Joel Chan

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EMPLOYMENT

2014-present
Postdoctoral Research Fellow
Human-Computer Interaction Institute
Carnegie Mellon University
Mentor: Steven Dow

EDUCATION

2009-2014
PhD Cognitive Psychology
University of Pittsburgh
Understanding the impact of sources of inspiration in creative design: The role of conceptual distance.
Committee: Drs. Christian Schunn, Timothy Nokes-Malach, Kevin Ashley, & Steven Dow

2012
M.S. Cognitive Psychology
University of Pittsburgh
Re-examining the impact of self-generated distant analogies on creative ideation: Some insights from an in vivo study in engineering design.
Committee: Drs. Christian Schunn, Kenneth Kotovsky, Jonathan Cagan, & Timothy Nokes-Malach

2005-2009
B.Sc. Psychology, *Summa Cum Laude*
University of the Ozarks
Working Memory Constraints on the Role of Imagery in Deductive Reasoning
Supervisor: Dr. Joel Hagaman

PUBLICATIONS

** student co-author*

REFEREED JOURNAL PAPERS

[7] **Chan, J.,** & Schunn, C. (2015). The importance of iteration in creative conceptual combination. *Cognition, 145,* 104-115.

[6] **Chan, J.,** Dow, S. P., & Schunn, C. (2015). Do the best design ideas (really) come from

conceptually distant sources of inspiration? *Design Studies, 36,* 31-58.

[5] **Chan, J.**, & Schunn, C. (2015). The Impact of analogies on creative concept generation: Lessons from an in vivo study in engineering design. *Cognitive Science, 39,* 126-155.

[4] Fu, K.*, **Chan, J.**, Schunn, C., Cagan, J., & Kotovsky, K (2013). Expert representation of design repository space: A comparison to and validation of algorithmic output. *Design Studies, 34,* 729-762.

[3] Fu, K.*, **Chan, J.**, Cagan, J., Kotovsky, K., Schunn, C., & Wood, K . (2013). The meaning of "near" and "far": The impact of structuring design databases and the effect of distance of analogy on design output. *Journal of Mechanical Design, 135,* 021007.

[2] **Chan, J.**, Paletz, S., & Schunn, C. (2012). Analogy as a strategy for supporting complex problem solving under uncertainty. *Memory and Cognition, 40,* 1352-1365.

[1] **Chan, J.**, Fu, K.*, Schunn, C., Cagan, J., Wood, K., & Kotovsky, K. (2011). On the benefits and pitfalls of analogies for innovative design: Ideation performance based on analogical distance, commonness, and modality of examples. *Journal of Mechanical Design, 133,* 081004.

REFEREED (ARCHIVAL) CONFERENCE PAPERS

[9] **Chan, J.,** Dang, S. C., & Dow, S. P. (2016). Comparing different sensemaking approaches for large-scale ideation. *Proceedings of 2016 ACM Conference on Human Factors in Computing Systems (CHI 2016).*

[8] **Chan, J.,** Dang, S. C., & Dow, S. P. (2016). Improving crowd innovation with expert facilitation. *Proceedings of 2016 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2016).*

[7] Siangliulue, P.*, **Chan, J.,** Gajos, K. Z., & Dow, S. P. (2015). Providing timely examples improves the quantity and quality of generated ideas. *Proceedings of 2015 ACM Conference on Creativity and Cognition.* *****Nominated for Best Contribution to Creative Communication*****

[6] **Chan, J.**, Schunn, C., & Dow, S. (2014). Overreliance on conceptually far sources decreases the creativity of ideas. *Proceedings of 36th Annual Meeting of the Cognitive Science Society, Quebec City, Canada.*

[5] Paletz, S. B. F., **Chan, J.**, & Schunn, C. (2014, July). Making conflicts work: Team success moderates the relationship between micro-conflicts and uncertainty. *Proceedings of 2014 Interdisciplinary Network for Group Research (INGRoup) Conference, Raleigh, NC.*

[4] Fu, K.*, **Chan, J.**, Schunn, C., Cagan, J., & Kotovsky, K. (2013). Testing the basis for an automated design-by-analogy tool through comparison to expert thinking. *Proceedings of ASME 25th International Conference on Design Theory and Methodology (DTM), Portland, OR.*

[3] Luo, W,* Litman, D., & **Chan, J.** (2013). Reducing annotation effort on unbalanced corpus based on cost matrix. *Proceedings of 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL HLT 2013) Student Research Workshop, Atlanta, GA.*

[2] Fu, K.*, **Chan, J.**, Cagan, J., Kotovsky, K., Schunn, C., & Wood, K . (2012). The meaning of "near" and "far": The impact of structuring design databases and the effect of distance of analogy on design output. *Proceedings of ASME 24th International Conference on Design Theory and Methodology (DTM), Chicago, IL.* *****Best Paper Award*****

[1] **Chan, J.**, Fu, K.*, Schunn, C., Cagan, J., Wood, K., & Kotovsky, K. (2011). On the effective use of design-by-analogy: The influences of analogical distance and commonness of analogous designs on ideation performance. *Proceedings of 2011 International Conference on Engineering Design, Copenhagen, Denmark.*

CONFERENCE PRESENTATIONS AND DEMOS

[P9] **Chan, J.,** Dang, S. C., & Dow, S. P. (2016). IdeaGens: Enabling expert facilitation of crowd brainstorming. *Demo and extended abstract to be presented at the ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2016).*

[P8] Siangliulue, P., **Chan, J.,** Huber, B., Dow, S. P., & Gajos, K. Z. (2016). IdeaHound: Self-sustainable idea generation in creative online communities. *Demo and extended abstract to be presented at the ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2016).*

[7] **Chan, J.,** Dang, S., Kremer, P., Guo, L., & Dow, S. (2014). IdeaGens: A social ideation system for guided crowd brainstorming. *Demo and extended abstract presented at the 2nd AAAI Conference on Human Computation and Crowdsourcing, Pittsburgh, PA.*

[6] **Chan, J.** & Nokes-Malach, T. (2014). The impact of physical spaces on divergent and convergent problem-solving performance. *Poster presented at the 36th Annual Meeting of the Cognitive Science Society, Quebec City, Canada.*

[5] **Chan, J.**, Dow, S., & Schunn, C. (2014). Conceptual distance matters when building on others' ideas in crowd-collaborative innovation platforms. *Poster and extended abstract presented at the ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2014), Baltimore, MD.* http://dx.doi.org/10.1145/2556420.2556500

[4] **Chan, J.**, & Schunn, C. (2013). Near rather than far analogical sources leads to success in a design competition. *Poster presented at the 54th Annual Meeting of the Psychonomic Society, Toronto, Canada.*

[3] **Chan, J.**, & Schunn, C. (2012). Re-examining the impact of analogies on creative ideation search patterns in engineering design. *Talk presented at the 4th Biennial Conference of the International Society for the Psychology of Science and Technology (ISPST), Pittsburgh, PA.*

[2] **Chan, J.**, Fu, K.*, Schunn, C., Wood, K., Cagan, J., & Kotovsky, K. (2010). What makes for inspirational examples in design? The effects of example modality, distance, and familiarity. *Poster presented at the Cognitive Science Society annual meeting, Portland, OR.*

[1] **Chan, J.**, & Hagaman, J. A. (2009). The role of visual imagery in deductive relational reasoning. *Poster presented at the Psychonomic Society annual meeting, Boston, MA.*

IN PROGRESS

Chan, J. & Nokes-Malach, T. (under review). Situative creativity: Larger physical spaces facilitate divergent but not convergent problem solving performance.

Paletz, S., **Chan, J.,** & Schunn, C. (under review). Uncovering uncertainty through disagreement.

Paletz, S., **Chan, J.**, & Schunn, C. (under review). The cognitive dynamics of micro-conflicts and uncertainty in successful and unsuccessful teams.

Chan, J., Siangliulue, P.*, Gajos, K. Z., & Dow, S. P. (in revision). Effects of conceptually near and far inspirational stimuli on creative ideation depend on ideators' cognitive state.

Siangliulue, P.*, **Chan, J.,** Dow, S. P. & Gajos, K. Z. (in revision). Organic Ideation: Extracting semantic relationships between ideas from natural activities during idea generation.

Goncher, A., **Chan, J.**, Schunn, C., & Lovell, M. (in revision). A robust and efficient function-focused measure of design innovation for design process-outcome studies.

Chan, J., Yu, L., Kittur, N., & Dow, S. P. (in preparation). Mining analogies with crowds and computation.

INVITED TALKS

Principles and tools for knowledge-based creativity. *School of Interactive Computing, Georgia Institute of Technology, Atlanta, GA, February 24, 2015.*

Good ideas: Where do they come from, and how can we get more of them? *Brown Bag Talk Series at Maya Design, Pittsburgh, PA, December 5, 2013.*

Methodological issues and approaches in the study of long time-scale, naturalistic design processes across large numbers of design teams. *Integrating Laboratory Paradigms and Ethnographic Field Studies for Advancing Analyses of Creative Processes, Symposium at the DESIRE '11 Conference on Creativity and Innovation in Design, Eindhoven, Netherlands, October 19-21, 2011.*

FUNDING

Understanding the Impact of Sources of Inspiration in Creative Design: The Role of Conceptual Distance. National Science Foundation 1360013 Doctoral Dissertation Research in Science of Science and Innovation Policy, 5/2014-5/2015, $15,261.

AWARDS AND FELLOWSHIPS

June '14	Tim Post Award *($1,000)*, University of Pittsburgh
August '13	Andrew Mellon Predoctoral Fellowship *($20,000)*, University of Pittsburgh
August '12	Best Paper Award, 24th International Conference on Design Theory and Methodology (DTM), Chicago, IL.
Spring '09	Hurie Award to Outstanding Member of the Senior Class, University of the Ozarks
Spring '09	Kiwanis Award to Outstanding Senior, University of the Ozarks
Summer '08	APA Summer Science Research Fellowship *($2,000)*

SELECTED PRESS COVERAGE

Nguyen-Okwu, L. (2014, Dec 1). The productivity secret you don't want to hear. *Retrieved from* *http://www.ozy.com/acumen/the-productivity-secret-you-dont-want-to-hear/37359*

Daley, E. (2014, Nov 11). Pitt study provides a roadmap for great ideas. *Retrieved from* *http://www.popcitymedia.com/innovationnews/ideas.11112014.aspx*

Wade, P. (2014, Nov 5). Need inspiration? Don't think too far outside the box, study says. *Retrieved from* *http://www.fastcompany.com/3038097/need-inspiration-dont-think-too-far-outside-the-box-study-says*

Baer, D. (2014, June 30). This cognitive tool helped Thomas Edison discover his inventions. *Retrieved from* *http://www.businessinsider.com/analogies-helped-thomas-edison-with-ideas-2014-6*

Hughes, V. (2014, June 18). Where do new ideas come from? *Retrieved from* *http://phenomena.nationalgeographic.com/2014/06/18/where-do-new-ideas-come-from/*

Hullinger, J. (2014, June 30). The science of brainstorming. *Retrieved from* *http://www.fastcompany.com/3032418/the-future-of-work/the-science-of-brainstorming*.

Paul, A. M. (2014, March 26). The secret skill behind being an innovator. *Retrieved from* *https://www.linkedin.com/pulse/20140326034851-84796303-the-secret-skill-behind-being-*

an-innovator

TEACHING

PRIMARY INSTRUCTOR

Spring '13	Cognitive Psychology Lab, University of Pittsburgh *Overall student-rated teaching effectiveness 4.55/5 (90th percentile of norm group for School of Arts & Sciences)*

UNDERGRADUATE RESEARCH PRIMARY SUPERVISOR

Fall'15	Michelle Tai *(Independent Study, CMU HCII)*
Summer '15	Blake Vilas (*REU Social Computing, CMU HCII)*
Fall '14-Spring '15	Angela Liu (*Independent Study, CMU HCII)*
Summer '14	Peter Kramer (*REU Social Computing, CMU HCII)*
Fall '13	Julie Allerton *(Honors Thesis, U Pittsburgh:* **Factors of Creative, Social, and Physical Activity and Cognitive Decline**, *now Research Assistant, Lab for Developmental and Motivational Research, U Pittsburgh)* Emily Blackdiamond (*Honors Thesis, U Pittsburgh:* **Personality Type As A Factor Of Creativity***)* Anurag Andra *(Directed Research, U Pittsburgh)*
Spring '13	Timothy Burkhart *(Directed Research, U Pittsburgh)*
Fall '12	Julie Allerton, Julie Ebling, and Lauren Stander *(Directed Research, U Pittsburgh)*
Summer '12	Samuel Rynearson and Allison Haley *(Directed Research, U Pittsburgh)*
Spring '12	Courtney Stein *(Directed Research, U Pittsburgh)*
Spring '11	Sophia Bender *(Directed Research, U Pittsburgh, now PhD student in Learning Sciences at Indiana University, with Kylie Peppler)* Rebecca Sax, Tiemoko Ballo, and Michael Ye *(First Experiences in Research, U Pittsburgh)*

TEACHING ASSISTANT

Fall '08-Spring '09	General Psychology, University of the Ozarks
Spring '07-Fall '07	Writing Composition I, University of the Ozarks

GUEST LECTURES

Fall '13	**Mental Imagery**, Cognitive Psychology, University of Pittsburgh
Summer '13	**Creative cognition**, Cognitive Psychology, University of Pittsburgh

SERVICE

Ad-hoc Reviewer for *Journal of Engineering Design, Design Studies, Journal of Mechanical Design*, *Thinking and Reasoning*, *Journal of Cognitive Psychology, Spanish Journal of Psychology*, *Group Decision and Negotiation, Journal of Computer-Mediated Communication; ACM CHI Conference on Human Factors in Computing Systems, Hawaii International Conference on System Sciences,* and *Annual Meeting of the Cognitive Science Society*

2015-present	Crowdsourcing Lunch Seminar Coordinator, Carnegie Mellon University, Human-Computer Interaction Institute
Spring '15	Posters Program Committee, ACM Conference on Creativity and Cognition
2012-2013	LRDC Graduate Student Committee (Member)
Fall '11-present	Member, Open Science Collaboration for the Reproducibility Project: Psychology
Spring '08	Division of Sciences and Mathematics Faculty Search Committee Student Member, University of the Ozarks

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery (ACM); Cognitive Science Society; International Society for the Psychology of Science and Technology

REFERENCES

Christian D. Schunn
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