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EDUCATION

- 2017 Ph.D. Chemistry
University of Massachusetts Boston, Department of Chemistry
Biological Chemistry Track
Dissertation: Characterizing chemical identity thinking
- 2011 B.S. Biochemistry
University of Delaware, Department of Chemistry & Biochemistry

PROFESSIONAL EXPERIENCE

- 2021 – present *Associate Director*
Office of Undergraduate Research & Artistry
Colorado State University
- 2020 – present *Consultant & CEO*
Empowered Consulting LLC
- 2019 – 2021 *Research Scientist*
The Institute for Learning and Teaching
Colorado State University
- 2017 – 2019 *Postdoctoral Fellow*
The Institute for Learning and Teaching
Colorado State University
- 2011 – 2012 *Implementation Specialist Intern*
Agilent Technologies

FUNDING

Understanding the Impacts of Departmental Action Teams on Sustainable Departmental Culture Change and on Undergraduate Student Experiences, Success, and Outcomes. National Science Foundation Award #2021110. Funding received: \$299,986. **Co-PI.**

CONSULTING WORK

- January 2022 **Client: Appalachian State Inclusive Excellence Team**
Role: Facilitator for professional development

Scope of work: Planned and co-facilitated a full-day workshop on how to apply the Departmental Action Team (DAT) model for supporting change in education at App State

Fall 2021

Client: American Physics Society Forum on Education (APS FEd)

Role: Facilitator

Scope of work: Planned and facilitated meetings to support FEd executive board in re-envisioning its purpose within the larger physics society.

July 2021 – present

Client: Equity Labs

Role: Facilitator

Scope of work: Facilitator for Equity Labs professional development, a program developed to support engagement in equitable and inclusive practices in the workplace.

Feb. 2021 – present

Client: APS Inclusion, Diversity, and Equity Alliance

Role: Facilitator

Scope of work: Facilitator for an Online Learning Community of teams from university physics departments promoting equitable change in their departments.

February 2021

Client: APS Inclusion, Diversity, and Equity Alliance

Role: Plenary speaker

Scope of work: “Using the Change Dashboard to plan for organizational change.” 30-minute plenary given at their spring conference.

2021 – present

Client: Chemistry and Biochemistry REU Site to Prepare Students for Graduate School and an Industrial Career – Brigham Young University

Role: Program evaluator

Scope of work: Evaluation of the recruitment and participant selection process and impact of the program

2020 – present

Client: THRIVE Project – University of Missouri

Role: Researcher

Scope of work: Collecting and analyzing data to determine impact of Faculty Learning Communities that are part of the THRIVE Project, contributing a literature review of inclusive teaching practices, mentoring graduate students in education research methods

Spring 2020

Client: Chasteen Consulting

Role: Contract consultant

Scope of work: Provided organizational change expertise for the development of a national site visit protocol.

BOOKS

Ngai, C.; Corbo, J. C.; Falkenberg, K.; Geanious, C.; Quan, G. M.; Pawlak, A.; Pilgrim, M.E.; Reinholz, D. L.; Smith, C.; Wise, S. (2020). *Facilitating Change in Higher Education: The Departmental Action Team Model*. Glitter Cannon Press.

PEER-REVIEWED PUBLICATIONS

Wise, S. B., **Ngai, C.**, Corbo, J.C., Gammon, M.A., Rivard, J.K., & Smith, C.E. (accepted). Toward Institutionalizing Successful Innovations in the Academy. *To Improve the Academy: A Journal of Educational Development*.

Reinholz, D. L., Pilgrim, M., Stone-Johnstone, A., Falkenberg, K., Geanious, C., **Ngai, C.**, Corbo, J. C., & Wise, S. (2021). Focus on outcomes: Fostering systemic departmental improvements. *To Improve the Academy: A Journal of Educational Development*, 40(2), DOI: 10.3998/tia.154

Ngai, C.; Corbo, J. C.; Quan, G. M.; Falkenberg, K.; Geanious, C.; Pawlak, P.; Pilgrim, M. E.; Reinholz, D. L.; Smith, C.; Wise, S. (2020). Developing the Departmental Action Team Theory of Change. In K. White, A. Beach, N. Finkelstein, C. Henderson, S. Simkins, L. Slakey, M. Stains, G. Weaver, & L. Whitehead's (Eds.) *Transforming Institutions: Accelerating Systemic Change in Higher Education*. Pressbooks.
<http://openbooks.library.umass.edu/ascnti2020/chapter/ngai-etal/>

Ngai, C.; Pilgrim, M. E.; Reinholz, D. L.; Corbo, J. C.; Quan, G. M. (2020). Developing the DELTA: Capturing cultural changes in undergraduate departments. *CBE-Life Sciences Education*.

Reinholz, D. L.; Pawlak, A.; **Ngai, C.**; Pilgrim, M. E. (2020). Departmental action teams: Empowering students as change agents in academic departments. *International Journal for Students As Partners*, 4(1), 128-137.

Quan, G. M.; Corbo, J. C.; Finkelstein, N. D.; Pawlak, A.; Falkenberg, K.; Geanious, C.; **Ngai, C.**; Smith, C.; Wise, S.; Pilgrim, M. E.; Reinholz, D. L. (2019). Designing for institutional transformation: Six principles for department-level interventions. *Physical Review Physics Education Research*. DOI: 10.1103/PhysRevPhysEducRes.15.010141

Reinholz, D. L., **Ngai, C.**, Quan, G., Pilgrim, M. E., Corbo, J. C., & Finkelstein, N. (2018). Fostering sustainable improvements in science education: An analysis through four frames. *Science Education*. DOI: 10.1002/sce.21526

Reinholz, D.; Pilgrim, M.E.; Falkenberg, K.; **Ngai, C.**; Quan, G.; Wise, S.; Geanious, C.; Corbo, J.; Finkelstein, N. (2018). Departmental Action Teams: A five-year update on a model for sustainable change. *Reinvention Collaboration*.

Ngai, C.; Sevian, H. (2018). Probing the relevance of chemical identity thinking in biochemical contexts. *CBE-Life Sciences Education*, 17(4), ar58, 1-12. DOI: 10.1187/cbe.17-12-0271

Sevian, H.; Hugi-Cleary, D.; **Ngai, C.**; Wanjiku, F.; Baldoria, J.M. (2018). Comparison of Learning in Two Context-based University Chemistry Classes. *International Journal of Science Education*, 40(10), 1239-1262. DOI: 10.1080/09500693.2018.1470353

Clinchot, M; **Ngai, C.**; Huie, R; Talanquer, V; Lambertz, J; Banks, G; Weinrich, M; Lewis, R; Pelletier, P; Sevian, H. (2017). Better Formative Assessment. *The Science Teacher*, 69-75.

Ngai, C.; Sevian, H. (2017). Capturing Chemical Identity Thinking. *Journal of Chemical Education*. DOI: 10.1021/acs.jchemed.6b00387

Banks, G., Clinchot, M., Cullipher, S., Huie, R., Lambertz, J., Lewis, R., **Ngai, C.**, Sevian, H., Szteinberg, G., Talanquer, V., Weinrich, M. (2015). Uncovering Chemical Thinking in Students' Decision Making: A Fuel-Choice Scenario. *Journal of Chemical Education*, 92(10), 1610-1618.

Sevian, H.; **Ngai, C.**; Szteinberg, G.; Brenes, P.; Arce, H. (2015). Concepción de la identidad química en estudiantes y profesores de química: Parte I-La identidad química como base del concepto macroscópico de sustancia. *Educación química*, 26, 13-20.

Ngai, C.; Sevian, H.; Talanquer, V. (2014). What is this substance? What makes it different? Mapping progression in students' assumptions about chemical identity. *International Journal of Science Education*, 36, 2438-2461.

Szteinberg, G.; Balicki, S.; Banks, G.; Clinchot, M.; Cullipher, S.; Huie, R.; Lambertz, J.; Lewis, R.; **Ngai, C.**; Weinrich, M; Talanquer, V.; Sevian, H. (2014). Collaborative Professional Development in Chemistry Education Research: Bridging the Gap between Research and Practice. *Journal of Chemical Education*, 91, 1401-1408.

WORK IN PROGRESS

Ngai, C.; Pilgrim, M. E.; Corbo, J. C.; Falkenberg, K.; Geanious, C.; Smith, C. E.; Stone-Johnstone, A.; Reinholz, D. L.; Wise, S. B. (submitted). Guiding principles for change in undergraduate education: An analysis of a departmental team's change effort.

NON-REFEREED WRITING

Wise, S., Corbo, J. C., Ngai, C., Quan, G. (2021, April 30). Departmental change: Sustaining impacts. ASCN blog. <https://ascnhighered.org/ASCN/posts/242618.html>

Corbo, J. C., Ngai, C., Quan, G. (2021, March 17). Departmental change: Engaging in a change initiative. ASCN blog. <https://ascnhighered.org/ASCN/posts/242205.html>

Quan, G., Corbo, J. C., Ngai, C., Wise, S. (2021, February 9). Departmental change: Starting an initiative. ASCN blog. <https://ascnhighered.org/ASCN/posts/241780.html>

Ngai, C., Corbo, J. C., Quan, G., Wise, S. (2021, January 8). Using project principles to anchor changing departments. ASCN blog. <https://ascnhighered.org/ASCN/posts/241158.html>

PROFESSIONAL WORKSHOPS AND SEMINARS

December 2021 C. Ngai, A. Stephens. "Creating Conditions for Compassionate and Resilient Community Work." Webinar hosted by INTEREACH as part of a series on facilitation.

August 2021 C. Ngai, H. Love. "The Art & Science Behind Facilitation: Series Introduction." Webinar hosted by INTEREACH as part of a series on facilitation.

June 2021 C. Ngai, S. Wise, J. Corbo. "Utilizing a Principles-Focused Approach for Change Efforts." 90-minute interactive webinar. Hosted by the American Association for the Advancement of Science (AAAS) and Improving Undergraduate STEM Education (IUSE).

March 2021 C. Ngai, J. Corbo, G. Quan, S. Wise. "Facilitating change through the Departmental Action Team (DAT) Model." 90-minute interactive webinar. Hosted by the Accelerating Systemic Change Network (ASCN).

February 2021 C. Ngai, J. Corbo. "Department-level theories of change." Workshop hosted by the APS Inclusion, Diversity, and Equity Alliance.

October 2020 C. Ngai, J. Corbo, G. Quan, S. Wise. "Facilitating change through the Departmental Action Team (DAT) Model." 60-minute interactive webinar. Hosted by the American Association of Physics Teachers and the Physics and Astronomy SEA Change project

November 2019 C. Ngai, K. Falkenberg, J. Corbo, D. Reinholz. "DATs: Facilitated teams supporting change in departmental structures and culture." Interactive workshop. Professional and Organizational Development Network in Higher Education annual conference, Pittsburgh, PA

PRESENTATIONS OF SCHOLARLY WORK

- June 2019 C. Ngai, et al. "Characterizing (to promote and sustain) change: The departmental action team (DAT) theory of change." Poster presentation. Gordon Research Conference on Chemistry, Education, Research and Practice, Lewiston, ME.
- April 2019 C. Ngai, D. Reinholz. "Characterizing departmental culture and assessing change with the DELTA survey." Oral presentation. Transforming Institutions, Pittsburgh, PA.
- September 2016 C. Ngai, H. Sevian. "Examining the link between chemical identity thinking and biochemical contexts." Oral presentation. ECRICE, Barcelona, Spain.
- September 2016 C. Ngai, H. Sevian. "How students classify and differentiate substances: characterizing chemical identity thinking." Oral keynote presentation. EuCheMS, Seville, Spain.
- August 2016 C. Ngai, H. Sevian. "Exploring the relevance of chemical identity in biochemical contexts." Oral presentation. ACS Fall National Meeting, Philadelphia, PA.
- June 2015 C. Ngai, H. Sevian. "Understanding how students identify and distinguish substances: Development of the Chemical Substance Identification (CSI) Survey." Poster presentation. Gordon Research Conference on Chemistry, Education, Research and Practice, Lewiston, ME.
- August 2014 C. Ngai, H. Sevian. "Chemical Identity: What is this substance?" Poster presentation. Gordon Research Conference on Green Chemistry, Hong Kong, China.
- July 2014 C. Ngai, H. Sevian and V. Talanquer. "This Substance vs. That Substance: Exploring Chemical Identity," Oral presentation. International Conference on Chemistry Education, Toronto, ON, Canada.

INVITED TALKS

- 2019 C. Ngai. "Changing for good: The Departmental Action Team (DAT) model." Departmental seminar, University of Northern Colorado. March 30, 2019.
- 2017 C. Ngai. "An Investigation of Chemical Identity Thinking." Departmental seminar, University of Colorado Boulder, Colorado. November, 2017.

AWARDS AND SCHOLARSHIPS

- August 2019 Commitment to Campus Professional Development Award – Colorado State University
Awarded funds to travel to the Professional and Organizational Development (POD) 2019 conference to conduct a workshop on facilitation and disseminate research findings from the DAT project
- September 2016 Young Chemists Crossing Borders (YCCB) Program Participant – ACS
Awarded funds to travel to a top European chemistry conference (EuCheMS) as part of the YCCB program for the Northeastern Section of the American Chemical Society (ACS)
- May 2016 Sanofi Genzyme Doctoral Research Fellowship – University of Massachusetts Boston
Funds awarded by Sanofi Genzyme to selected graduate students to focus exclusively on research during the academic year
- June 2014 Green Chemistry Gordon Research Conference Travel Award – GRC
Awarded funds to travel to and present a poster at the Green Chemistry Gordon Research Conference in Hong Kong, HK
- September 2012 Distinguished Graduate Fellowship – University of Massachusetts Boston
Awarded as an entry graduate student to the Chemistry department at the University of Massachusetts Boston, provided research assistantship funds for 1st and 5th year
- May 2011 Quaesita Drake Scholarship Recipient – University of Delaware
Recognized as an academically strong female student in the department of chemistry

TEACHING EXPERIENCE

- 2021 Colorado State University
Instructor – Active Learning course
- 2020 Colorado State University
Instructor – Pedagogy for Learning Assistants
- 2018 Colorado State University
Instructor – MCAT General Chemistry review course
- 2013 – 2015 University of Massachusetts Boston

Teaching Assistant for General Chemistry labs

2014 University of Massachusetts Boston
Teaching Assistant for Problem-Based Learning activities for chemistry majors freshman seminar

2010 University of Delaware
Problem-based Learning Tutor – Intro to Biochemistry course

RESEARCH EXPERIENCE

2020 – present University of Missouri
The THRIVE Project

2017 – present Colorado State University
Departmental Action Team (DAT) Project

2012 – 2017 University of Massachusetts Boston
Chemical Thinking Learning Progression (CTLP) Project

SYNERGISTIC ACTIVITIES

2020 – present Reviewer for CBE Life Sciences
2018 – present Reviewer for Chemistry Education Research and Practice
2018 – present Board member – Younger Chemistry Education Scholars
2018 – 2021 Public Outreach Committee – International Younger Chemists Network
2014 – present Reviewer for Journal of College Science Teaching
2015 – 2018 Grant Writer – i-Trek, Cambridge, MA
2013 – 2017 ACS Science Coach – Boston, MA
2011 – 2012 Creative Mentor – Wilmington, DE

PROFESSIONAL ORGANIZATIONS

2020 – present Facilitation Guild
2020 – present American Educational Research Association
2019 – present Professional and Organizational Development (POD) Network in Higher Education
2017 – present International Younger Chemists Network (IYCN)
2012 – present American Chemical Society (ACS)
2012 – present ACS Division of Chemical Education

