T. H. (2008). Three kinds of conceptual change: Belief revision, mental model transformation, and ontological shift. In Vosniadou, S. (Ed.), *Handbook of Research on Conceptual Change.* (Pp. 61-82) New York, NY: Routledge. [**Google citations: 659]**

99. Chi, M. T. H. & Brem, S. K. (2009). Contrasting Ohlsson's resubsumption theory with Chi's categorical shift theory. *Educational Psychologist, 44*, 58-63.

100. Chi, M. T. H. (2009). Active-Constructive-Interactive: A conceptual framework for differentiating learning activities. *Topics in Cognitive Science, 1*, 73-105. **[Google citations: 851**]

101. Craig, S. D., Chi, M. T. H. & VanLehn, K. (2009). Improving Classroom Learning by Collaboratively Observing Human Tutoring Videos while Problem Solving. *Journal of Educational Psychology, 101*(4), 779-789.

102. Chi, M. T. H. & Roy, M. (2010). How adaptive is an expert human tutor? J. Kay, V. Aleven, & J. Mostow (Eds.), *International Conference on Intelligent Tutoring Systems* (ITS'10), (pp. 401-412), , Berlin, Germany: Springer-Verlag.

103. Nokes, T., Schunn, C., & Chi, M.T.H. (2010). Problem solving and human expertise. In P. Peterson, E. Baker, and B. McGraw (Eds.) *International Encyclopedia of Education, Volume 5* (pp. 265-272). Oxford, England: Elsevier.

     Reprinted in: Nokes, T. J., Schunn, C. D., & Chi, M. T. H. (2011). Problem solving and human expertise. In V. G. Aukrust (Ed.) *Learning and Cognition in Education* (pp. 104-111). Oxford, England: Elsevier.

104. Fonseca, B. & Chi, M. T. H. (2011). The self-explanation effect: A constructive learning activity. In Mayer, R.E. & Alexander, P.A. (Eds.), *The Handbook of Research on Learning and Instruction.* New York, NY: Routledge Taylor and Francis Group. (pp. 296-321).

105. Chi, M. T. H. (2011). Expertise and perspective shift. In Y. Li & G. Kaiser (Eds.), *Expertise in Mathematics Instruction: An International Perspective* (pp. 17-39). New York, NY: Springer.

106. Gadgil, S., Nokes, T. J., and Chi, M. T. H. (2011). Effectiveness of holistic mental model confrontation in driving conceptual change, *Learning and Instruction,* 22, 47-61.

107. Chi, M. T. H., Roscoe, R., Slotta, J., Roy, M., & Chase, M. (2012). Misconceived causal explanations for emergent processes. *Cognitive Science.* 36, 1-61. (Extended lead article). 1551-6709 online access.

108. Chi, M. T. H., Kristensen, A. K., & Roscoe, R. (2012). Misunderstanding emergent causal mechanism in natural selection. In Rosengren, K., Brem, S., Evans, M., & Sinatra, G. (Eds.), *Evolution Challenges: Integrating Research and Practice in Teaching and Learning about Evolution* (pp. 145-173). New York, NY: Oxford University Press.

109. Chi, M. T. H., & VanLehn, K. A. (2012). Seeing deep structure through interactions of surface features: A hypothesis for transfer. *Educational Psychologist, 47,* 177-188. [**Google citations: 356]**

110. Menekse, M., Stump, G., Krause, S. & Chi, M. T. H. (2013). Differentiated overt learning activities for effective instruction in engineering classrooms. *Journal of Engineering Education,* 102, 346-374. **Winner of the 2014 Wickenden Award from the American Society for Engineering Education for the best paper published in JEE in 2013.**

111. Chi, M. T. H. (2013). Learning from observing experts. In J.J. Staszewski (Ed.), *Expertise and skill acquisition: The impact of William G. Chase*. (pp. 1-27). New York, NY: Psychology Press.

112. Chi, M. T. H. (2013). Two kinds and four sub-types of misconceived knowledge, ways to change it and the learning outcomes. *International Handbook of Research on Conceptual Change (2nd edition).* (pp. 49-70). New York, NY: Routledge Press.

113. Menekse, M., Stump, G. S., Krause, S., & Chi, M. T. H. (2013). Beyond hands-on: Some active-learning methods are more effective than others. *JEE Selects—Research Practice.* Nov. p. 45.

114. Muldner, K., Lam, R. & Chi, M. T. H. (2013). Comparing learning from human tutoring and from observing. *Journal of Educational Psychology, 106*, 69-85.

115. Chiu, J. L. & Chi, M. T. H. (2014). Supporting self-explanation in the classroom. In V.A. Benassi, C.E. Overson, & C.M. Hakala (Eds.). Applying science of learning in education: Infusing psychological science into the curriculum. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/asle2014/index.php

116. Muldner, K., Burleson, W., & Chi, M. T. H. (2014). Learning from self-explaining emergent phenomena. *Proceedings of International Conference of the Learning Sciences, ICLS*, *2*(January), 847-854.

117. Wylie, R., & Chi, M. T. H. (2014). Self-explanation in multimedia learning. In R. Mayer (Ed.) *The Cambridge Handbook of Multimedia Learning, 2nd Edition* (pp. 413-432). New York, NY: Cambridge University Press.

118. Chi, M. T. H. & Wylie, R. (2014). ICAP: A hypothesis of differentiated learning effectiveness for four

modes of engagement activities. *Educational Psychologist, 49,* 1-25 (Lead article, impact factor 3.611).

119. Chi, M. T. H. & <u>Menekse, M</u>. (2015). Dialogue patterns in peer collaboration that promote learning. In Resnick, L. B., Asterhan, C., & Clarke, S. (Eds.), *Socializing Intelligence Through Academic Talk and Dialogue* (pp. 253-274). Washington, DC: AERA.

120. Chi, M. T. H., <u>Kang, S</u>, & Yaghmourian, D. (2017). Why do students learn more from dialogue-videos than monologue videos? *Journal of the Learning Sciences.* (Lead article) **[Best Paper Published in JLS Award]**

121. Henderson, J. B., Langbeheim, E., & Chi, M.T.H. (2017). Addressing robust misconceptions through ontological distinction between sequential and emergent processes. In B. Sherin, T. Amin, & O. Levrini (Eds.), *Converging and Complementary Perspectives on Conceptual Change* (pp 26-33). London: Routledge Taylor & Francis.

122. <u>Stump, G., Li, N., Kang, S.,</u> Yaghmourian, D., <u>Xu, D., Adams, J., McEldoon, K. L., Lancaster, M.,</u> & Chi, M.T.H. (2018). Coding dosage of teachers' implementation of activities using ICAP: A video analysis. In E. Manalo, Y. Uesaka, & C. A. Chinn (Eds), *Promoting Spontaneous Use of Learning and Reasoning Strategies: Theory, Research, and Practice for Effective Transfer* (pp. 211-225). New York, NY: Routledge.

123. Chi, M.T.H., <u>Adams, J.,</u> Bogusch, E.B., <u>Bruchok, C.</u>, <u>Kang, S., Lancaster, M.,</u> Levy, R., <u>McEldoon, K., Stump, G.S., Wylie, R., Xu, D.,</u> and Yaghmourian, D.L. (2018). Translating the ICAP theory of cognitive engagement into practice. *Cognitive Science, 42*(6), 1-56. (Extended lead article)

124. Cooper, K.M., Ding, L., Stephens, M.D., Chi, M.T.H., & Brownell, S. E. (2018) A course-embedded comparison of instructor-generated videos of either an instructor alone or an instructor and a student. *CBE-Life Sciences Education, 17*(2), 1-15.

125. <u>Menekse, M.,</u> & Chi, M.T.H. (2018). The role of collaborative interactions versus individual construction on students' learning of engineering concepts. *European Journal of Engineering Education.* Retrieved from: https://doi.org/10.1080/03043797.2018.1538324

Invited Colloquia, Tutorials, Symposia, and Workshops only (since 1990 only, and excluding keynote addresses and conference talks

1990

Colloquium on *The Nature of Self-Explanations,* University of Colorado, January.

Workshop speaker on *Learning and Problem Solving in Students.* The Pittsburgh AreaIndependent School Teachers Association Annual Conference, Sewickley Academy, Pittsburgh, October.

1991

Workshop speaker on *Construction and revision of mental models during learning.* The Third Biannual Workshop on Cognition and Instruction, Pittsburgh, PA.

1992

Chi, M. T. H., de Leeuw, N., Chiu, M. H., & LaVancher, C. "Self-explanations improve learning." Poster presented at the NATO Advance Study Institute on Psychological and Educational Foundations of Technology-Based Learning Environments. Orthodox Academy, Kalymbari, Greece, July, 1992.

Chair/Discussant of the session on *Capturing and Modeling the Process of Conceptual Change in the Physical Sciences.* At the NATO Advance Study Institute on Psychological and Educational Foundations of Technology-Based Learning Environments. Orthodox Academy, Kalymbari, Greece, July, 1992.

1993

Colloquium speaker: "Self-explanations improve understanding: But do they promote conceptual change?" Presented at the Department of Psychology, Princeton University, Princeton, February.

Colloquium speaker: "Can misconceptions in science be removed?" Graduate Institute of Science Education, National Taiwan Normal University, Taipei, Taiwan, March.

Lecturer: "Self-explanations improve learning." At the Research Center of Cognitive Studies, National Chung Cheng University's conference on math education, Chia-yi, Taiwan, March.

Exhibit: "Constructing knowledge: How talking to yourself may improve learning." Carnegie Science Center, Pittsburgh, May 2-15.

Panel Discussant: "Conceptual change and the acquisition of expertise." *The Third International Workshop on Human and Machine Cognition*, Seaside, Florida, May. (I was the panel member invited to represent the cognitive science view. Other members represented views from A.I., anthropology, situated cognition, and so forth.)

Paper Presenter: "Barriers to conceptual change in learning science concepts: A Theoretical Conjecture." *Cognitive Science Conference*, Boulder, June.

Symposium presenter: "Cascade and self-explanations." For the symposium *Cognitive models of problem solving*, Cognitive Science Conference, Boulder, June.

Keynote speaker: "The role of self-explanations as a form of knowledge construction." At the *Tenth International Conference on Machine Learning*, Amherst, June. (The Machine Learning conference invites a keynote speaker each year from an outside discipline. Other cognitive psychologists invited in the past were Doug Medin, Mike Posner, and so forth.)

Workshop participant and speaker: "Teaching for understanding." *Harvard Project Zero*, Boston, October.

1994

Invited Speaker: "What is learned in context?". Naturalistic Decision Making Conference, Dayton, Ohio, June.

Symposium speaker: "Stolen knowledge: Knowledge acquired through practice". Third Practical Aspects of Memory Workshop. University of Maryland, College Park, MD, August.

Colloquium speaker.   "Self-explaining: An effective general learning skill?" New Mexico State University. Las Cruces, NM, December.

1995

Invited speaker: "Acquisition of concepts of processes." Creative Concepts Conference, Texas A & M University, College Station, Texas, May.

Speaker on "Creating Schools that Develop Expertise in Students." Workshop on The Gifted School. Hosted by OERI and Council for Exceptional Children. Tyson's Corner, Virginia, June.

Keynote speaker: "Revising a mental model as one learns." *The Seventeenth Annual Conference of the Cognitive Science Society.* University of Pittsburgh, Pittsburgh, PA, July.

Keynote speaker: "Self-explaining is the construction of a mental model" at the University of Memphis Conference on Reasoning, Memphis, Tennessee, September.

Invited speaker: "Learning from text by self-explaining." Clarion University, Clarion, PA, Nov.

1996

Workshop participant at Sage Foundation on *Literacy*, New York, April.

1997

Colloquium speaker, "How to Learn More Effectively", presented at Center for Advanced Study in the Behavioral Sciences, February.

Colloquium speaker, "Self-Explaining: A Domain-General Learning Activity".   presented to the Education in Math, Science, and Technology group, U.C. Berkeley, March.

Colloquium speaker, "Self-Explaining: A Domain-General Learning Activity".   presented to the Center for Research in Mathematics and Science Education, San Diego State University, April.

Colloquium speaker, "Learning Compatible vs Incompatible Concepts: Incrementally versus Conceptual Change", presented to the Department of Psychology, Stanford University, April.

Guest Lecturer, Symbolic Systems, School of Education, Stanford University, June.

Colloquium speaker, "Conceptual Change in Learning Complex Concepts", presented to the Cognitive Science Program, Georgia Tech, November.

1998

Workshop speaker, "Current Research in Medical Education", prsented at the Workshop on

Formalizing the Informal: A Rationale for the Clinical Teaching of Medical Students and Residents. University of Pittsburgh Medical Center, Center for Continuing Education in the Health Sciences, March.

Presenter, "Learning Concepts of Equilibration Processes", at the Conference on Designing for Science, Learning Research and Development Center, April.

Tutorial speaker: "Discourse in Contexts of Learning ", *Twentieth Annual Conference of the Cognitive Science Society*, Madison, WI, August.

Conference speaker, "Misrepresenting Complex Dynamic Systems as Events: A barrier to Learning Science", *EARLI Second European Symposium on Conceptual Change*. Madrid, Spain, November.

Speaker, "What Makes Human Tutoring Effective?" Circle Seminar Series on Tutoring. Carnegie Mellon University, December.

1999

Speaker, "What makes human tutoring effective?" National Science Foundation, Washington D.C., Jan.

Speaker,"Why are decentralized concepts so hard to learn?" at the UCI Conference on Decentralization. Sponsored by the Institute for Mathematical Behavioral Sciences and the Department of Economics, University of California at Irvine, February.

Speaker, "Assessment of Conceptual Change", presented to the Committee on the Foundation of Assessment, National Academy of Sciences/National Research Council, Board on Testing and Assessment, Irvine, CA, May.

Guest speaker, "Understanding Emergent Versus Causal Mechanisms: Overcoming Obstacles to Learning Science Concepts", along with Jay McClelland, at a Seminar on *How the Brain Learns,* Harrisburg, PA, June.

Colloquium speaker, "Misclassifying Processes as Objects and Emergence as Causality: Why We Misunderstand Many Complex Concepts and Phenomena". NEBARS at University of Connecticut, November.

Workshop speaker on Classroom and Tutorial Discourse. Organizers: Brian MacWhinney, Catherine Snow and Steven Bird. Carnegie Mellon University, Pittsburgh, PA, December.

2000

Speaker, "Emergent versus Causal Schemas", presented at an interactive symposium on Conceptual Change and Complex Causality, organized by David Perkins, American Educational Research Association, New Orleans, April.

Distinguished Lecturer, "Assessment of Learning at Three Different Grain Sizes", presented at the American Society for Engineering Education Conference, St. Louis, June.

Presenter, "How Can We Enhance Students' Learning?" at a workshop of the University of Pittsburgh Medical Complex School of Profusion, Nov. 2000.

2001

"Why do students fail to understand *complex dynamic* type of concepts?" Presented in the symposium *Conceptual change and complex causality: Furthering the conversation.* American Educational Research Association, Seattle, April 2001.

Participant in a Workshop, sponsored by the Russell Sage Foundation, to react to their report on their Literacy Program. New York, NY, June 2001.

2002

Presenter, "Learning through collaborative observation of tutoring" at the CIRCLE Advisory Board Meeting, Pittsburgh, March.

One of the scholars whose work was highlighted at an American Educational Research Association poster session called *Reach for the Stars*. New Orleans, LA, April 2002.

Presenter, "Learning from physics text: Effects of interactive and observed discourse with tutors and peers", at a Symposium on Conceptual Learning from Scientific Text and Discourse, at the Society for Text and Discourse conference. Chicago, IL, June 2002.

Commentary provided for the Graduate Record Exam Symposium, at the Graduate Record Exam Board Meeting, Seattle, June 2002.

Workshop presenter, to help Office of Navel Research shape a new 6.1 ONR program on Cognitive Science and Human Performance. Las Cruces, NM, October 2002.

2003

Distinguished Speaker, "Emergent systems versus Causal Events: Schemas for Overcoming versus Generating Misconceptions in Science", presented for the Cognitive Science Colloquium Series,. Department of Psychology, Georgia Tech, Atlanta, Georgia, March 2003.

Keynote speaker, "Emergent versus Commonsense Causal Processes: How Misconceptions in Science Arise and How They Can Be Overcome," presented at the 10th European Association for Research on Learning and Instruction, Padova, Italy.

2004

Keynote speaker, "How Students Learn". Colloquium on Teaching and Learning, Rensselaer Polytechnic Institute, May 2004.

2005

Discussant at the Adaptive Expertise Colloquium, organized by the LIFE Science of Learning Center, VaNTH Engineering Research Centers, and SRI International, Palo Alto, CA, Sept 2005.

2006

Participant at the Santa Fe Institute's Educational Outreach Workshop on *Complex Dynamic Systems*, Santa Fe, NM, March 2006.

Discussant for the symposium *How to support explanation in the classroom: The role of teachers and tasks.* American Educational Research Association meeting, San Francisco, CA, April 2006.

Participant at the NSF workshop on *Transfer and Expertise,* Arlington, November.

Colloquium speaker, *Learning from Tutoring and Observing Tutoring Collaboratively,* OISE, Toronto, Canada, November 2006.

2007

Participant in the Evolution Challenge Workshop, Las Vegas, NV February.

A discussant, along with Rich Shavelson, for a Presidential session on "Professional Expertise", Chicago, IL, April 2007.

2008

"Co-construction from Joint Explaining". Paper presented at International Conference of the Learning Sciences, Utrecht, Netherlands, June 2008.

"Qualitative misunderstanding of emergent processes." A keynote address presented at the VI European Meeting in Conceptual Change, Turku, Finland, August 16, 2008.

"Qualitative misunderstanding of emergent processes." Presented to Arts, Media and Entertainment, ASU, Oct 2008.

"Does Qualitative Understanding of Emergent Processes Transfer to Learning Science concepts? A Pilot Intervention." Presented a colloquium to kick off the colloquium series at Duke University's Science Center, Nov. 2008.

2009

"What are misconceptions and how might they be overcome?" Brownbag presented to the Applied Psychology Program, Polytechynic Campus, ASU, Feb 2009.

"Ways of optimizing student learning." Talk presented at K-12, Hendon, VA, May 7, 2009.

"Expert learners." Talk presented at the 36th Carnegie Cognition Symposium on Expertise June 2, 2009.

"Why are some processes so hard to understand? An instructional module targeted at misconceptions." Talk presented at the Cognitive Science Symposium on Transfer of Learning.

"Ways to optimize student learning: A learner-centered approach." Colloquium presented at the Cognitive Science Colloquium Series, Bloomington, Indiana, Oct.

"An instructional module targeted at misconceptions." Talk presented at the symposium From Child to Scientist: Mechanisms of Learning and Development, Carnegie-Mellon University, Oct

2010

"Using a Cognitive Framework of Differentiated Overt Learning Activities (DOLA) for Designing Effective Classroom Instruction in Materials Science and Nanotechnology," Michelene T.H. Chi, Stephen Krausse, & Muhsin Menekse, a poster presented at the NSF-sponsored Awardee Conference, Reston, Va. Jan.

"Dialogue Analyses for Learning." Paper presented at the *Communication Analyses Workshop,* Tempe, AZ Feb.

Discussant, for IES symposium *Solving Problems in School: Concepts, Procedures, and Instruction to Support Learning*, at the 2010 APS Annual Convention in Boston, May.

"Intelligent Tutoring Systems and Games for STEM instruction." Invited participant at an ONR-sponsored workshop, UCLA CRESST, Nov.

2011

"Engaging Students with Differential Effectiveness: The ICAP (Interactive>Constructive>Active>Passive) Hypothesis." Invited presentation at the *Frontiers in Education Workshop*, Pearson, Boston, Feb.

"Misconceived Causal Explanations for Emergent Science Processes." Invited talk for the symposium *New Approaches to the Problem of Conceptual Change in the Learning of Science and Math.* Presented at the 33rd Annual Conference of the Cognitive Science Society, Boston, July.

"Students' Self-explanations." Invited talk for the symposium *Explanation-based mechanisms for learning: An interdisciplinary approach.* Presented at the 33rd Annual Conference of the Cognitive Science Society, Boston, July.

Panel member to discuss explanations for the impact of dialog, in *Socializing Intelligence Through Academic Talk and Dialogue*, Talk title was: "What accounts for the benefits of dialoguing or learning collaboratively, for learning?" Pittsburgh, Sept.

2012

Invited participant at a Gates Foundation M.I.T sponsored workshop on *Quality Matters.* Boston, MA: Jan. 24-25.

"ICAP: A Hypothesis Generated from a Framework for Differentiating Levels of Cognitive Engagement in Active Learning." Invited talk for *Pearson's Mastering Leadership Conference*, Scottsdale, AZ: March.

Invited participant in an NSF brainstorming session to discuss the potential synergies of having engineering education researchers partner with Engineering Research Centers (ERCs), which are ten-year, $40M projects, Arlington, VA., March 6, 2012.

Invited participant in a workshop on *Optimal Teaching Workshop,* UC San Diego, May.

"Two Approaches to Enhancing Learning: Dialogue Videos and Engagement Activities." Talk presented at the 2012 University/Microsoft Research Summer Institute, titled *Crowdsourcing Personalized Online Education,* Suncadia, WA: July.

"Two Kinds and Four Sub-types of Misconceived Knowledge, Ways to Change it, and the Learning Outcomes." Colloquium to be presented to the Mathematics and Science Education Ph.D. Program, UC San Diego: Oct.

"Two Kinds and Four Sub-types of Misconceived Knowledge, Ways to Change it, and the Learning Outcomes." Colloquium to be presented to the joint Cognitive Science and the Learning Sciences program, Northwestern University, Nov.

2013

"Overcoming misconceptions for conceptual understanding," presented at the *Improving Middle School Science Instruction Using Cognitive Science,* A National Conference, sponsored by IES's National R & D Center for Cognition and Science Instruction Conference, Washington, DC: May 21-22.

"Using the ICAP hypothesis to Design Instruction and Student Assignments." Talk presented at the 2013 Gordon Research Conference on Chemistry Education Research and Practice, Newport, RI, June.

"Why are dialogues better instructional materials than monologues?" Paper presented at the symposium *Trends in Support for the Analysis of Collaborative Learning, Part 1: Support,* organized by Nikol Rummel & Tamara Van Gog, Ruhr-Universitat Bochum: Aug. 2013.

2014

"ICAP: Differentiating four levels of engagement for active learning." Presented at *How to Actively Engage Your Students: A Workshop on Active Learning.* Arizona State University: March.

"Differentiating 4 Modes of Engagement in Active Learning: From theory to practice." Sylvia Scribner Award lecture, AERA, April.

"Generic and Specific Issues in Conceptual Change in Science," Plenary panel presentation at the *Conceptual Change Sig* meeting at Bologna, Italy: August, 2014.

Invited participant at IES annual meeting, Sept. 2014.

Plenary speaker on "Conceptual Change Across Domain: Science," Conceptual Change Sig meeting of the European Association for Research on Learning and Instruction, Bologna, Italy: August, 2014.

2015

"Modeling and correcting students' misunderstanding for conceptual domains (especially in science)." Featured speaker at the Rice Workshop on Personalized Learning, Houston, TX: April 1.

"Differentiating four modes of engagement in active learning." Colloquium speaker at the Learning Sciences Research Institute, University of Illinois at Chicago Circle: April 3.

Invited presentation on a panel on how fundamental principles of cognitive science, technology and data impact K-12 teaching and learning to the Carnegie Corporation of New York, NY: June 15.

One of 32 outstanding scholars of education selected to participate in the AERA Scholars Retreat. Santa Fe, NM: October 1-4.

"Teaching the crosscutting concept of emergent cause-and-effect to overcome misconceptions." Paper presented at the Conference on Complex Systems '15. Tempe, AZ: September 29.

"Ways to enhance your understanding while you are learning." Talk presented at Penn State University to their instructors and professors. State College, PA: October 19.

"Differentiating four modes of engagement for active learning: The ICAP framework." A university-wide talk sponsored by the Schreyer Institute for Teaching Excellence

Penn State University, State College, PA: October 20.

"Engaging students cognitively in active learning." Talk presented at the AERA Coordinated Committee Meeting. Washington, DC: October 23.

"Robust misconceptions: What are they and how to overcome them." Colloquium speaker at the Human Development Department Colloquia at Columbia University. New York, NY: November 3.

2016

"ICAP: A theoretical framework for active learning." Presented to the Education Development Center (EDC), Inc. New York, NY. Feb. 24.

"ICAP: A theoretical framework for active learning." Centennial colloquium speaker at 100th Anniversary Colloquium Series at Carnegie Mellon University Psychology Department. Pittsburgh, PA: April 19.

Poster presented at the Modeling and Model-Based Reasoning in STEM Conference at Purdue University titled, "Misconceptions in STEM are Misrepresentations of One Kind of Processes as Another Kind". Lafayette, Indiana. August 26th.

Presented at the EnFUSE Symposium hosted by the NSF's division of undergraduate education with the talk titled "Learning from Dialog versus Monolog Videos". April. D.C.
Invited participant on an NSF-funded workshop to promote collaboration between cognitive science and discipline-based education research on STEM learning. Washington D.C. September, 2016.

Keynote speaker: Counter-intuitive Findings and Implications for Teaching from the Sciences of Learning. Snell Conference: Practicing the Art and Science of Teaching, Center for the Art and Science of Teaching, Oct, 2016.

2017

Presented *"ICAP: A theoretical framework for how to engage students to promote deeper learning,"* at the Strengthening Institutional Linkages Initiative Faculty Development Seminar, Jan.

Brown Bag: *"Translating ICAP on Student Engagement into Practice,"* Presented to the Graduate School of Education, Rutgers, Feb.

Brown bag presentation at the University of Pittsburgh's Discipline-Based Science Education Research Center (dB-SERC) on: *"ICAP titled: ICAP: A Theoretical Framework for Active Learning to Promote Deeper Understanding."* March.

2018

Presented, "Learning the underlying structures of two kinds of causal processes," in the symposium, *Learning-to-Learn from Novice to Expertise: New Challenges and Approaches for One of the Oldest Topics of Cognitive Science*, at the 40th Annual Meeting of the Cognitive Science Society, Madison, WI, July 2018.

Workshop speaker, "Principles and methods of coding qualitative data," at the 2nd Interdisciplinary REASON Spring School hosted by the Munich Center of the Learning Sciences, Munich, Germany, March 2018.

Publication-based-Talk: Chi, M. T. H. (2018). How students engage to learn, 40th Annual Meeting of the Cognitive Science Society, Madison, WI, July 2018.

SERVICES (EXTERNAL)

Advisor or Consultant on Executive Committees, Boards, etc. (listing since 2007 only)

Participated in a meeting on 21st Century Skills, Sponsored by the Spencer and Russell Sage Foundations, New York, May, 2007.

A member of a 3-member visiting team to participate in the self-study process at Teachers College, Columbia University, for their Psychology and Education Program, December, 2007.

A member of the Executive Committee of the Pittsburgh Science of Learning Center, 2004-2009.

Consultant: "Adaptive Simple Sequencing Instruction Support Toolkit", SBIR Phase II, Intelligent Automation, Inc. July 2007.

Mentoring Spencer postdoctoral fellows at the National Academy of Education, at the Keck Center, Washington, Feb. 2011.

A member of the Standing Review Committee, National Academy of Education, 2011-2014.

Co-chaired the inaugural conference on Learning@Scale, sponsored by ACM, 2013-2014.

Served on the Higher Education Committee of the American Academy of arts and Sciences on Strengthening Undergraduate Teaching, 2018.

A Member of Advisory Boards (since 2008 only)

Advisory board for a grant by Ronald L. Miller P.I. (Professor of Chemical Engineering, Colorado School of Mines) "Developing ontological schema training methods to help students develop scientifically accurate mental models of engineering concepts." NSF Engineering Education Program. 2006-2011.

Advisory board for two grants (IES and NSF), to Wayne Ward and Ron Cole, Boulder Language Technologies, to improve science learning in third, fourth and fifth grades through spoken dialog interaction with a virtual tutor (2008-2011)

Advisory board for the Center for Advanced Technology in the Schools (CATS), Led by Jim Stigler from UCLA Psychology, Greg Chung and Eva Baker of UCLA Center for Research on Evaluation, Standards, and Student Testing (CRESST). The Center will combine research on

cognitive psychology, assessment, and games in the area of middle school learning (2008-2011).

Advisory board for an NSF grant on Cumulative Learning using Embedded Assessment Results (CLEAR), Marcia Linn and Chad Dorsey, co-P.I.s, Berkeley, CA. (2009-2012)

Advisory board for a NSF funded project Transfer of Perceptually Grounded Principles, Rob Goldstone and Sam Day, Indiana University (2009-2011).

Advisory board for a CAREER Award, The Role of Conceptual Change in Knowledge Acquisition, Andrew Shtulman, Dept. of Psychology, Occidental College, Awarded 2010-2015.

Advisory board on College Ready Work, for the Bill and Melinda Gates Foundation, (2010-2013).

Advisory board for an NSF grant, An Integrated Model of Cognitive and Affective Scaffolding for Intelligent Tutoring Systems, by Dr. James Lester (Dept. of Computer Science), North Carolina State University, Awarded 2010.

Advisory board for an NSF Career Award, In-class Peer Tutoring, by Dr. Shane Brown, Dept of Civil & Environmental Engineering, Washington State University, 2010-2015.

Advisory board for an NSF Career award, A Cognitive Science of Explanation, Tania Lombrozo, Dept. of Psychology, UC Berkeley. 2011-2016.

Advisory Board for an NSF Career Award, A Rational Analysis of How Teachers' Examples Constrain Learning and Inference. Dr. Patrick Shafto, Dept. of Psychology, University of Louisville, 2012-2017.

Advisory Board for NSF REESE project Digital Games as Analogical Sources for Science Learning, Wendy Martin, Center for Children and Technology/Education Development (2014-2016).

Re-imagining Video-based Online Learning, Dr. Joanne Lobato, Dept. of Mathematics and Statistics, San Diego State University, 2014-2016.

Advisory board for NSF funded project: Learning by Teaching a Synthetic Peer: Investigating the effect of tutor scaffolding for tutor learning. Drs. Noboru Matsuda, Ken Koedinger, William Cohen, Human-computer Interaction Institute, Carnegie-Mellon University, 2013-2016.

Advisory Board for MIT's Online Education Policy Initiative, the initiative is supported by the Carnegie Foundation and the National Science Foundation, Nov. 2014-2016.

Advisory meeting at the meeting on the Science of Learning & Development (SoLD) hosted by the Chan Zuckerberg Initiatvive, June, 2017.

Served on the advisory board for an IES funded project called CourseMirror (PI: Muhsin Menekse), 2018

National Committees

1979-1981	Elected Secretary of Division C, American Educational Research Association
1980-1984	Cognition, Emotion and Personality Research Review Panel, National Institute of Mental Health
1985-1986	Cognition and Survey Research Committee, Social Sciences Research Council

1989-1990	Publications Committee, Governing Council of the Society for Research in Child Development
1989-1991	Committee on Techniques for Enhancing Human Performance, National Research Council, National Academy of Sciences
1992-1993	GRE External Advisory Committee on Reasoning in Context, Educational Testing Service
1993-1999	Board of Governors, Cognitive Science Society
2001	Review Panel for ROLE (Research On Learning and Education) Proposals
2001	Guest speaker on the GRE Board, Educational Testing Service
2005-2006	Dissertation Selection Committee, the Spencer Foundation
2005-2007	IES Math and Science Review Panel
2007-2009	Fellows Selection Committee, Cognitive Science Society
2007-2008	Reviewer for Fellow Selection, Center for Advanced Study in the Behavioral Sciences
2010-2012	Member of the review panel for Spencer's Small Grant program.
2012	Member of the Selection Committee for this Inaugural Year for the AERA Div. C Early Career Award
2011-2013	Member of the Standing Review Committee of the National Academy of Education
2013-2015	Fellows Selection Committee, Cognitive Science Society
2014-2017	Chair of the Research Advisory Committee, AERA
2015-2018	Selection committee, Sylvia Scribner Award

Editorial Boards

1985-1990	Cognitive Development
1987-1992	Human Development
1990-1998	Journal of the Learning Sciences
1993-1995	Cognition and Instruction
1993-1995	Co-Editor of Lawrence Erlbaum Series: Human and Machine Expertise
1993-1996	Behavioral Research in Accounting
1993-1995	Cognitive Science (Senior Editor)
1996-1997	Cognitive Science
2000-2003	Journal of the Learning Sciences

Teaching

2017	DC1791: Proposal Writing Seminar, MLFTC, ASU.
2018	DCI 790: Reading and Conference, DCI 792: Research, MLFTC, ASU.

SERVICES (LOCAL, only major effortful ones are listed below)

Committees (2001-present)

2000-2001	Ad Hoc Tenure Review Committees (at the University Level) 2000-2002 Selection Committee (to select faculty members for the University level Ad Hoc Tenure Review committees)
2004-2007	Member of the Executive Committee of the Pittsburgh Science of Learning Center
2007-2008	Chancellor's Distinguished Research Award Committee
2013-2014	Director of the Arizona State University Learning Sciences Institute

Major Conferences Organized

1982	The Nature of Expertise, Pittsburgh, PA

| 2008 | Talk, Dialogues, and Learning (also included organizing a festschrift for L. Resnick), Pittsburgh, PA |
| 2013-14 | Co-chaired the inaugural conference on Learning@Scale, Atlanta, March, 2014 |

Postdocs Mentored and their current position
Paul Feltovich (1978-80), Professor, Dept. of Medical Education, University of Illinois
Mitch Rabinowitz (1980-82), Professor, Dept. of Psychology, Fordham University
Camilla Gobbo (1983-84), Professor emeritus, Dept. of Psychology, Padova University, Italy
Matthew Lewis (1984-85), Executive Vice President, Interactive Video Technologies
Miriam Bassok (1985-87), Prof., Dept. of Psychology, Univ. of Washington
Peter Reimann (1984-88), Professor, University of Sydney, Australia
Jean Hutchinson (1986-88) Research Scientist at Portland, Oregon
Miriam Reiner (1988-89) Associate Professor at Hebrew University, Israel
Joanne Striley (1988-89) a faculty member at Michigan State
Mei-Hung Chiu (1990-91), Professor and chair, Graduate Institute of Science Education, National Taiwan Normal University
Takeshi Okada (1994-95), Associate Professor, Nagoya University, Japan
Michel Ferrari (1996-1998), Associate Professor, Ontario Institute for Studies in Education, Toronto
Cindy E. Hmelo (1996-1998), Professor & Director of Institute, School of Education, Indiana University
Judith McQuaide (1998-1999), National Education Association
Takeshi Yamauchi (1998-2000), Associate Professor, Dept. of Psychology, Texas A&M
Heisawn Jeong (1998-2000) Associate Professor, Hallym University, Korea
Randy Engle (2001-2003), Assistant Professor, Berkeley School of Education (deceased)
Marguerite Roy (2001-2003), Research Analyst, Medical Council of Canada
Agnieszka Kosminska Kristensen (2003-2005).
Scotty Craig (2005-2007). Assistant Professor, Arizona State University
Kirsten Butcher (2005-2007). Assistant Professor, University of Utah
Jing-Wen Lin (2007), National Gong-Hwa University, Taiwan
Paul E. Hand (2009-2010)
Kasia Muldner (July 1, 2010-2012), Assistant Professor, Carleton University
Glenda Stump (June 1, 2010-2012; 2014-15), MIT
Ruth Wylie (Dec. 1, 2011), Assistant Professor, Science of the Imagination Institute, Arizona State University
Seokmin Kang (July 16, 2012-2015), Hallym University, Korea
Kathleen McEldoon (2013-2015), Deputy Director of Research, Tennessee State Board of Education
Matt Lancaster (2012-2014), Assistant Professor, Department of Psychology, Lourdes University
Susan Trickett (2013-2014), Knowledge Management Specialist, Denver Public Schools
Na Li (2013-2016), Assistant Professor, University of Southern California
Nicole Zillmer (2016), Director of Research, Authentic Connections
Polly Lai (2017-2020), Lecturer, Learning and Teacher Development, Queensland Institute of Technology, Australia
Lu Ding (2017-2019)
Joshua Morris (2017 - 2019)

Graduate Students
Christopher Roth (M.S. 1983);
Gao Man (M.S., School of Education, 1986)
Rebecca Leas (Ph.D., 1992; Department of Physical Education). Professor at Clarion University of Pennsylvania.
Jeffrey Sampler (Ph.D., 1992; Katz Graduate School of Business)
James Slotta (Ph.D., 1997), Junior Chair, Associate Professor, Ontario Institute of Education.
Heisawn Jeong (Ph.D., 1998), Associate Professor, Hallym University, Korea
Christine Carlock (M.S. 1999; Ph.D. Katz Graduate School of Business), Assoc. Professor, Univ. of Connecticut
Ahmad Hashem (Ph.D., Psychology and Informatics, 2000), Global Healthcare Industry Manager, Microsoft
Nick de Leeuw (M.S. 2000), Adjunct Professor of Psychology, Vassar College

Stephanie Siler (M.S., 1998). Research Associate, Dept. of Psychology, at Carnegie-Mellon University.
Roger Taylor (M.S., 2002). Assistant Professor, CUNY.
Bob Hausmann (M.S., 2001; Ph.D. 2005, Psychology). Research Associate, Carnegie-Learning.
Rod Roscoe (M.S. 2004, Ph.D. 2007, Dept. of Psychology)
Soniya Gadgil (Masters, 2009, Dept. of Psychology, University of Pittsburgh)
Stephanie Touchman (Science Education, College of Education, ASU), 2009-11
Cheryl Berg (Science Education, College of Education, ASU) – graduated 2011
Brenda Fonseca (Psychology in Education, College of Education, ASU)
Muhsin Menekse (Science Education, College of Education, ASU), Ph.D. 2012
Floris Blankenstein—A visiting student from Maastricht University, Holland
Rachel Lam (Education), Ph.D. 2012
Dongchen Xu (Psychology), M.S. 2015
Christi Bruchok (Education), 2015-2016
Joshua Adams (Education), 2013-2018